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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/857,854	09/18/2015	Michael D. Schulze	8580.3005.001	2781

23399 7590 12/05/2017

REISING ETHINGTON P.C.
755 W. Big Beaver Road
Suite 1850
TROY, MI 48084

EXAMINER
LODHI, ANDALIB FT

ART UNIT	PAPER NUMBER
2162	

NOTIFICATION DATE	DELIVERY MODE
12/05/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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USPTOmail@reising.com
USPTOmail@gmx.com

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	14/857,854	SCHULZE ET AL.	
	Examiner	Art Unit	
	ANDALIB LODHI	2162	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ANDALIB LODHI*.

(2) *Scott Waldron*.

(3) *Michael D.Schulze (Inventor)*.

(4) *Shannon K. Smith (73,822)*.

Date of Interview: *28 November 2017*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☒101 ☐112 ☐102 ☐103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *23,34 and 42*.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

See Continuation Sheet.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☒ Attachment

/Scott A. Waldron/ Primary Examiner, Art Unit 2155	/ANDALIB LODHI/ Examiner, Art Unit 2162

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments:

The examiner thanks attorney Shannon K. Smith, attorney of record, and inventor Michael D. Schulze for taking the time to discuss the overview of the invention and discussing the agenda. The focus of the discussion was towards the proposed amendments regarding the 101 rejection of independent claims 23 and 34. Attorney Shannon K. Smith and inventor Schulze, Michael D. discuss the novelty of the invention that consists of improving the electronically-stored financial documents storage system by providing an interface inter-linked with the off-site storage system for efficient access.

Attorney Smith may amend the claims to clarify that the interface inter-linked with the off-site storage system remotely-located from an on-site storage system according to Applicant's specification Para [0008] and [0036] as discussed by the examiners.

The proposed directions for claim amendments were discussed. The applicant may amend the claims to better reflect the invention.However, Examiner will give further search and consideration after receiving the response and contact the applicant if necessary. No agreement was reached.

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	14/857,854	SCHULZE ET AL.	
	Examiner	Art Unit	
	ANDALIB LODHI	2162	

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/Scott A. Waldron/ Primary Examiner, Art Unit 2155	/ANDALIB LODHI/ Examiner, Art Unit 2162

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APPLICANT PROPOSED INTERVIEW AGENDA

App. Serial No.: 14/857,854

Inventor: Schulze, Michael D.

Title: REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Filed: September 18, 2015

Group Art Unit: 2162

Confirmation No.: 2781

Examiner: Lodhi, Andalib FT

Attorney Docket No.: 8580.3005.001

Interview: Tuesday, November 28, 2017
3:00 PM ET via telephone

ISSUES TO BE DISCUSSED

Issues (Rej., Obj., etc.)	**Claims/Fig. #s**	**Prior Art**	**Brief Description of Arguments to be Presented**
§ 101	23 and 34	n/a	Applicant seeking clarification as to change of Office position after the interview conducted on August 8, 2017 and discussion of strategy for responding to the outstanding Office Action

PTO/SB/30EFS (07-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14/857,854	Filing Date	2015-09-18	Docket Number (if applicable)	8580.3005.001	Art Unit	2162
First Named Inventor	Michael D. Schulze			Examiner Name	Andalib FT Lodhi		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, to any international application that does not comply with the requirements of 35 U.S.C. 371, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV.

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 500852

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Shannon K. Smith/	Date (YYYY-MM-DD)	2017-12-04
Name	Shannon K. Smith	Registration Number	73822

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14857854
Filing Date	2015-09-18
First Named Inventor	Michael D. Schulze
Art Unit	2162
Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

	1	Firstar Bank Letter from Thomas Laabs, Senior Vice President.
	2	Firstar Articles from 1999.
	3	Declaration of Michael Schulze dated 8/28/2003.

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shannon K. Smith/	Date (YYYY-MM-DD)	2017-12-04
Name/Print	Shannon K. Smith	Registration Number	73822

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronic Patent Application Fee Transmittal

Application Number:	14857854
Filing Date:	18-Sep-2015
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Filer:	Shannon Smith
Attorney Docket Number:	8580.3005.001

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 1st Request	1801	1	1200	1200
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt

EFS ID:	31122033
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	23399
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	8580.3005.001
Receipt Date:	04-DEC-2017
Filing Date:	18-SEP-2015
Time Stamp:	17:16:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1200
RAM confirmation Number	120517INTEFSW00004296500852
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AmendmentB.pdf	138942 eb5da084fdbfe35103142d5923be064f47cbe030	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	7	11
	Claims	2	6
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1

Warnings:

Information:

2	Request for Continued Examination (RCE)	RCE.pdf	1349875 ceaa7a987868276b2e656f15e1a4efffe46cd82a	no	3

Warnings:

Information:

3	Information Disclosure Statement (IDS) Form (SB08)	IDS_12-4-2017.PDF	1034993 f1f1ae3489f9f5315d6bfc3c72ae17ec4e549aca	no	4

Warnings:

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4	Non Patent Literature	FirstarArticles.pdf	1086812 7d1917c65264ebb88246c4c27907177aec623c2b	no	5

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Information:					
5	Non Patent Literature	FirstarBankLtr.pdf	45023 dd53b5880fca3875873c256c3438fb3e13a8bd6e	no	1
Warnings:					
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Information:					
6	Non Patent Literature	SchulzeDeclaration.pdf	438883 4cef0e8ad25b4969c03df092e361fe40729b23ed	no	6
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	30261 c548c37088421413b63c28f98a1d4a051d159c00	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	4124789	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS

This amendment is being filed in response to the final Office Action dated November 30, 2017. In that Office Action, claims 23-29 and 31-42 were rejected. By this paper, claims 23 and 34 are amended, and claims 33 and 42 are cancelled without prejudice or disclaimer. Accordingly, claims 23-29, 31, 32, and 34-41 are pending.

Applicant would like to thank Examiner Lodhi and Examiner Waldron for the courtesy of the telephone interview conducted on November 28, 2017. During that interview, it was agreed that the amendments submitted herein would help address the outstanding rejections.

Rejections under § 101

Claims 23-29 and 31-43 stand rejected under 35 U.S.C. § 101 as being directed to an abstract idea. In view of the amendments to claims 23 and 34, and for at least the reasons cited below, Applicant respectfully traverses this rejection and asks that it be withdrawn.

Independent claims 23 and 34 are amended to focus on a particular technical problem/solution—namely, selectively archiving and retrieving financial documents stored in separate electronic storage systems by using an interface interlinked to both storage systems. Applicant respectfully submits that the claims are not directed to an abstract idea, and even if they are directed to an abstract idea, they clearly provide significantly more, particularly when considered with respect to the state of the art at the time of filing (i.e., 1999).

In determining that the claims are directed to an abstract idea, the rejection states that "a direct interface inter-linked with the off-site storage system is a well-known technique in the art, and does not provide any improvement for technology or technical field." However, this conclusion oversimplifies the technical solution encompassed by the present claims. As described in paragraphs [0008] and [0036], the claims of the present application involve interlinking two storage systems, not merely providing an interface with the off-site storage system, as specified in the Office Action. This technical solution

empowers a financial institution to access and retrieve financial documents from both storage systems in a more efficient and cost-effective manner. Indeed, as detailed below, this innovative solution must be analyzed from the perspective of one skilled in the art at the time of filing, which, as shown below, was neither "well-known" nor "conventional" as specified in the Office Action.

As discussed during the interview, the § 101 analysis must look at the claims from the perspective of a skilled artisan at the time of filing (i.e., April 13, 1999). It was generally agreed during the interview that evidence showing that the present technical solution was not well-known or conventional, or evidence that the present technical solution imparted some sort of technological benefit, would help overcome the present § 101 rejection. Accordingly, such evidence is now included specifically on the record. In the enclosed declaration which was cited during prosecution of the 7,552,118 patent in this family, it is explained that:

> The idea of a seamless electronic handoff between the bank and a third party vendor such as Mirror Imaging is the basis for the patent. There was no one in the industry who was servicing their clients without having the clients perform more labor to outsource their retrievals. The banks were actually having to perform additional keystrokes (re-keying of the information) and using more manpower just so that they could outsource the retrievals. This was driving up their costs and making a bad business case to outsource. The then current outsourcing system was not one of efficiency and cost savings to the banks. This is the background of the concept of having the bank use interfaced and connected software to automatically perform these functions.

Additionally, included is a letter from the Senior Vice President of Firstar bank, describing that Mirror Imaging's technology helps "increase our productivity and reduce costs while striving to meet our service level commitment to our customers." As shown in the enclosed press release, Firstar was a top performing bank in 1998, and used Mirror Imaging's patented technology to help technologically improve its systems. Further, Mirror Imaging's claimed systems and methods were recognized in the industry as providing "transparent digital retrieval processing[,] reduced staffing requirements[, and] reduced cost for equipment and service contracts." Thus, Applicant has clearly shown that at the time of

filing, the technical solutions were not "well-known" or "conventional," as they clearly provided technological benefits to those in the financial industry. Moreover, the proffered evidence clearly rebuts the conclusion in the Office Action that "there is no indication that the combination of the elements improves the functioning of computer [sic] or improves any other technology." Consequently, the present claims are not directed to an abstract idea, and at the very least, amount to significantly more than any abstract idea which may be encompassed by the present claims.

Even if the Office finds that the claims of the present application are directed to an abstract idea, the claims would still fall within the realm of an inventive concept, as they add significantly more. The claimed problem and solution are analogous to DDR's claims in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014), which provided a hybrid webpage for "production information from [a] third-party merchant, but retains the host website's 'look and feel'." The claims in *DDR* recited a technical solution to challenges arising in computer networks. *Id.* at 1248. Similarly, the present claims provide a hybrid on-site and third-party, off-site storage solution within a single interface interlinked with both storage systems. This is analogous to DDR's single page interface which was deemed patent eligible. Particularly in view of the present amendments which more concretely focus on the interlinked interface technical solution, Applicant respectfully submits that the claims are patent eligible.

Furthermore, Applicant respectfully submits that the present case is more analogous to *Amdocs (Isreal) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 120 USPQ2d 1527 (Fed. Cir. 2016) than the relied upon precedents cited in the Office Action: *Content Extraction*, 776 F.3d 1343, 113 USPQ2d 1354 (Fed. Cir. 2014) and *Intellectual Ventures*, 850 F.3d 1315, 121 USPQ2d 1928 (Fed. Cir. 2017). Claim 1 of *Amdocs* is cited below:

> 1. A method for reporting on a collection of network usage information from a plurality of network devices, comprising:
>
> collecting network communications usage information in real-time from a plurality of network devices at a plurality of layers;
>
> filtering and aggregating the network communications usage information;

> completing a plurality of data records from the filtered and aggregated network communications usage information, the plurality of data records corresponding to network usage by a plurality of users;
> storing the plurality of data records in a database;
> submitting queries to the database utilizing predetermined reports for retrieving information on the collection of the network usage information from the network devices; and
> outputting a report based on the queries;
> wherein resource consumption queries are submitted to the database utilizing the reports for retrieving information on resource consumption in a network; and
> wherein a resource consumption report is outputted based on the resource consumption queries.

The claims in *Amdocs* were held valid under § 101. The Federal Circuit held that the claims were distinct from ineligible claims (such as those in *Content Extraction*) because the ineligible claims were not tied to any particularized structure and broadly preempted related technologies. The claims in *Amdocs*, however, provide "something more" by incorporating "the invention's distributed architecture—an architecture providing a technological solution to a technological problem" (i.e., "massive data flows requiring huge databases"). Similar to *Amdocs*, the present claims include "components [that] are arrayed in a distributed architecture that minimizes the impact on network and system resources." A number of the claims in *Amdocs* were limited to enhancing networking accounting data records, which is similar to the present claims, which are limited to enhancing networking financial documents. Applicant respectfully submits that the underlying facts of *Amdocs* are much more similar to the present case and analysis than the precedents relied upon in the Office Action.

Importantly, the Office should maintain consistency in its patent eligible holdings under *Alice*, which requires withdrawal of the current rejection under § 101 in view of the 9,141,612 patent in the same family as the present application. The '612 patent was granted under both *Alice* and *Content Extraction*, which are used to support the current rejection. In fact, the 2014 Guidance on Patent Subject Matter Eligibility, which provided the analysis for examining claims under *Alice*, was effective six months before interviewing, amending, and issuing the claims of the '612 patent. Applicant respectfully requests, that if the present

rejections are to be maintained, that the Office explain how the present claims differ from those of the '612 patent in terms of determining patent eligibility.

Applicant respectfully submits that the claims as a whole are not directed to an abstract idea, and even if they are, they provide "significantly more" such that they are eligible under § 101. Withdrawal of the standing rejections under § 101 is accordingly requested.

Conclusion

In view of the foregoing, Applicant respectfully submits that all pending claims are in condition for allowance, and respectfully requests that a Notice of Allowance be issued in due course. The Examiner is invited to telephone the undersigned if doing so would advance prosecution of this case.

The Commissioner is hereby authorized to charge Deposit Account No. 50-0852 for any required fees, or to credit that same deposit account with any overpayment associated with this communication.

Respectfully submitted,

REISING ETHINGTON P.C.

/Shannon K. Smith/

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(248) 689-3500

Date: December 4, 2017
RWH/SKS

IN THE CLAIMS:

1.-22. **(Cancelled)**

23. **(Currently Amended)** A system for selectively storing and retrieving electronic images of a plurality of financial documents, each electronic image being associated with a document parameter that includes a numerical sequence that is representative of a record date of the corresponding financial document, the system comprising:

a first storage system including a first fixed medium, the first storage system configured to:

store at least some of the electronic images for the plurality of financial documents wherein the document parameter for each of the at least some of the electronic images that are configured to be stored in the first storage system are greater than a predetermined parameter, wherein the predetermined parameter is a date or time period;

a second storage system including a second fixed medium, the second storage system configured to:

store at least some of the electronic images for the plurality of financial documents wherein the document parameter for each of the at least some of the electronic images configured to be stored in the second storage system are less than or equal to the predetermined parameter;

~~a~~ **an electronic** processor which has electronic access to the first and second storage systems **and is also interlinked to the first storage system and the second storage system, wherein the electronic processor is interlinked to the first storage system and the second storage system through an interlinked interface**, wherein the **electronic** processor is configured to:

receive a request for one of the stored electronic images of the plurality of financial documents;

compare the numerical sequence of the document parameter associated with the requested stored electronic image to the predetermined parameter;

automatically access the first storage system when the numerical sequence of the document parameter associated with the requested stored electronic image is greater than the predetermined parameter;

automatically access the second storage system when the numerical sequence of the document parameter associated with the requested stored electronic image is less than or equal to the predetermined parameter; and

automatically retrieve the requested stored electronic image from the first storage system or the second storage system once the first storage system or the second storage system has been accessed.

24. **(Previously Presented)** A system as set forth in claim 23 wherein the first and second fixed mediums are different from each other.

25. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the first fixed medium is further defined as storing the at least some of the electronic images of the plurality of financial documents on a physical media.

26. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the second fixed medium is further defined as electronically storing the at least some of the electronic images of the plurality of financial documents in a fixed electronic medium.

27. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the first fixed medium is further defined as electronically storing the at least some of the electronic images of the plurality of financial documents in a fixed electronic medium.

28. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the second fixed

medium is further defined as storing the at least some of the electronic images of the plurality of financial documents on a physical media.

29. **(Previously Presented)** A system as set forth in claim 23 wherein the first and second fixed mediums are the same.

30. **(Cancelled)**

31. **(Previously Presented)** A system as set forth in claim 23 further including reproducing the requested stored electronic image after the stored electronic image has been retrieved from the accessed storage system.

32. **(Previously Presented)** A system as set forth in claim 23 wherein accessing the first storage system or the second storage system is further defined as accessing only one of the first storage system or the second storage system at any one time to locate the requested stored electronic image.

33. **(Cancelled)**

34. **(Currently Amended)** A method of accessing an electronically-stored financial document from one of a first storage system and a second storage system with the first and second storage systems being different from each other, wherein the first and second storage systems each include a plurality of financial documents stored therein and wherein each of the financial documents has an electronic image and is associated with at least one specific document parameter, **wherein the first storage system is associated with a primary interface and the second storage system is associated with a secondary interface,** said method comprising the steps of:

electronically storing a plurality of images of the financial documents in a first fixed medium at the first storage system when the specific document parameter of the financial document is greater than a predetermined

parameter, wherein the predetermined parameter is a numerical record date or time period;

electronically storing a plurality of images of the financial documents in a second fixed medium at the second storage system when the specific document parameter of the financial document is less than or equal to the predetermined parameter;

utilizing at least one **electronic** processor that has access to the first and second storage systems **by interlinking the primary interface of the first storage system with the secondary interface of the second storage system**;

receiving a request for an image of one of the stored financial documents at the **electronic** processor;

comparing the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter after the request has been received, wherein the specific document parameter of the financial document is a particular numerical sequence associated with the specific document parameter, and wherein the particular numerical sequence of the financial document includes a record date of the financial document;

automatically accessing the first storage system when the specific document parameter is greater than the predetermined parameter and automatically accessing the second storage system when the specific document parameter is less than or equal to the predetermined parameter; and

automatically retrieving the image of the requested financial document from the accessed storage system as defined by the received request.

35. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second fixed mediums are different from each other.

36. **(Previously Presented)** A method as set forth in claim 34 further including the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system.

37. **(Previously Presented)** A method as set forth in claim 36 wherein the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system includes reproducing the requested financial document onto paper.

38. **(Previously Presented)** A method as set forth in claim 36 wherein the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system includes electronically reproducing the requested financial document.

39. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second storage systems are associated with the same entity.

40. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second storage systems are associated with different entities.

41. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second fixed mediums are the same.

42. **(Cancelled)**

43. **(Cancelled)**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. Serial No.:	14/857,854
Inventor:	Schulze, Michael D.
Title:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
Filed:	September 18, 2015
Group Art Unit:	2162
Confirmation No.:	2781
Examiner:	Lodhi, Andalib FT
Attorney Docket No.:	8580.3005.001

AMENDMENT AND RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

This amendment and a Request for Continued Examination (RCE) are being filed in reply to the final Office Action dated October 30, 2017. Please see the following:

Amendments to the claims begin on page 2.

Remarks follow the amendments.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/857,854	Filing Date 09/18/2015	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)		
	12/04/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0	X $80 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

		(Column 1)		(Column 2)	(Column 3)		
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
VENESSA JONES

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Nov 6 2017

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s):
Shannon Smith

S-signature:
/Shannon Smith/

Registration Number:
73822

U.S. Application Number:
14857854

Confirmation Number:
2781

E-mail Address:
smith@reising.com

Phone Number:
2486893500

Proposed Time of Interview:
11-14-2017 1:30 PM ET

Prefered Interview Type:
Telephonic

I am the applicant or applicant's representative for this application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/857,854	09/18/2015	Michael D. Schulze	8580.3005.001	2781

23399 7590 10/30/2017

REISING ETHINGTON P.C.
755 W. Big Beaver Road
Suite 1850
TROY, MI 48084

EXAMINER
LODHI, ANDALIB FT

ART UNIT	PAPER NUMBER
2162	

NOTIFICATION DATE	DELIVERY MODE
10/30/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@reising.com
USPTOmail@reising.com
USPTOmail@gmx.com

Office Action Summary	Application No. 14/857,854	Applicant(s) SCHULZE ET AL.	
	Examiner ANDALIB LODHI	Art Unit 2162	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *August 08, 2017*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *23-29 and 31-42* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *23-29 and 31-42* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *10/16/2017*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. This Office Action is in response to applicant's communication filed August 08, 2017. The Applicant's remark and amendments to the claims were considered with the results that follow.

3. Claims 23 and 34 have been currently amended. Claims 1-22, 30 and 43 have been cancelled. No claim has been newly added. As a result, claims 23-29 and 31-42 are now pending in this application.

4. Terminal disclaimer has been filed and approved on 07/28/2017.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 10/16/2017 has been considered by the examiner.

Response to Arguments

6. Applicant's arguments filed on August 08, 2017.

a) In re page 7, Applicant respectfully asserts Claims 23-29 and 31-43 are patent eligible. Applicant requests withdrawal of the outstanding rejection under § 101.

In response, The Examiner respectfully disagrees. Claim 23 is still rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claim 23 is directed to performing the concept of obtaining electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system by storing, receiving, comparing, accessing, retrieving electronic image of the financial document that have been identified in the court such as the concept of data recognition and storage in Content Extraction & Transmission v. Wells Fargo Bank, N.A., 113 USPQ2d 1354 (Fed. Cir. 2014) and the concept of remotely accessing and retrieving userspecified information in Intellectual Ventures I LLC v. Erie Indem. Co., 121 USPQ2d 1928 (Fed. Cir. 2017), and thus, the claims include an abstract idea, whereas these steps are recited at a high level of generality and are recited as performing generic computer functions routinely used in computer application, which corresponds to concepts considered to be an abstract idea.

According Applicant specification Para [0008], has stated that "the methods utilized by these financial institutions to access the financial documents stored in the off-site storage system are deficient in that the interface utilized in such methods is only inter-linked with the on-site storage system. That is, there is no interface independently inter-linked with the off-site storage system. As a result, the financial documents stored in the off-site storage system cannot be efficiently accessed". The examiner has reviewed in Para [0008], and found that a direct interface inter-linked with the off-site storage system is a well-known technique in the art, and does not provide any improvement for technology or technical field. As such, the claims are indeed directed to an abstract idea.

Storing, receiving, comparing, accessing, retrieving data electronic image of the financial document is a generic computer function. A system and method to perform obtain electronically-stored financial documents having a specific document parameter is disclosed. The specific document parameter is typically a particular numerical sequence, such as a record date of the financial document. The method of the subject invention enables the financial institution to obtain the financial documents from a first or an off-site storage system for this claimed invention does not recite an improvement to another technology or technical field, not even updating the storage system for the electronic images of the document with changes can improve any functionality of the computer itself, or meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment. Moreover, looking at the dependent claims limitations as an ordered combination adds nothing that is not already present

when looking at the additional elements individually, and merely provides a conventional computer implementation of the claimed storing electronic images based on the received request for one of the stored electronic images, then comparing the numerical sequence, accessing the plurality of storage system and automatically retrieve the requested stored electronic image from the first storage system analysis steps.

As such, for claims 23-29 and 31-42, the 101 rejection is maintained.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 23-29 and 31-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e. laws of nature, a natural phenomenon or an abstract ideas) without significantly more. Claims 23-29 and 31-42 are directed to the abstract idea of obtaining electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system, as explained in details below. Any additional elements included in the claims amount to no more than generic computer components performing well-understood, routine, and conventional computer functions, mere instructions to implement an abstract idea on a computer, and/or insignificant additional activity, and therefore are not sufficient to amount to significantly

more than the judicial exception. Therefore, the claims are further analyzed and are determined to be abstract idea.

The rationale for this finding is explained below:

In the instant case, **claim 23** recites, in part of a system comprising: store at least some of the electronic images ..; store at least some of the electronic …; receive a request for one of the …; compare the numerical sequence …; access the first storage system …; access the second storage system …; and automatically retrieve the requested stored electronic image from the first storage system or the second storage system once the first storage system or the second storage system has been accessed. These steps describes the concept of obtaining electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system by storing, receiving, comparing, accessing, retrieving electronic image of the financial document that have been identified in the court such as the concept of data recognition and storage in Content Extraction & Transmission v. Wells Fargo Bank, N.A., 113 USPQ2d 1354 (Fed. Cir. 2014) and the concept of remotely accessing and retrieving user specified information in Intellectual Ventures I LLC v. Erie Indem. Co., 121 USPQ2d 1928 (Fed. Cir. 2017), and thus, the claims include an abstract idea. The claims do not include limitations that are “significantly more” than the abstract idea because the claims do not include an improvement to another technology or technical field, an improvement to the functioning of the computer itself, or meaningful limitations

beyond generally linking the use of an abstract idea to a particular technological environment. The limitations are merely instructions to implement the abstract idea on a computer and require no more than a generic computer to perform generic computer functions that are well-understood, routine and conventional activities previously known to the industry. Next, there are no further additional limitations recited. Therefore, there is no indication that the combination of the elements improves the functioning of computer or improves any other technology. Their collective functions merely provide conventional computer implementation.

As per **claim 34** recites, in part a method performing the steps of storing a plurality of images…; storing a plurality of images of the financial documents …; utilizing at least one processor that has access to the first..; receiving a request for …; comparing the specific document parameter …; automatically accessing the first storage system …; and automatically retrieving the image of the requested financial document from the accessed storage system as defined by the received request. These steps describes the concept of obtaining electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system by storing, utilizing, receiving, comparing, accessing, retrieving electronic image of the financial document that have been identified in the court such as the concept of data recognition and storage in Content Extraction & Transmission v. Wells Fargo Bank, N.A., 113 USPQ2d 1354 (Fed. Cir. 2014) and the concept of remotely accessing and retrieving user specified information in Intellectual Ventures I LLC v. Erie Indem. Co., 121

USPQ2d 1928 (Fed. Cir. 2017), and thus, the claims include an abstract idea. The claims do not include limitations that are “significantly more” than the abstract idea because the claims do not include an improvement to another technology or technical field, an improvement to the functioning of the computer itself, or meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment. The limitations are merely instructions to implement the abstract idea on a computer and require no more than a generic computer to perform generic computer functions that are well-understood, routine and conventional activities previously known to the industry. Next, there are no further additional limitations recited. Therefore, there is no indication that the combination of the elements improves the functioning of computer or improves any other technology. Their collective functions merely provide conventional computer implementation.

Regarding claim 23, it additionally recites a processor at a high level of generality. Generic computer components recited as performing generic computer functions that are well-understood, routine and conventional activities do not impose any meaningful limit on the computer implementation of the abstract idea. Thus, taken alone, the additional elements do not amount to significantly more than the judicial exception (the abstract idea). Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. There is no indication that the combination of elements improves the functioning of a computer or improves any other technology. Their collective functions

merely provide conventional computer implementation. The basic character of a process claim drawn to an abstract idea is not changed by claiming only its performance by computers, or by claiming the process embodied in program instructions on a non-transitory memory.

Thus, taken alone, the additional elements (including dependent **claims 24-29, 31-33 and 35-42**) do not amount to significantly more than the above-identified judicial exception (the abstract idea). Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. There is no indication that the combination of the elements improves the functioning of a computer or improves any other technology. Their collective functions merely provide conventional computer implementation. Therefore, the claims does not amount to more than the abstract idea.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDALIB LODHI whose telephone number is (571)270-1759. The examiner can normally be reached on Monday-Friday, 10:30am-6:30pm, EST Alt Friday off.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pierre Vital can be reached on (571) 272-4215. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ANDALIB LODHI/
Examiner, Art Unit 2162
October 23, 2017

/Scott A. Waldron/
Primary Examiner, Art Unit 2155

Doc code: IDS
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14857854
Filing Date	2015-09-18
First Named Inventor	Michael D. Schulze
Art Unit	2162
Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

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	1	EP0273435			1988-06-20	BARRETT		
	2	EP0534398			1992-09-23	LAURIN		

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	1	D' ALLEYRAND, Handbook of Image Storage and Retrieval Systems, Multiscience Press, Inc. (1992). Pages 4-5	
	2	D'ALLEYRAND, Networks and Imaging Systems in a Windowed Environment, Artech House, Inc. (1996). Pages 21, 176, 184, 221, 235, 237, 294, 319-336, 338-339	
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	4	GREEN, Introduction to Electronic Document Management Systems, Academic Press, Inc. (1993). Pages 1-2, 17, 110-111, 115-116, 121-122, 128, 147-148, VIII.D.	
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	8	GRAY, Expert Report, CBM2017-00065. Pages 1-95	
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	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

	10	Iron Mountain Home Page, Iron Mountain, available at http://web.archive.org/web/19990221212628/http://www.ironmountain.com/90:ironmtn.htm
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Examiner Signature	/ANDALIB F LODHI/	Date Considered	10/19/2017

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	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shannon K. Smith/	Date (YYYY-MM-DD)	2016-10-16
Name/Print	Shannon K. Smith	Registration Number	73822

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14857854	SCHULZE ET AL.
	Examiner	Art Unit
	ANDALIB LODHI	2162

CPC- SEARCHED		
Symbol	Date	Examiner
(G06F17/30442 or G06F17/30504 or G06F17/30268 or G06F17/30008 or G06F17/30011 or G06Q40/00 or G06F17/30067 or G06F17/30064).cpc.	10/19/2017	AL

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US CLASSIFICATION SEARCHED			
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SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search - see attached	10/19/2017	AL
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
		access$3 near5 financial near1 (document record$2 file$1)) with (document file$1 record$2) with (image$2 snap$6) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date and threshold	US-PGPUB; USPAT	OR	ON	2017/07/12 15:53
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L3	3	"20110182482"	US-PGPUB; USPAT; DERWENT	OR	ON	2017/10/23 13:14
L4	3	"20120166452"	US-PGPUB; USPAT; DERWENT	OR	ON	2017/10/23 13:15
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S43	1	"5940844".pn.	US-PGPUB; USPAT	OR	ON	2009/02/25 16:03
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S58	0	("6029175.pn.").PN.	US-PGPUB; USPAT; DERWENT	OR	OFF	2015/05/01 12:45
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S82	3	access$3 near5 (financial near1 (document or file)) same ((electronic or digital) near1 (image or picture or snap))	US-PGPUB; USPAT	OR	ON	2017/07/11 20:12
S83	26	access$3 near5 (financial near1 (document or file)) and ((electronic or digital) near1 (image or picture or snap))	US-PGPUB; USPAT	OR	ON	2017/07/11 20:12
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10/ 23/ 2017 2:01:25 PM
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14857854	SCHULZE ET AL.
	Examiner	Art Unit
	ANDALIB LODHI	2162

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/19/2017								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14857854	SCHULZE ET AL.
	Examiner	Art Unit
	ANDALIB LODHI	2162

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/19/2017								
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	38	✓								
	39	✓								
	40	✓								
	41	✓								
	42	✓								
	43	-								

PLUS Search Results for S/N 14857854, Searched Mon Oct 23 10:54:07 EDT 2017

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

6096096 99
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7111168 83
7127464 83
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7571132 83
7958359 83
7962373 83

PTO/SB/08a (03-15)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14857854
Filing Date	2015-09-18
First Named Inventor	Michael D. Schulze
Art Unit	2162
Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6192165		2001-02-20	IRONS	
	2	6349373		2002-02-19	SITKA	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	EP0273435			1988-06-20	BARRETT		
	2	EP0534398			1992-09-23	LAURIN		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T5
	1	D' ALLEYRAND, Handbook of Image Storage and Retrieval Systems, Multiscience Press, Inc. (1992). Pages 4-5	
	2	D'ALLEYRAND, Networks and Imaging Systems in a Windowed Environment, Artech House, Inc. (1996). Pages 21, 176, 184, 221, 235, 237, 294, 319-336, 338-339	
	3	D'ALLEYRAND, Image Storage and Retrieval Systems, Intertext Publications, McGraw-Hill Book Co. (1989). Page 30	
	4	GREEN, Introduction to Electronic Document Management Systems, Academic Press, Inc. (1993). Pages 1-2, 17, 110-111, 115-116, 121-122, 128, 147-148, VIII.D.	
	5	MULLER, Computerized Document Imaging Systems, Artech House, Inc. (1993). Pages 4-5, 40, 100, 107-188, 251, xvi	
	6	ROBEK, Information and Records Management, Glencoe/McGraw-Hill (4th ed. 1995). Pages 157, 217, 300-301, 335-336, 514, 580, 582, 586	
	7	SUTTON, Document Management for the Enterprise, Wiley Computer Publishing, John Wiley & Sons, Inc. (1996). Pages 25, 43, 133, 137, 179-181, 202-203, 214-216	
	8	GRAY, Expert Report, CBM2017-00065. Pages 1-95	
	9	Business Records Storage and Management, Iron Mountain, available at http://web.archive.org/web/19990428181241/http://www.ironmountain.com:80:IRONBRSM.HTM	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

	10	Iron Mountain Home Page, Iron Mountain, available at http://web.archive.org/web/19990221212628/http://www.ironmountain.com/90:ironmtn.htm
	11	SafeKeeper, Iron Mountain, available at http://web.archive.org/web/19990428211554/http://www.ironmountain.com:90/IRONSP.HTM

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shannon K. Smith/	Date (YYYY-MM-DD)	2016-10-16
Name/Print	Shannon K. Smith	Registration Number	73822

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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(54) Microfilm image retrieval system.

(57) A microfilm image retrieval system is disclosed that can automatically organize retrieved images for multiple retrieval requests so that a complete set of retrieved images is generated for each retrieval request without requiring manual sorting. The system is capable of organizing the retrieved images for each retrieval request regardless of whether the retrieved images are being generated from a single location or multiple locations.

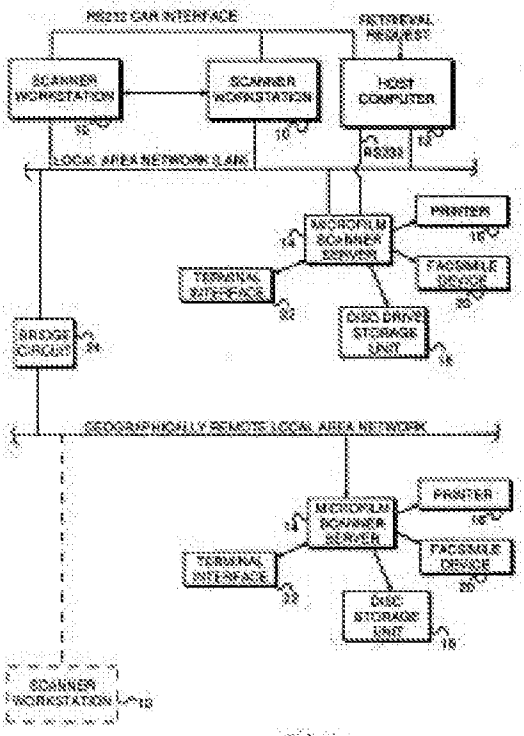

FIG. 1

EP 0 535 398 A2

Rank Xerox (UK) Business Services

Field of the Invention

The invention is related to microfilm image retrieval systems. More specifically, the invention is directed to a microfilm image retrieval system for retrieving multiple microfilm images or documents in a digitized format and organizing the retrieved images in sets associated with specific retrieval requests to improve distribution efficiency.

Background of the Invention

Many business organizations receive numerous documents that arrive into the business organization in chronological order. It is not generally practical to maintain sorted sets of the original documents received by the business organization given that a need may never arise to retrieve and review the documents. Thus, original documents are usually archived using an alternate media that is less bulky and less expensive to store than the original documents. The original documents are generally archived in their order of arrival and a simple index to the location of the document on the alternative media is maintained in order to permit retrieval of the archived document.

Microfilm has historically proven to be a reliable and inexpensive alternative media for archival document storage. The archive index maintained in the case of microfilm is the roll number and the location on the roll for each original document with a cross reference that identifies the document. In order to retrieve an archived document, the index is used to locate the location on the roll of microfilm on which the desired document has been stored and the image of the desired document is copied or retrieved using either conventional photographic processes or electronic imaging systems.

Hundreds of requests to retrieve images from the archive microfilm may occur each day in typical business applications, and each request usually requires several images to be retrieved which results in the retrieval of several thousand images from the archive microfilm on a daily basis. The requests are usually batched and sorted using the simple index the original documents were given when they arrived and were archived to make efficient use of the microfilm retrieval equipment and personal. All images required from a given roll of microfilm are generally scanned working from one of the roll toward the opposite end of the roll. The scanning or retrieval is usually done without regard to any specific request in order to minimize the need for duplicate rolls of microfilm, eliminate the time it would take to move back and forth from one end of a roll of microfilm to the other end to select documents in a particular order, and to prevent the necessity of reloading the same roll of microfilm a number of times. The resulting output, usually in the form of printed documents, must be hand sorted to collate the retrieved documents that correspond to a specific request.

In very high volume applications where the request may take several days to complete, partially sorted sets of images must be maintained manually until all the requested documents are found. In addition, several microfilm retrieval units may be retrieving some of the documents for a given request at the same time at different locations. In each case, additional sorting and handling problems are introduced that may result in the introduction of errors in the retrieval process. Thus, it would be desirable to provide a retrieval system that could automatically organize the retrieved images for multiple retrieval requests so that a complete set of retrieved images is generated for each retrieval request without requiring manually sorting or organization, regardless of whether the retrieved images are being generated from a single location or multiple locations.

Summary of Invention

The invention provides a microfilm image retrieval system that can automatically organize retrieved images for multiple retrieval requests so that a complete set of retrieved images is generated for each retrieval request without requiring manual sorting. The system is capable of organizing the retrieved images for each retrieval request regardless of whether the retrieved images are being generated from a single location or multiple locations.

More specifically, the system includes at least one document scanner workstation coupled to at least one scanner server; at least one output device coupled to the scanner server; and a control unit for controlling the operation of the document scanner workstation, the scanner server and the output device, wherein documents associated with multiple retrieval requests that are retrieved by the document scanner workstation are grouped into sets that correspond to specific ones of the multiple retrieval requests before the documents are supplied to the output device.

Brief Description of the Drawings

With the above as background, reference should now be made to the following detailed description of the preferred embodiment of the invention and the accompanying drawings, wherein:

Fig. 1 is a block diagram of a microfilm retrieval system in accordance with the present invention.

Fig. 2 illustrates a physical layout of a pseudo relation database utilized by the microfilm scanner server illustrated in Fig. 1;

Fig. 3 is a logical flow of the scheduler used at the microfilm scanner server illustrated in Fig. 1 to schedule the microfilm scanner server system tasks; and

Fig. 4 illustrates the location of documents on separate rolls of microfilm.

Detailed Description of Preferred Embodiments

The invention provides a microfilm image retrieval system that combines one or more intelligent microfilm scanner workstations with networking capability and one or more network microfilm scanner servers to form a database management system capable of dynamic multiple concurrent access and updates by the microfilm scanner workstations. In operation, the microfilm image retrieval system allows images coming from multiple microfilm scanner workstations in random order, and without regard to time of arrival for any specific request, to be identified and grouped by the microfilm scanner server for output to one or more destinations as a single sorted set of documents in response to a specific retrieval request.

More specifically, a document set, referred to as a folder, to which each retrieved document belongs is identified when the retrieved document arrives at the network microfilm scanner server, i.e., each folder is used to collect the documents associated with a specific retrieval request. The retrieved documents are made up of one or more single page images, and individual pages can be composed of multiple images and/or computer generated data fragments referred to as "windows". The network microfilm scanner server places the retrieved documents in the appropriate folders which are retained in a database. A disposition can be placed on the folder, any document within the folder, or any image of the document, from any of several sources anytime after the folder is started. Thus, retrieved documents destined to be printed, transmitted via facsimile, routed to other electronic systems, stored on another media, or combinations thereof, can be sent from one or more intelligent microfilm scanners concurrently in a fashion that makes most efficient use of the microfilm retrieval equipment and available personal.

Referring now to Fig. 1, a microfilm image retrieval system in accordance with the present invention is shown including at least one intelligent digital microfilm scanner workstation 10 --for example an IMAGELINK (tm) Digital Workstation manufactured by the Eastman Kodak Company of Rochester, New York which includes an embedded PA-AT platform with a 20 megabyte hard drive, serial and parallel interface ports, keyboard, 3.5 inch floppy disc drive, image processing cards, a printer interface card, and a network interface card-- with networking capability, a host computer 12, at least one microfilm scanner server 14 --for example an IMAGELINK (tm) Network Node manufactured by the Eastman Kodak Company of Rochester, New York which includes a PA-AT platform, a SCSI Disk Controller, a 500 or 125 megabyte SCSI Disk, a serial port, a video display, a 3.5 inch floppy disk drive, a network interface card, and a printer interface card--, and one or more output devices, such as a printer 16, a disc drive storage unit 18 or a facsimile device 20, attached to the microfilm scanner server 14. A user terminal interface 22 is also coupled to the microfilm scanner server 14.

In the illustrated embodiment, the system is arranged so that the scanner workstations 10, the host computer 12 and at least one microfilm scanner server 14 are coupled to a common local area network (LAN). A second geographically remote local area network is also provided to which a microfilm scanner server 14 is attached. The two local area networks are coupled together by a network bridge circuit 24. The local area networks may be either ETHERNET, TOKEN RING or any other standard local area network.

The scanner workstations 10 preferably support the microfilm industry standard Computer Aided Retrieval (CAR) interface extensions to take advantage of the scanner workstations networking capability, and are coupled to the host computer 12 via an RS232 CAR interface. All CAR commands can be operated in both single direction and bi-directional fashion over an RS232 link. These extensions include: (1) the ability to establish a logical link between the scanner workstation 10 and any device coupled to any microfilm scanner server 14 on the network; (2) obtain the status for an device available at the microfilm scanner server 14; (3) establish folder and document names for images about to be scanned; (4) to direct the image(s) to the microfilm scanner server 14; (5) identify any special image processing algorithms that may be applied to an established folder at the microfilm scanner server 14; (6) remove a folder or document already established at the microfilm scanner server 14; and (7) direct a document or folder to any appropriate output device supported at the microfilm scanner server 14. It should be noted that the image resolution of the retrieved document is established by the scanner workstation 10 at the time it was scanned and may prohibit the retrieved document from being compatible with some output devices supported at the microfilm scanner server 14.

In the system illustrated in Fig. 1, the control data flow is from the host computer 12 to the scanner workstations 10 and to the microfilm scanner servers 14. The image data flow is from the microfilm scanners 10 to the microfilm scanner servers 14. The image data can then be directed to any of the output devices attached to the microfilm scanner server 14 or back to the host computer 12 over the local area network.

In operation, retrieval requests are supplied to the host computer 12 via a terminal, personal computer input, or any other similar type of retrieval requests entry device. The specific means of generating the retrieval request is not shown as being a part of the system in Fig. 1. Conventional systems that make use of microfilm already address the issue of request generation and management and the generation of the retrieval requests will therefore be readily apparent to one of ordinary skill in the art.

At set periods of time a batch sort is done by the host computer 12 on any pending retrieval requests and a list of rolls of microfilm is generated. As in conventional microfilm retrieval systems, the specific rolls are located and taken from a microfilm library and the work is distributed to the various scanner workstations 10. It should be noted that some of the rolls may be located at a remote location and must be provided to scanner workstations 10 attached to the geographically remote local area network. The work distribution is managed by the host computer 12 and Computer Aided Retrieval (CAR) commands are sent from the host computer 12 to each of the scanner workstations 10. These commands instruct the scanner workstation operators to load a specific roll of microfilm.

When a retrieval request is made, the routing information used to return the retrieved documents is saved at the host computer 12. Traditionally, this information would have been printed by the host computer 12 and used to manually match the retrieved documents with the specific retrieval requests so the retrieved documents could be returned to the appropriate requestor. In the illustrated system, however, the host computer causes a network session to be established by the scanner workstations 10 with the microfilm scanner server 14 located at the site of the requester.

In addition a folder, if not already established for the specific retrieval request, is created by the host computer 12 which has full control over the naming of folders and can choose a name that adds meaning to the set of images placed into the folder. Each scanner workstation 10 makes a single pass on a each roll of microfilm to be scanned by the that specific scanner workstation 10 and sends the images retrieved from the microfilm to the specified microfilm scanner server 14 containing the folder in which the retrieved document should be placed. The host computer 12 can access the microfilm scanner servers 14 to determine the status of any folder, thereby allowing a check on the progress being made on any specific request at any time.

Once a request is completed, i.e. all of the required documents have been placed in the specified folder, the retrieved documents for the request can be directed by host computer 12 to be output for distribution to the requester via any of the output devices attached to the microfilm scanner server 14. Upon confirmation of delivery, the host computer 12 deletes the folder from the microfilm scanner server 14. Thus, all of the retrieved documents for any specific request are always output from the system as a complete set without requiring manual sorting of documents.

In a preferred mode of operation, the scanner workstation 10 identifies itself, the folder to receive the document(s) about to be transmitted, and if specified, the document name is also supplied, to the microfilm scanner server 14 when a session is established between the two devices. The folder name is used to link the folder to a specific retrieval request. Using the folder concept, which forms a relation between the request and the documents it will come to contain, the folder provides the ability to group documents together which would otherwise have no relationship to one another. If supplied, the scanner workstations 10 can also provide names for each of the documents sent to the folders. The document names can be used to link the simple index each document was given at the time the document was archived to form a cross reference to the retrieved item(s) from specific rolls of microfilm. The microfilm scanner server 14 assigns a document name if the scanner workstation 10 does not provide a document name. In addition, as each image is transmitted, the scanner workstation 10 supplies a time stamp, the microfilm roll number, and the image address it has on the roll of microfilm. This information can be used to collect productivity statistics and perform image validation on each image transaction.

Internal to the microfilm scanner server 14, image sessions are separated into pseudo physical and logical image sessions. Logical image sessions are used to maintain a network session level connection between the microfilm scanner server 14 and the scanner workstation 10, but release to a pool of image transaction resources the special resources needed during the actual image transfer. A logical image session between the scanner workstations 10 and the microfilm scanner server 14 is considered to exist while the image is being scanned and any special image processing algo-

rithms are being applied at the scanner workstation 10. Once the image processing is complete, the scanner workstation 10 performs image compression and network transfer as a continuous concurrent set of operations. During this time, the microfilm scanner server 14 maintains a pseudo-physical image session with the scanner workstation 10 and provides uninterrupted access to the resources needed for high speed image transfer.

Sustained rates of 400 kilobyte per second have been achieved with 10 megabit ETHERNET utilizing the above-described procedure. The 400 kilobyte limit was the result of the maximum disk transfer rate for the specific disk systems used to perform the procedure. Transfers rates of 600 kilobyte per second, however, are readily possible with existing conventional hardware.

The logical image session is maintained until it is terminated by the scanner workstation 10. All images that arrive at the microfilm scanner server from a given scanner workstation 10 while the logical image session is active are considered to be a part of a single document. The microfilm scanner server 14 can maintain many concurrent logical and physical image sessions with many scanner workstations 10, where the images can be placed in any identified folder(s). The distinction between a logical and physical image session is maintained entirely within the microfilm scanner server 14.

As mentioned above the scanner workstation 10 initiates the image session and identifies the folder in which the images are to be placed. At this point, from a network perspective, a physical session between the scanner workstation 10 and the microfilm scanner server 14 does exist, but the microfilm scanner server 14 reserves within the application software a pseudo-logical image session between the two until it receives a start image record. The microfilm scanner server 14 maintains three sets of double image buffers for image transfer. It attempts to assign one of the sets to a scanner workstation 10 only after it receives a start image record, thereby putting the application software into a pseudo-physical image session state. Once a buffer set is assigned, the microfilm scanner server 14 keeps a constant buffer available to receive image date even while writing a buffer to disk by simply doing an alternate receive across the network to one buffer while it writes the other to disk. The microfilm scanner server 14 image transfer resources are released back to the pool of image transfer resources as soon as it receives an end image record. The actual network session is not terminated, thus the microfilm scanner server 14 application software re-establishes the pseudo-logical image session state that existed prior to receiving the start image record. During this time, the scanner workstation 10 is scanning and processing the next image to become a member of the same document. The freed buffer set is assigned to any other scanner workstation 10 with a pending start image record that has not been serviced by one of the other two potentially free buffer sets. This process continues until the scanner workstation 10 notifies the microfilm scanner server 14, via an end job record, that the network session is to end.

Preferably, the applications network software is written using one of the industry standard session level network application interfaces such as NETBIOS. This allows the system to function, without alteration, with both ETHERNET and TOKEN RING network topologies, as well as most network protocol stacks found in the personal computer local area network environment in use today.

The image database at the microfilm scanner server 14 is preferably modeled after established pseudo-relational database methods. Fig. 2 illustrates a physical layout of the pseudo relational database and identifies several of the relation table files used by the microfilm scanner server 14. The FOLDER. DIR file is found in the microfilm scanner server's 14 electronic mass storage media root directory and acts as the microfilm scanner server's 14 folder directory. It is maintained in a sorted order and identifies all active folders known to the system. The FOLDER.HDR file found in each folder sub-directory contains a sorted list of all the names of all the documents found in the folder. The FOLDER.HDR file identifies the original image processing algorithms applied to all documents found in the folder and keeps a running count of all the documents received at the folder. The JOB.HDR file found with each document contains specific information regarding the roll of microfilm the document came from, the scanner workstation 10 it was scanned on, the time and date the document was generated and an index to each successful image file that was received into the document. The JOB.HDR file also contains folder validation information which insures the integrity of it's linkage to the folder in which the document is found.

Image files found within a document are identified with an appropriate extension. For example, the .TIF extension, indicates it is an image file that conforms to the defacto electronic image file standards, Tagged Image File Format (TIFF). When a single page is composed of more than one image or computer generated window, the file name prefix identifies each window. For example, if the third image in a (TIFF) document is composed of two windows, the first window will be named A3.TIF and the second B3.TIF. Windows and or pages composed of computer generated text are given a .TXT extension but otherwise conform to the nam-

ing convention defined above.

Using the techniques employed in this implementation there is no need to lock an image file. In addition, folders support multiple updates occurring concurrently. This is true for additions to, deletions from or replacement of documents within any folder. Folders and documents also support multiple concurrent output to any of the supported output image capable devices, media, and environments. These output services on a folder and/or document can occur concurrent with folder and document updates from the scanner workstations 10.

The microfilm scanner server 14 gives the scanner workstation 10 priority for all the activities the scanner workstation 10 invokes. In the case of image transfer, it only inhibits a scanner workstation 10 from transferring an image when all the image receive resources are in use at the microfilm scanner server 14 by other scanner workstations or when the hard disk capacity at the microfilm scanner server 14 has been reached.

Conflicts that arise at the microfilm scanner server 14 involving a given folder or document are always resolved in favor of the scanner workstation 10 as not to impede it's performance. For example, if an existing folder is given a DELETE disposition, and during its removal an scanner workstation 10 establishes an image session for the same folder, no documents that arrive after the DELETE process has started will be removed, but all documents that existed at the time the DELETE processed started will be removed. If a DELETE disposition is placed on a folder that is actively receiving documents, the DELETE disposition will be ignored.

The microfilm scanner server 14 also preferably maintains a computer readable ascii text file at all folder and document levels. The text file can be used for, folder and document headers, facsimile cover sheets, or as a user specified keyword search table.

The microfilm scanner server 14 also provides several services in addition to its image organization features to enhance handling of retrieved images from microfilm. Folders may be directed to any of several image capable output services. For example, facsimile, high speed - high quality paper output, gateway services to multiple network protocols and topologies, removable media, and/or image display devices.

Additionally, the scanner workstation 10 has the ability to have documents transmitted and immediately posted to any of the output services supported by the microfilm scanner server 14 without being associated with a specified folder. In this mode, the images for a document are placed into special reserved folders used internally by the microfilm scanner server 14 to service specific devices. When the last image of the document is received the entity relation for the document is placed into the identified output service queue of the service selected to receive the document. When the service is complete the document is removed from the microfilm scanner server 14.

The microfilm scanner server 14 uses three concepts for task control. The first and most straight forward is task scheduling. Fig. 3 is a logical flow of the scheduler used at the microfilm scanner server 14 to schedule the microfilm scanner server 14 system tasks. Each task is responsible for a system entity, for example the output device manager handles all image output capable devices.

The system design allows the network task to consume as much of the CPU resources as is required up to the entire capacity of the system. This is done at the expense of all other tasks to insure optimum image transfer performance. Each of the other tasks under less intense periods share the same slice of the systems resources. Within a single task, which may be responsible for several sub-processes, there is again levels of system resource management.

The microfilm scanner server 14 is responsible for managing the output devices connected thereto and must concurrently process all image output to all the output devices it manages. To accomplish this task, it uses several techniques to make the most of the CPU resources it is given. At times, for example, it suspends a particular printer sub-process while waiting for a particular printer's I/O operation to complete. Some devices are scheduled to be processed at preset time intervals, for example the rate a which the facsimile device's status is returned. Others, for example special image decompression hardware, schedule themselves to be serviced upon demand.

The user I/O task gives an equal share of the CPU resources it is given to each background computational processes it invokes, and key strokes by the user are processed on demand. The user I/O task can invoke several computational tasks to be processed concurrently. As more are invoked, they simply split the total CPU resource the user I/O task is given.

The serial I/O task is both a communications driver and a background task. The background task is scheduled at the same level as the other primary tasks of the microfilm scanner server 14 system. The background portion of the serial I/O task is always suspended while a serial communications transfer is occurring. The communications driver uses a record packet control protocol to transfer data into and out of the microfilm scanner server 14 via a serial line. No image data is transferred using this path. It is simply an alternative method of controlling the microfilm scanner server 14 from

a host computer that is limited to serial communications to perform control. The background task portion of this task is used to complete any computational request made by the host computer 12. All requests made by the host computer 12 are acknowledged with a status returned for the results of the request. External to the serial I/O task the microfilm scanner server 14 maintains a watchdog timer for all transaction records. This watchdog timer is used to prevent communication deadlocks due to communication hardware failures.

The queue management task acts as the flow control for all image output to all the image capable devices. It also manages the removal of all the image and image control data structures. Each image output device has an associated job queue. When an image set, folder or document, is requested to be sent to a particular image device the information needed to complete the request is placed into an image device queue. In the case of printers, the queue manager processes each image of the request one at a time and passes only a single image's information to the printer device sub-process. Once the printer device sub-process has indicated a print is complete the queue manager will process the next image of the set. In the case of the facsimile device, a list of the image document sets is built and passed to the facsimile sub-system. A simple round robin approach to queue handling is done to manage this task.

All the task management is done to minimize excessive disk I/O or thrashing, as the disk I/O is the physical limiting factor in this system. The system is designed to cause the disk thrashing to be minimized for network image transfer as much as is possible.

The network task is run every 100 micro seconds, and all outstanding network transactions are run to completion prior to returning to the next non-network task to be serviced. The network task itself is a multithreaded context driven process. Each network record received for a particular session results in a specific record transaction processor being invoked. Each session has a context state maintained at the microfilm scanner server 14. Record types received are either processed, valid for the context state, or rejected. A processed record may or may not cause a context state change depending on the state of the session, the record received, and the results of processing. Some transactions occur in a synchronous mode without the need for response handshakes. Others occur asynchronously and require a response. The microfilm scanner server 14 is also capable of having asynchronous transactions occur within a series of synchronous transactions for a given session and revert back to handling the completion of the synchronous transactions once the asynchronous transactions are complete. Error recovery within the network task occurs at many levels and result in many recovery paths. Some error recovery is confined to the session in which it occurs, others affect all active threads and sessions of the network task. Remote network failures at scanner workstations 10 are detected by the microfilm scanner server 14 and appropriate recovery actions are taken to insure the integrity of completed image transactions. Incomplete transactions are backed out. All network transactions are recorded to form an audit trail of network traffic. A date stamp, the transaction completion code, and the record transaction processor's identification is recorded.

The second method of task management used is the ability of a task to suspend itself. Where the reason for the suspension could be to wait for some input/output device to complete its transaction. As described above, several of the tasks use this type of control.

The third method of task management used is the ability of one task to dynamically suspend another task. This is done when one task requires intense CPU resources or to resolve transaction conflicts. The network task is the only task to use this method of operation but this service is available to all the tasks, and each can suspend all operations of any other, including the operation of the network task.

The preferred IMAGELINK (tm) Network Node is capable of supporting up to two printers (preferably laser printers having a resolution of 400 dpi) and is able to print up to 15 prints per minute on each printer concurrently. Each printer can be equipped with a multiple output bin sort capability that allows any of the folders or documents to be directed to any of the supported sort bins. Thus, scanner workstation 10 can direct documents not destined to a specified folder to a specified sort bin of one of the printers. Thus, if desired, all requests may be physically sorted without the use of folders by the output equipment located at the microfilm scanner server 14 site, or when folders are used, the contents of a specified folder can be directed to any of the sort bins. The individual documents in a folder can also be output in any order and if required to any output sort bin(s) supported by the output printer, thus adding additional level of sort ability.

The IMAGELINK (tm) Network Node is also capable of supporting up to four facsimile lines, each operating at up to 9600 baud. Facsimile jobs can preferably be submitted from the scanner workstation 10, a terminal interface 22, of via the host computer 12, and are treated as separate entities from the folders, documents, and images. Thus, transaction operations on one do not alter the

other. Folders and documents can be directed to multiple facsimile locations, and if there are sufficient lines to support it, the operations can be concurrent.

It will be understood that the microfilm scanner server 14 can be configured to support various combinations of printers, facsimile and other output devices. The microfilm scanner server 14 can also be configured to support a gateway service to redirect folders and/or documents to environments using other network topologies, protocols, and operating systems. Similarly the microfilm scanner server 14 can be configured to support directing folders and/or documents to removable media such as magnetic or optical disks. The microfilm scanner server 14 can also support an extensive set of user interface services via the terminal interface 22.

The advantages obtained by the illustrated system are graphically illustrated in Fig. 4, which depicts two rolls of microfilm. The system allows the rolls to be geographically distant from one another, processed in no particular order, and with no constraints on the time either of the two rolls are processed. For example, roll number one is loaded into a first one of the scanner workstations 10, which subsequently does a sequential search of the microfilm, stops first at image #10, scans the image, and performs any special image processing required. Next, the scanner workstation 10 opens an image session with the microfilm scanner server 14 and transmits image #10 to the microfilm scanner server 14. As the image session is opened, all information regarding the folder and document to receive the image is transmitted to the microfilm scanner server 14 from the scanner workstation 10. The scanner workstation 10 searches to the next image to be scanned, for example image #5000 in the illustrated example, and the process described above is repeated. At anytime during a search of a roll of microfilm the scanner workstation 10 can end a session with one microfilm scanner server 14 and start a session with another microfilm scanner server 14 as the application requires.

Concurrent with the operations of the first scanner workstation 10 the same microfilm scanner server 14 can be receiving images from additional scanner workstations, for example from roll #2, to the same folder/document combinations. This operation provides the simplest and most efficient use of both the microfilm retrieval equipment, and the users at both the scanner workstation 10 and the microfilm scanner server 14 locations. Rolls are loaded once, all images retrieved and the invention does the sorting and associating to bring the correct images to the image output device required to match the request.

The invention has been described with particular reference to certain preferred embodiments thereof. It will be understood, however, that variations and modification are possible within the scope of the appended claims. For example, an alternate method of implementing the invention would involve the use of distributed database practices, where the images scanned by a scanner workstation 10 remain on some local storage media at the scanner workstation 10. Such a system would require both the hardware and software resources be duplicated at each scanner workstation 10. To make this a practical alternative, software capable of running on a multitude of customer computer platforms is required to initiate request in a broadcast fashion for receipt of the contents of a folder and/or document. This multiplatform software must be able to detect a scanner workstation's absence of response and notify the requester that some of the images may not be available. In addition, the user interface at the scanner workstations 10 can be used to allow an operator to establish network sessions and define folder names to receive images sent from the scanner workstation 10 if a host computer 12 is not employed. Similarly, the distribution and removal operations can be accomplished at both the user interface of any scanner work station 10 or the terminal interface 22 attached to any microfilm scanner server 14. Finally, it will be readily apparent that the number of scanner workstations 10, microfilm scanner servers 14, and local area networks that are interconnected can be readily altered to conform to specific system requirements.

Claims

1. A document retrieval system characterized by: at least one document scanner workstation coupled to at least one scanner server; at least one output device coupled to the scanner server; and control means for controlling the operation of the document scanner workstation, the scanner server and the output device, wherein documents associated with multiple retrieval requests that are retrieved by the document scanner workstation are grouped into sets that correspond to specific ones of the multiple retrieval requests before the documents are supplied to the output device.

2. A document retrieval system as claimed in claim 1, wherein the document scanner workstation scan microfilm images corresponding to the documents to be retrieved and generates digital representations of the microfilm images.

3. A document retrieval system as claimed in claim 1, wherein the document scanner workstation is coupled to the scanner server via a

local area network.

4. A document retrieval system as claimed in claim 3, further comprising at least one geographically remote local area network coupled to the local area network, wherein at least one of a document scanner workstation and a scanner server is coupled to the geographically remote local area network.

5. A document retrieval system characterized by: a first local area network, at least one of a microfilm scanner workstation and a microfilm scanner server coupled to the first local area network; a second local area network coupled to the first local area network; at least one of a microfilm scanner workstation and a microfilm scanner server coupled to the second local area network; a host computer coupled to at least one of the first and second local area networks for receiving multiple document retrieval requests and controlling the operation of the microfilm scanner workstation and the microfilm scanner server to process the multiple document retrieval requests, wherein documents associated with multiple retrieval requests that are retrieved by the document scanner workstation are grouped into sets that correspond to specific ones of the multiple retrieval requests before the documents are supplied to an output device coupled to the microfilm scanner server.

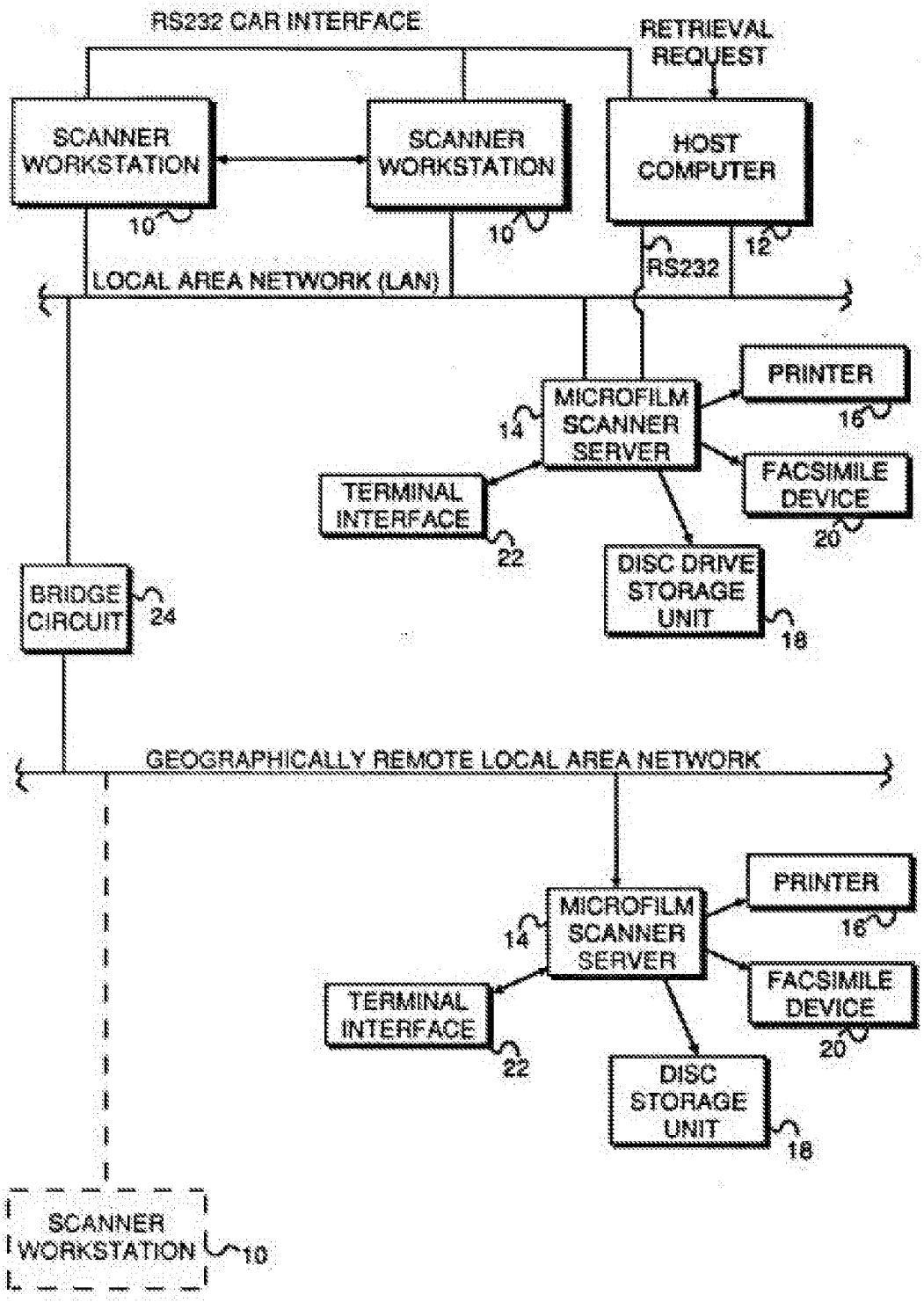
RS232 CAR INTERFACE
RETRIEVAL REQUEST
SCANNER WORKSTATION
10
SCANNER WORKSTATION
10
HOST COMPUTER
12
RS232
LOCAL AREA NETWORK (LAN)
MICROFILM SCANNER SERVER
14
PRINTER
16
FACSIMILE DEVICE
20
TERMINAL INTERFACE
22
DISC DRIVE STORAGE UNIT
18
BRIDGE CIRCUIT
24
GEOGRAPHICALLY REMOTE LOCAL AREA NETWORK
MICROFILM SCANNER SERVER
14
PRINTER
16
FACSIMILE DEVICE
20
TERMINAL INTERFACE
22
DISC STORAGE UNIT
18
SCANNER WORKSTATION
10

FIG. 1

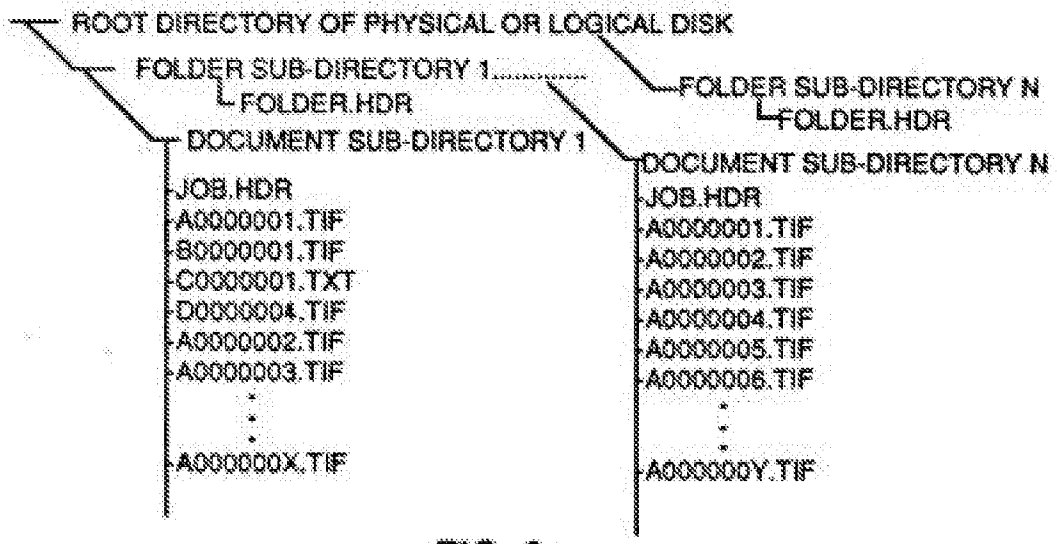
ROOT DIRECTORY OF PHYSICAL OR LOGICAL DISK
FOLDER SUB-DIRECTORY 1
FOLDER.HDR
DOCUMENT SUB-DIRECTORY 1
JOB.HDR
A0000001.TIF
B0000001.TIF
C0000001.TXT
D0000001.TIF
A0000002.TIF
A0000003.TIF
A000000X.TIF
FOLDER SUB-DIRECTORY N
FOLDER.HDR
DOCUMENT SUB-DIRECTORY N
JOB.HDR
A0000001.TIF
A0000002.TIF
A0000003.TIF
A0000004.TIF
A0000005.TIF
A0000006.TIF
A000000Y.TIF

FIG. 2

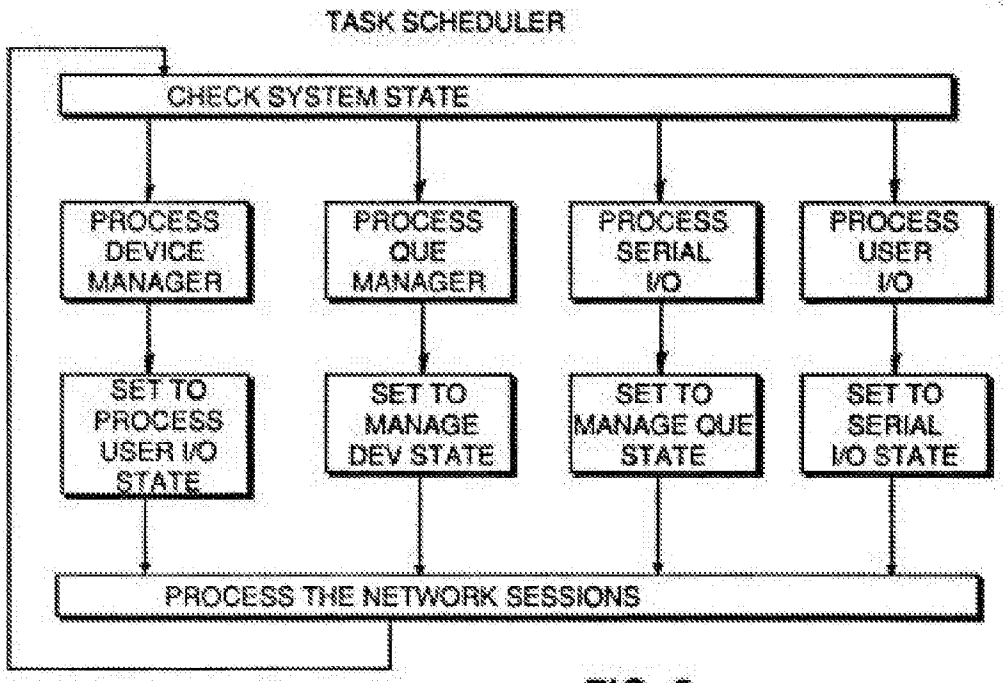
TASK SCHEDULER
CHECK SYSTEM STATE
PROCESS DEVICE MANAGER
PROCESS QUE MANAGER
PROCESS SERIAL I/O
PROCESS USER I/O
SET TO PROCESS USER I/O STATE
SET TO MANAGE DEV STATE
SET TO MANAGE QUE STATE
SET TO SERIAL I/O STATE
PROCESS THE NETWORK SESSIONS

FIG. 3

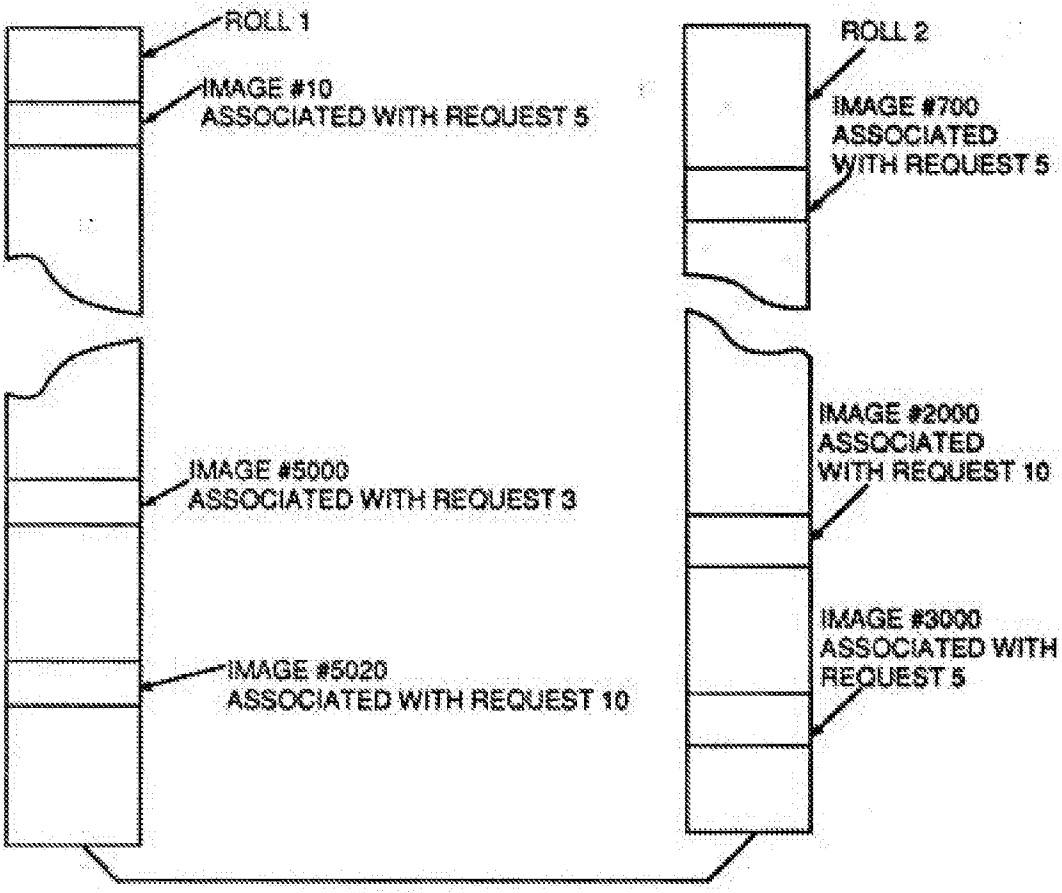
ROLL 1
IMAGE #10
ASSOCIATED WITH REQUEST 5
IMAGE #5000
ASSOCIATED WITH REQUEST 3
IMAGE #5020
ASSOCIATED WITH REQUEST 10
ROLL 2
IMAGE #700
ASSOCIATED
WITH REQUEST 5
IMAGE #2000
ASSOCIATED
WITH REQUEST 10
IMAGE #3000
ASSOCIATED WITH
REQUEST 5

FIG. 4

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(54) Office automation system with integrated image management.

(57) An office automation system that provides for the incorporation of documents of all types by integrating images into the system. A minicomputer-based system includes applications such as word processing, data base, and mail, each of which can access image documents. Bulk storage of document images is provided using a variety of storage media such as microfilm, microfiche, and optical disks. An image access subsystem provides to each of the office automation applications uniform access to images stored on all of the media. The image access subsystem can use a hardware controller to handle some of the complexity of retrieval of images from the image storage devices. A relational data base system is used to organize the stored images so as to provide flexible access to the images and to isolate any effects of reconfiguration of the image storage system.

EP 0 273 435 A2

Xerox Copy Centre

OFFICE AUTOMATION SYSTEM WITH INTEGRATED IMAGE MANAGEMENT

FIELD OF THE INVENTION

The present invention relates to office automation systems and to systems for providing electronic access to images of documents.

BACKGROUND

Office automation systems support various office tasks. Office automation systems include tools such as:

-word processing,

-data base systems that support the creation, maintenance, and access to data bases large and small,

-mail systems to facilitate communication both locally and across great distances,

-calendar management to assist individuals and groups coordinate and keep track of their schedules.

Great effort has been expended to capture the content of documents in a "machine readable" form such as a form suitable for data base access or manipulation by a word processor. Many offices have an enormous volume of existing documents in files that are not readily converted to machine readable form. Further, there are many office environments that have a continuing stream of paperwork which is not now (nor likely to be in the near future) readily subject to being captured in machine readable form.

This critical, but not readily convertible, mass of paperwork poses an often insurmountable obstacle to exploiting the use of computer and data communications technologies. The benefit of such technologies is often completely lost even though portions of an office's business are amenable to machine manipulation. This is because it can be inefficient to use a computer-based system when a paper based system must also be maintained in parallel.

The ability to manipulate document images can often substitute for the manipulation of the original paper documents. This permits the movement of documents by electronic data communications and permits the use of computer-based retrieval. In addition, with electronic document images, a plurality of people can view a single document simultaneously, and the movement of documents can be electronically automated.

However, the substitution of images for paper may not solve the problem, because the image-based world that replaces the paper-based world remains separate from the world of the existing office automation functions. It is desirable to have a single set of office automation tools that are used to handle all an office's documents. Thus, unless image manipulation is integrated into the existing office automation applications, the office worker continues to have the problem of dealing with two separate sets of document processing tools.

A further impediment to the effective use in typical office environments of document images is image storage. Image storage systems are complex and diverse in characteristics. The desirability of using existing microfilm and existing filming equipment suggests the use of automatic microfilm storage and retrieval units (known as SARs). The desirability of rapid retrieval and of digital storage suggest the use of optical disks. The need to modify images suggests the use of magnetic disks. The process of locating and retrieving an image from a SAR differs radically from the process of locating and retrieving an image from a magnetic disk.

Various products have been developed to automate the retrieval of images, for example, the Kodak Image Management System (KIMS), which is based on microfilm. These are specialized systems that do not provide other office automation functions.

Recently, numerous optical disk products for image storage have been introduced, the best example of which is a system developed by Filenet Corporation. These systems provide more office automation tools than do the specialized image management systems. However, they still do not adequately integrate the use of images with these tools. Further, these systems use a single type of bulk image storage (optical disks); many large users need the flexibility to be able to incorporate other types of bulk image storage (such as microfilm and microfiche) into a single system.

It is an object of the present invention to integrate the use of images stored on a plurality of bulk storage media into an environment of office automation tools in a manner such as to minimize data base records that need to be changed as a result of some type of system reconfiguration and to permit an image document to be extended (or otherwise modified) after it has been initially created.

SUMMARY OF THE INVENTION

The present invention uses an existing minicomputer based office automation environment as the base for an image document management system. The pre-existing office automation tools are extended to recognize objects of the new data type "image document" and to use a single set of image services to manipulate these objects.

Image documents are defined logically, rather than physically. To this end, a general purpose, full power relational data base system is used as a primary tool in the image retrieval process. Image documents can include a plurality of extents, permitting them to grow and change. Image documents can be organized according to users' needs, independent of the physical characteristics of the media upon which they are stored, even if a plurality of different media are used.

An image transfer controller is used for physical management of the image storage devices. This controller facilitates media independent image access and offloads much of the image access work from the rest of the office automation system.

Various image related devices are provided as system resources, including a character recognition device for converting all or portions of image documents to text form, and a telecopier gateway for sending and receiving images over telephone lines.

BRIEF DESCRIPTION OF THE DRAWING

The invention is pointed out with particularity in the appended claims. The above and other advantages of the invention may be better understood by referring to the following detailed description in conjunction with the drawing, in which:

Fig. 1 is a block diagram of the overall hardware structure of an office automation system employing the present invention.

Fig. 2 is a block diagram showing hardware components of an image transfer controller (ITC).

Fig. 3 is a block diagram showing relationships among software components of an office automation system, with particular emphasis on the components related to image access.

Fig. 4 is a block diagram showing relationships among components of the ITC software.

Fig. 5 shows the tables and files in the Document Locator Data Base.

Fig. 6 shows the tables and files in the Image System Data Base.

DETAILED DESCRIPTION

I. System Structure - Hardware

I.A. Overall Hardware Structure

Referring to Fig. 1, an office automation system with integrated images is built around a minicomputer 110. The system may include other minicomputers, such as minicomputer 112 connected by network 114 or minicomputer 116 connected in a computer cluster bus 118. The minicomputers of this illustrative embodiment are VS series computers manufactured by Wang Laboratories, Inc.

The minicomputer 110 connects to peripheral devices by intelligent peripheral control devices known as IOPs (for Input Output Processor).

A disk IOP 120 connects to magnetic disk storage units 122.

A serial IOP 124 provides a high speed serial data link 140 to peripheral devices. This type of data link is described in U.S. Patent 4,145,739, titled DISTRIBUTED DATA PROCESSING SYSTEM. The serial IOP 124 primarily connects to workstations 126, 128, 130, and 132, but can also connect to printers (such as laser printer 150) or other devices (such as telecopier gateway 136).

A telecommunications IOP 154 connects via a telephone line 156 to a remotely located workstation 158.

A network IOP 160 connects to a data communications network 114 such as WangNet (described in U.S. Patent 4,521,881, titled DATA COMMUNICATION WITH INCREASED EFFECTIVE BANDWIDTH.) The network 114 connects to other minicomputers such as the computer 112 and connects to workstations such as workstation 182.

A cluster controller IOP 164 connects via a high speed parallel bus 118 to up to three outer minicomputers such as the computer 116. The operation of the cluster controller is described in U.S. Patent Application serial number 847,086, filed April 1, 1986, and titled HIGH-SPEED LINK FOR CONNECTING PEER SYSTEMS.

The computer 112 and 116, and VS series computer, include IOPs by which these computers also are attached to various peripheral devices such as workstations 186 and 188.

An ITC IOP 170 connects up to three Image Transfer Controllers (ITC) such as ITCs 172 and 174 via a high speed parallel bus 176. The ITC hardware is described in greater detail in subsection I.D. below. A controller with similar SAR switching operation is described in U.S. Patent Application serial number 746,116, filed July 12, 1985, titles CASCADABLE, HIGH-BANDWIDTH, MULTI-CHANNEL IMAGE TRANSFER CONTROLLER. The ITC bus 176 is like the cluster bus 118, and the hardware of the ITC IOP 170 is essentially the same as that of the cluster IOP 164. However, the cluster IOP 164 is used to connect exclusively

to cluster IOPs in other computers, while the ITC IOP is used to connect exclusively to ITCs.

Each ITC IOP 170 is four logical devices (numbered 0-3). ITCs send data to device 0. Each of the numbers 1-3 is associated with one of the up to three ITCs connected to the IOP 170. The IOP 170 sends data to an ITC by directing it to the logical device number associated with the ITC.

The ITCs 172 and 174 connect to various devices that store very large numbers of images. These include microfiche storage and retrieval units 180, cassette microfilm storage and retrieval units 182, optical disk juketoxes 184 (each of which includes one or more optical disk drives), and stand-alone optical disk drives 186.

Depending upon the configuration of the ITC, up to about 80 SARs can be connected to an ITC, or about 40 stand alone optical disk drives, or about 6 optical disk juketoxes, or some smaller mixture of SARs, stand alone drives, and juketoxes. Performance considerations may dictate further limiting these numbers in situations with high frequency of image access.

I.B. Workstations

Some workstations are image capable (i.e., capable of using the image access display function) and some are not. The non-image-capable workstations 126 are typically Wang 2286C workstations. Alternatively, these can be Wang Professional Computers (using Intel 8086 processor) or Advanced Professional Computers (using Intel 80286 processor) equipped with a local communications option that provides the high speed serial interface necessary to connect to the serial IOP 124.

The image-capable workstations 128 are Wang Advanced Professional Computers equipped with a high resolution display controller having a memory mapped bitmap of 2048 by 2048 pixels, a 16" monitor displaying 200 dots per inch, and a compression/expansion processor. As with non-image-capable workstations, a local communications option is used to connect to the serial IOP 124. A hard disk drive is optional, if large volume local storage is desired, the workstation can include a hard disk, or it can use space on the disks 122 that are connected to the computer 110.

The compression/expansion processor is a hardware device based on an AMD AM7971 compression/expansion chip. The compression/expansion processor is used to convert images received from the computer 110 in compressed form to uncompressed form that can be displayed. This conversion can be accomplished in software (i.e., without the aid of any special compression-expansion processor hardware); however, because image data is voluminous, this processing is time consuming. The compression-expansion processor is desirable in order to achieve the performance most users are expected to require. See subsection II.C for further discussion of image data compression-expansion.

I.C. Other Peripheral Devices

Continuing to refer to Fig. 1, bulk storage of document images is accomplished using various devices: microfiche storage and retrieval units 180, microfilm storage and retrieval units 182 (such as model 1011W sold by Imnet Corporation, previously Ragen), and optical disk storage subsystems 184 and 186.

SARs (SAR = Storage And Retrieval unit) include three major subsystems: (1) apparatus for holding microfilm cassettes (or microfiche in the case of a microfiche SAR), (2) a scanner for optically scanning a frame on the microfilm to create a digital representation of the image, and (3) apparatus for retrieving a selected cassette from the holding apparatus and loading it into the scanner and advancing the film to the specified frame.

The holding apparatus of the illustrative microfilm SAR is logically arranged in a 2-dimensional matrix of levels and columns; in other words, a stored cassette can be located by specifying its level and its column. A frame on a cassette is identified by its sequence number (i.e., the number of frames that precede it on the roll of microfilm in the cassette). Thus, in response to specification of column, level, and frame numbers, a SAR produces bitmap image data of the specified image.

Note that the SAR identifies cassettes by their location in its holding apparatus, not by a unique cassette identifier. A user of the device could load any cassette into any holding location. A means external to the SAR is needed to keep track of which cassette is loaded in which location in which SAR. As described in section IV below, the Image System Data Base 380, maintained in the computer 110, is part of such a mechanism.

Optical disk storage subsystems include both optical disk juketoxes 184 (such as Series 1800 Expandable Jukebox sold by Cygnet Systems, Inc.) and stand-alone optical disk drives 186 (such as model LD 1200-102 sold by Optical Storage International). A stand alone optical disk drive uses a single optical disk, which is changed manually. Similar to a SAR, an optical disk juketox includes one or more optical disk drives, retrieval apparatus, and apparatus for holding a large number of optical disks (approximately 80).

The playback apparatus of an optical disk drive

differs significantly from the scanner of a SAR, because image data is stored digitally on an optical disk, unlike a SAR which stores the image in analog form. Image data is stored on the optical disk in compressed form. (The image data could be stored in uncompressed form, but this would make inefficient use of storage space.) Thus, the image data from an optical disk need not be processed in order to be compressed. Another ramification of this difference in storage form, is that the data can be organized as a collection of data files in much the same way files are organized on magnetic disk systems.

The optical disks are of the write-once variety. Thus, the optical disk storage subsystems can be used to write data. This differs from SARs which only store and retrieve data, and where a camera system 190 is used to place images on the microfilm. To obtain the image data from a paper document for storage on an optical disk, a document scanner 192 is used to optically scan paper documents.

The SARs and optical disk storage subsystems are connected to the ITCs 172 and 174. A relatively low cost system with only a modest amount of image storage can be configured by using only stand-alone optical disk drives and connecting them directly to a SCSI IOP of the computer 110.

The camera subsystem 190 is connected to a workstation 130 so that a user can coordinate the filming of documents with the creation of records for a Document Locator Data Base 382. (See Fig. 5 and subsection IV.B for more description of the Document Locator Data Base 382.)

The document scanner 192 is also connected to a workstation 130 (which need not be the same workstation to which the camera subsystem 190 is connected). In addition to coordinating the scanning of documents with the creation of records for a Document Locator Data Base 382, the workstation 130 receives from the scanner 192 the image data created by the scanning process, and the workstation converts this to compressed form. Alternatively, a scanner could be arranged to do the compression itself.

An optical character recognizer (OCR) 194 (such as sold by Palantir) is connected to a workstation 132. This OCR unit includes a document scanning mechanism and character recognition apparatus. The OCR 194 can be used to convert to text form all or portions of the text on a document page. The page can be scanned by the OCR's scanner. However, if the image is already available in digital form (e.g., from scanning on the document scanner 192 or from a SAR 180 or 182) this image data can be sent through the computer 110 and the workstation 132 to the OCR 194; thus, the character recognizer of the OCR can be used to convert previously stored images to text completely under computer control.

The ability to apply character recognition to stored images can be used to aid in the construction of document data bases. The full text of the documents can be recognized and can be used to build a words-in-text index that can be used to identify documents based on the words they contain. Selective character recognition or intelligent selection from full recognition can be used to extract such information as document type, author, recipients, and title. Because the character recognition is available to the computer 110 to be applied to any stored document images, the computer 110 can be programmed to perform such character recognition and data base building automatically as a background task or at night when there is little other computer use.

U.S. Patent Application serial number 880,408, filed June 30, 1986, and titled DIGITAL IMAGING FILE PROCESSING SYSTEM, describes a system using selective character recognition to build a document data base.

A telecopier gateway 196 is connected between a telephone line 198 and the serial IOP 124 of the computer 110. The telecopier gateway can dial telephone calls, receive telephone calls, and can transmit and receive document images according to standard facsimile protocols. The telecopier gateway differs from a standard facsimile machine in that it has no scanner or printer; instead it gets document images in digital form via the computer 110, and it stores and/or prints the received documents via the computer 110. The telecopier gateway 196 can also receive from the computer 110 documents in text form and convert these to image form for telecopy transmission. Thus, users of the office automation/image management system can use their workstations and the office automation tools to interact with others via facsimile.

A laser printer 150 is connected via the IOP 124 to the computer 110. This printer can print both images and text; in conjunction with the image/integrated word processing application, the laser printer can print text documents that include embedded images.

Camera subsystems, document scanners, and optical character recognizers can alternatively be arranged to be directly connected to IOPs of the computer 110. Likewise, printers and other peripherals can be arranged to directly connect to workstations.

I.D. ITC Hardware

Fig. 2 shows the hardware architecture an image transfer controller (ITC), such as ITCs 172 and 174 in Fig. 1. The ITC has a CPU section and a selection of optional sections. The optional sections are selected from (1) SAR switching section 230, (2) CEP section 250 (two CEP sections are shown in Fig. 2; they are labeled 250A and 250B), and (3) SCSI section 270 (Small Computer Standard Interface).

The CPU section 210 provides the overall control of the ITC. The primary components of the CPU section 210 are a processor 212 (Motorola 68010), main memory 214, SAR switching control 216, main bus 218, and an IOP interface 220. The CPU section 210 also includes bus arbitration logic, an RS 232C serial port for use by service personnel, an other miscellaneous circuitry.

The main memory 214 includes a ROM with power up diagnostics and firmware to perform an IPL (Initial Program Load) via the interface to the ITC IOP 170 in the computer 110. The memory 214 also includes 128 Kbytes of high speed static RAM and 2 Mbytes of slower dynamic RAM. The faster memory is for program, stack, and vector table storage; the slower memory is for storing image data.

The IOP interface 220 connects to the ITC bus 176, a high speed (about 13.5 Mbytes/second raw transfer rate) parallel bus by which ITCs connect to the ITC IOP 170. The IOP interface 220 also includes dual channel direct memory access to the main memory 214.

The SAR switch control 216 is the circuitry by which the CPU section communicates with whatever optional SAR switching sections 230 may be present in the ITC. This enables the processor 212 to control the switch connections (thereby controlling the connection of SAR serial data streams to CEP sections) and to send commands to the SARs 182. Each SAR 182 has a high speed serial data port and a low speed serial control port.

Each SAR switching section 230 includes a switching matrix by which four serial data connections to SARs 182 can be routed to any of 16 serial lines that connect to the CEP sections 250. Thus, the data from a SAR can be routed to any of 16 CEP sections 250 that may be installed in the ITC. More than one SAR switching section 230 can be installed in an ITC, thereby providing connection to more than four SARs. Each SAR switching section 230 also includes four serial ports that are used to connect to the control ports on the SARs.

The primary component of each CEP section 250 is a compression/expansion processor 252 (CEP) (AMD AM7971) for executing one of several image data compression algorithms to convert image data from uncompressed bitmap form to one of several compressed forms. The CEP 252 receives its input data from CEP memory 254 and writes its output (using direct memory access) into the main memory 214. The CEP memory 254 is large enough (1 Mbyte) to contain two images; thus, the CEP 252 can be converting one image while another is being loaded into its memory. The image data is loaded into the CEP memory 254 by serial-parallel/DMA circuitry 256, which receives serial data from one of the SARs 182 via the SAR switching section 230.

Because the time it takes a CEP 252 to compress an image (roughly 1 second) is a significant factor in retrieval time performance, an ITC will be configured to include a number of CEP sections that is matched to the volume of image traffic from SARs (as images are stored on optical disks in compressed form, image retrieval from optical disks does not involve compression processing) that the ITC is expected to handle.

Th SCSI section 270 provides a connection to the industry standard parallel bus interface known as the Small Computer Standard Interface. This interface is used to connect to optical disk drives and jukeboxes. The SCSI section 270 includes a SCSI controller 272 (NCR 5385/8). On one side, the SCSI controller 272 has direct memory access to the main memory 214, and on the other side connects to the SCSI bus 274.

II. System Structure - Software

II.A. Overall Software Structure

The overall structure of the software will be described with reference to Fig. 3, which shows relationships among software components of the illustrative office automation system. Components and relationships useful in understanding the present invention are shown; those skilled in the art will appreciate that other components and relationships also exist.

Associated with the minicomputer 110 is operating system software, which provides an environment for other software. This environment includes virtual memory, multiple concurrent tasks, system calls (by which conventional operating system services such as file management 318 can be accessed), support for shared subroutine libraries, and an IPC system (InterProcess Communication -- a message system by which separate tasks can communicate).

Data Base System

A relational data base system 310 provides numerous tools for building data base applications 312 (such as accounting systems and personnel data bases) and provides services to support the running of these as well as other independently developed applications (e.g., word processing application 314, office integration application 316). The present illustrative office automation system uses PACE (Professional Application Creation Environment, Wang Laboratories, Inc.) as the data base system 310. PACE is described in VS Introduction to the Professional Application Creation Environment (PACE), Wang Laboratories, Inc. An interface is provided by which a program written in a high level language such as COBOL or PL/I can obtain access to the operations supported by the data base system 310, including image display, image print, and image copy operations.

The data base system 310 provides for fields to be defined to be of type "image document". This is a non structured field; in other words, it does not itself contain the actual data, but rather contains a reference to the data which is physically stored outside of the data base. In many ways this field is treated similarly to a text field of 20 characters. The character string stored in this field is a logical document identifier for the image document to which the field refers. An image document may be a single image or it may be a plurality of images.

The data base system 310 uses various user data bases 384, an Image System Data Base 380 (see subsection IV.C), and a plurality of Document Locator Data Bases 382 (see subsection IV.B). As will be seen, various of the software components manipulate these data bases (by means of the data base system 310). In addition, various of the data base applications 312 provide means by which users of the system can manipulate these data bases.

The office integration application 316 ties together other office automation applications and provides support for groups of workers to coordinate their work by providing coordinated calendaring and electronic mail. An example of such an application is Wang OFFICE (Wang Laboratories, Inc.). An example of a word processing application is WP Plus (Wang Laboratories, Inc.).

Image Device Manager Task

A software component with a central role in image access is the Image Device Manager Task 320. Only four of the interactions of the Device Manager 320 with other software components are directly shown in Fig. 3. Additional interactions are described below, particularly in this subsection II.A and in section III.

The Device Manager Task 320 is started at IPL time (Initial Program Load, i.e., when the system is "booted"). Upon being started, the Device Manager Task 320 performs various initialization operations such as:

-check the integrity of certain files (e.g., data base files used by the Device Manager) and perform software recovery if needed,

-determine the physical configuration of the system (e.g., the locations of ITCs and the device numbers assigned to each of them),

-start the Image Access Write Task 322 and the Image Access Read Task 324,

-open some files (e.g., ITC File, Unit File, Media File, image system error log file) (see section IV.C for discussion of the Image System Data Base Files),

-attempt to match physical ITC status with the ITC status indicated by the ITC Locator,

-attempt to match physical unit status with the unit status indicated by the Unit Locator, and

-start the Audit Task 330, the Image Print Server Task 328, and the Image Copy Server Task 326.

After the Device Manager's initialization procedures are completed, the Device Manager 320 waits for the receipt (via IPC messages) of requests from other tasks. Requests received mainly from the Image Operator Console Task 338 include:

-attach, detach, enable, or inhibit an ITC,

-attach, detach, enable, or inhibit a unit (e.g., a SCSI section of an ITC),

-attach, detach, enable, or inhibit a sub-unit (e.g., an optical disk jukebox),

-prepare a SAR for loading or unloading of a microfilm cassette, and

-enable or disable the logging action of the Audit Task 330.

"Attach" implies more than mere physical attachment; it means that the software has been arranged to make the device accessible; a storage device may be physically connected and turned on, and still not have been available, an action taken by the system administrator. "Inhibiting" a device means limiting access to a particular user UID; for example, the image system administrator can inhibit a device in preparation for changing the arrangement of cassettes in a SAR.

The Image Device Manager 320 also manages the Image Copy Request Queue 342 (CRQ) and the Image Print Request Queue 344 (PRQ), about which it communicates with the Image Copy Request Task 336, Image Print Requester Task 340, the Image Copy Server Task 326, and the Image Print Server Task 328. The use of these queues is

described further in subsection III.A. Note that one of the ways that Fig. 3 is simplified is that it shows the logical connection of the Queues 342 and 344 to the Servers 328 and 338, and omits showing the intermediate role of the Device Manager 320.

Image Operator's Console Task

The Image Operator's Console Task 338 is started at a user's request. Its purpose is to communicate user requests to the Image Device Manager Task. The Console Task 338 provides the interface through which a user can reconfigure image system devices, such as:

-enable or inhibit all image access functions,

-attach or detach ITCs or individual devices attached to ITCs, and

-set SARs so that a user can load or unload a microfilm cassette.

The Console Task 338 also provides the interface through which a user can manage the Image Copy Request Queue 342 and the Image Print Request Queue 344.

The Console Task 338 communicates with the user via software 350 in the serial IOP 124 and software 362 in the workstation itself (e.g., 126 or 128).

Audit Task

The Audit Task 330 is a background task started by the Device Manager Task 320. The purpose of the Audit Task 330 is to maintain information relating to image accesses, in particular, access counts and last date of access for each media item (e.g., for each cassette) and a log with an entry for each image access requested.

The Media File 610 (Fig. 6) in the Image System Data Base 380 includes a record for each media item and these records include the following fields: Number of Accesses, Data Last Accessed. These fields are updated by the Audit Task 330.

Each Document Locator Data Base 382 (see subsection IV.B) includes an Audit Table 522. When an image access request (e.g., display, print, copy) is made, the Audit Task 330 (when enabled) adds a record to the Audit Table 522 of the Document Locator Data Base 382 used in making the access request.

The Audit Task 330 receives the needed information via IPC messages sent to it by the Image Display Server 334, the Image Copy Server 326, and the Image Print Server 332. The logging action of the Audit Task 330 can be turned OFF and ON via the Image Operator's Console Task (which operates via the Device Manager 320).

Image Access Server

Image Access Server consists of two tasks: the IAS Write Task 322 and the IAS Read Task 324. The IAS Write Task 322 passes image access requests from the Display, Copy, and Print Servers 334, 326, and 328, respectively, to the ITCs; the IAS Read Task 324 passes the results of the requests back from the ITCs to the Servers. To accomplish this, the IAS Write and Read Tasks interact with the ITC IOP 170, which is running ITC IOP software 358. The IOP passes the requests to the appropriate ITC, where the request is handled by the ITC software 358 (shown in greater detail in Fig. 4).

Image Display Server

The Image Display Server 334 is available in a shared subroutine library. It is called by the data base system 310 in order to perform image display operations. The Display Server 334 does the following:

-performs data base operations to determine the physical locations of the requested images,

-requests the image data by sending an IPC message to the IAS Write Task 322,

-receives the image data via a pointer in an IPC message from the IAS Read Task 324, and

-sends the image data via the serial IOP software 350 to the workstation (e.g., 128) where workstation software 362 handles conversion from compressed form and display of the image.

Image Copy and Print - Requesters, Queues, Servers

The Image Copy Requester 336 and the Image Print Requester 340 are available in a shared subroutine library. They are called by the data base system 310 in order to perform image copy or print operations, respectively. When called, the Requester passes on the copy or print request to the Device Manager 320, which places the request on the appropriate queue (either the Copy Request Queue 342 (CRQ) or the Print Request Queue 344 (PRQ)) and then the Requester returns to the calling program; unlike display operations, copy and print operations are accomplished in the background.

Image Copy Server 326 and Image Print Server 328 are background tasks. They receive input from the Image Copy Request Queue 342 and the Image Print Request Queue 344, respectively. These Servers pass image access requests to the IAS Write Task 322 and receive image data from the IAS Read Task 324 in much the same manner as does the Display Server 334.

Upon receiving image data, the Image Copy Server 326 puts the data into the format used for digital storage of image documents and interacts with the file system 318 (which accesses the disk storage units 122 via software 354 in the disk IOP 120) to have this data stored in a disk file. When storing images in digital form, as is the case for magnetic disk storage and for optical disk storage, images are stored as one "image document" per file (and thus, typically, a plurality of images per file). U.S. Patent 4,553,206 titled IMAGE STORAGE AND RETRIEVAL describes a format for storing image documents in files.

Upon receiving image data, the Image Print Server 328 puts the data into a temporary print file and places a print request on the System Print Queue 346, which is the general purpose mechanism for printing. The System Print Spooler Task 348 passes the data to be printed via software 350 in the serial IOP 124 to the laser printer 150, which has software 352 that handles the printing of image data.

II.B. ITC Software

Fig. 4 summarizes the relationships among the major components of the software 358 in the ITCs (e.g., 172, 174). The following tasks run in the ITC:

-the Host Interface Manager IN 420,
-the Request Dispatcher 422,
-the Device Queue Managers 424,
-the Image Device Drivers 426,
-the CEP Builder 428, and
-the Host Interface Manager OUT 430.

There is a Device Queue Manager 424, and Image Device Driver 426, and a Device Queue 440 for each attached SAR 182 and for each SCSI section 270. Device Queue Managers 424 and Image Device Drivers 426 are loaded as part of the process of "attaching" a device.

Image Device Drivers 426A pass the data received from SARs to CEP Buffers 442 located in CEP memory 254. The CEP 252 passes image data it has processed to buffers 444 located in the main memory 214 of the ITC's CPU section 210.

Image Device Drivers 426B pass data received from optical disk storage units directly to the buffers 444 in the main memory 214.

The CEP Builder 428 manages the use of the CEP sections 250.

II.C. Workstation Software

Some workstations are image capable, some are not (e.g., due to lack of an adequate display screen). Those that are not image capable can still be used for various image-related functions, for example for administrative functions that do not require image viewing and for initiating copy and print image access operations.

The workstation software 362 that runs in an image capable workstation supports four "channels" (i.e., provides four virtual terminals) each of which is associated with a task running in the computer 110. (Some workstations that are not image capable also provide this four channel support.) The software 362 provides image capable workstations with the ability to display an image window. Whenever present on the display, the image window is associated with one of the other windows.

The primary image operations managed by the workstation software 362 are receiving image data (in compressed form), decompressing the image data, and displaying the image data in an image window on the workstation's screen. Conversion of image data from compressed form can be accomplished in software, but to improve performance image workstations are equipped with compression/expansion processing hardware.

Control of the location, size, etc. of the image window is handled locally at the workstation by the workstation software 362. Other image operations supported include rotating, flipping, magnifying, and reducing image size. Image size can be reduced either by decimation (faster) or by averaging (better quality). International Patent Application serial number PCT/US86/01365, filed June 26, 1986, titled RESOLUTION CONVERSION OF BIT-MAP IMAGES USING ERROR TERM AVERAGING, describes a technique for converting the resolution of images using averaging.

III. Steps in Accessing an Image Document

First, the steps in one particular type of image access are discussed. Then in subsection III.B, variations are discussed.

III.A. Image Access - One Example

The following describes display from a data base application of an image document stored on microfilm in a SAR.

1. A field of type "Image document" is created in a data base and records are created with logical image document identifiers stored in that field.

2. A user performs a data base access, the result of which is a record which has a field of type "image document". The user then presses the DISPLAY IMAGE key in order to view the image(s) to which the field refers.

3. The logical document identifier is obtained from the field in the data base, and the Image Display Server 334 is called (and the 20 character string that is the logical document identifier is passed to it). There will be a separate instance of the Display Driver 334 running for each data base application 312 requesting display of an image document.

4. The Image Display Server 334 uses the logical document identifier and the various locator data bases to determine the physical address specifications of the requested image document. This is the "document mapping" process (see section IV.D for more details). In summary, the Display Server 334 applies the logical document identifier as a key to the Document Locator Data Base 382 to obtain records that identify the cassettes or disks on which the images of the image document are stored. The identifiers for the cassettes or disks are then applied to the Image System Data Base 380 to determine the physical device in which the medium is loaded, and where within the device it is located. Thus, a logical image document identifier is converted to physical address specifications for the images in the image document. This information is stored in a list of Media Parameter Blocks each of which includes the physical address (including, e.g., unit#, level#, frame#) of an extent of the image document. The Image Display Server 334 also creates an IASPB (Image Access Server Parameter Block), which includes a pointer to the list of Media Parameter Blocks.

5. If it has not already done so, the Display Server 334 establishes an IPC session with the IAS Write Task 322 and an IPC session with the IAS Read Task 324. The session is set up when the data base application 312 first makes an image services request. The session will last until the application closes its use of the shared subroutine library in which the Display Server is present (this will happen when the user exits the application if it has not happened earlier).

6. The Display Server makes a request (via IPC message) of the Image Access Server (IAS) to get one or more pages of an image extent, passing the IASPB.

7. The appropriate information in the IASPB is converted into an XIO Write command which is issued to the device # (i.e., 1-3) on the ITC IOP 170 with which the appropriate ITC is associated. The IAS Write Task may combine a plurality of requests in a single XIO Write command, because up to 16 Kbytes can be included in a single transfer across the ITC bus 176.

8. The ITC IOP 170 sends the image extent request to the ITC.

9. The request is queued on the ITC.

9.1. For each request, the Host Interface Manager IN 420 builds an Image Access Request Block (IARB).

9.2. The IARB is passed to Request Dispatcher 422, which places the IARB on the Device Queue 440 of the appropriate Device Queue Manager 424.

9.3. The Device Queue Manager 424 organizes IARBs so as to minimize mechanical access time.

9.4. Each IARB is sent by the Device Queue Manager 424 to the associated Image Device Driver 426.

10. The Image Device Driver 426 manipulates the appropriate storage device to retrieve the requested image data. For microfilm located in a SAR (in which case the image is stored in analog form), then:

10.1. The ITC sends instructions to the specified SAR to load the specified microfilm cassette into the SAR's scanner and advance the film to the specified frame.

10.2. The SAR's scanner converts the image to digital form (this is raw image data in bitmap form) and sends this as a serial stream to the ITC.

10.3. The uncompressed image data is passed to the memory 254 of a compression processor section 250 in the ITC; each compression processor section has enough memory to buffer two images and thus is double buffered, meaning it can be compressing one image while the next image is being loaded into its memory. The data transfer from the SAR to the compression processor is accomplished by means of the SAR switching section 230 and serial-to-parallel conversion/DMA circuitry 256.

10.4. The compression processor 252 converts the image data to compressed form and simultaneously places this data in the main memory 214 of the ITC's CPU section 210. This is managed by the CEP Builder 428.

10.5. The CEO Builder 428 notifies the Host Interface Manager OUT 430 whenever another 16 Kbytes of compressed image is ready to be sent to the computer 110.

10.6. The Host Interface Manager OUT 430 sends blocks of compressed image data to the ITC IOP device # 0. This image data is in a format that is independent of the storage medium from which the image was retrieved.

11. The IAS Read Task 324 issues an XIO Read command to device # 0 on the ITC whenever the IAS Read Task 324 is not doing anything else. Thus, the IAS Read Task reads messages from the ITC which contain the image data. This involves the IOP transferring the message (including the image data) into main memory of the computer 110. Each message includes an identification of the task requesting the image data.

12. The IAS Read Task 324 forms and send an IPC message to the task that requested the image data (i.e., the data base application 312 that, via its instance of the Display Server 334, requested the image data). The message indicates the location of the image data in main memory of computer 110.

13. The Display Server 334 receives the blocks of image data from the IAS Read Task 324. There will be a plurality of messages for each image because the size of a message across the ITC bus 176 is limited to 16 Kbytes.

14. The Display Server 334 requests the workstation software 382 to open an image window in the workstation.

15. The Display Server 334 writes the image data to the workstation: the Display Server directs the Workstation IOP to transfer the image data from main memory of the computer 110 to workstation memory.

16. The workstation (using its compression/expansion processor) decompresses the data into raw bitmap form as it transfers the image data to the display buffer.

17. The user can, using capabilities of the local workstation user interface, adjust the windows (e.g., move, resize) and control which window is current (i.e., on top and receiving input from the keyboard).

18. The Display Server 334 requests the workstation software 382 to close the image window. This action is taken in response to an indication by the user via the application 312 that the user is done viewing the image document. In addition to being able to explicitly close the window, the user can implicitly close the window by exiting the application that opened the window, or by viewing an image document from another application.

III.B. Image Access - Variations

The preceding subsection III.A describes the image access process for the case of display from a data base application of an image document stored on microfilm in a SAR. This subsection discusses how the process differs in other image access situations (e.g., for other types of image access operations, for other storage media). The step numbers referred to below are step numbers from the subsection III.A.

The image copy operation copies all or part of an image document to a file on a magnetic disk or on an optical disk. A copy operation can optionally update a Document Locator Data Base 382, so that the copied document can be accessed by reference to a logical document identifier.

The step 4 described above for the display operation differs somewhat for copy operations:

a. The data base applications 312 requesting an image copy operation call the Image Copy Requester 338, which then does the following:

i. The Copy Requester 338 performs one level of mapping, i.e., it converts a logical document identifier into a Logical Document Address (see section IV below).

ii. The Copy Requester 338 sends an IPC message to the Device Manager Task 320, which then places a request on the Image Copy Request Queue 342.

iii. The Copy Requester 338 sends an IPC message to the Audit Task 330, which adds a record to the Audit Table 522 in the Document Locator Data Base 382 associated with the application 312.

iv. If requested, the Copy Requester 338 creates a record for the soon-to-be created image document in the Document Locator Table 512 in the Document Locator Data Base 382. The entry is created at this time (rather than waiting until after the image document has been created) to avoid the possible creation of duplicate document identifiers.

b. When there is a request pending on the Image Copy Request Queue 342 and the Image Copy Server 326 is not busy, the Image Device Manager 320 dispatches the Copy Server 326 to perform the next queued copy operation, which is accomplished as follows:

i. The Image Copy Server 326 performs the remaining mapping steps (using the Image System Data Base 380) to determine the physical location of the requested image document (the Copy Requester 338 performed initial mapping steps prior to enqueuing the copy request).

ii. The Image Copy Server 326 then reads the image data (via the IAS Write Task 322 and the IAS Read Task 324, as is done by the Display

Server 334 for a display operation) and writes it to the specified file (via the file system 318 for magnetic disk files, and via the IAS Write Task 322 for optical disk files).

iii. If an error is detected, the Image Copy Server 328 removes the entry created in the Document Locator Data Base 382.

iv. If an error is detected, the Image Copy Server 328 notifies the Device Manager 320 of the problem.

v. If the read operation is successful, the Image Copy Server 328 sends a message to the Audit Task 330 to update the Number of Accesses and Date Last Accessed in the appropriate record in the Media File 810.

vi. Finally, the Image Copy Server 328 sends a message to the Device Manager Task 320 notifying it that the Copy Server 326 is finished.

Print operations are performed in a manner similar to copy operations (using Image Print Requester 340, Image Print Request Queue 344, and Image Print Server 328). However, after storing the resulting image data in a temporary file, the Print Server 328 places a request on the System Print Queue 346. The System Print Spooler Task 348 monitors the System Print Queue 346 and handles transferring the print data to the appropriate printing device. The System Print Queue 346 and System Print Spooler Task are used for all types of printing requests, not just requests to print images.

As discussed above, when a user makes a copy or print request, the request is queued, and then the user continues with other operations. This contrasts with display requests, which are handled directly (rather than through a queue), so that the user can see the requested image before the user continues with another operation.

Regarding steps 1 and 2, the data base system 310, the word processing application 314, and the office integration application 318 all recognize an "image document" data object type. Therefore, users of applications 314 and 318, like users of data base applications 312 may have occasion to view image documents:

a. A user of the office integration application 318 can receive a package that includes an image document. The user can then press the DISPLAY IMAGE key in order to view the image document in the package.

b. Images can be incorporated into documents produced using the word processing application 314. When using the word processing application 314, a user can view a document including a contained image by pressing the VIEW key.

Regarding step 3, documents prepared using the word processing application 314 and mail packages prepared using the office integration application 318 can include logical image document identifiers or can refer directly to files containing image documents.

Regarding step 4, the word processing application 314 and the office integration application 318 use the high level language interface to the data base system 310 in order to perform image access operations. To display an image as a part of a word processing document, the word processing application 314 calls the data base system 310 to retrieve the image data, and then the application 314 handles actual display of the image data on the user's workstation. The office integration application 318 has less demanding display requirements; thus, the application 318 calls the data base system 310, which handles both retrieval and display on the workstation of the image data in the same manner as for data base applications 312. Thus, although applications 314 and 318 could use their own display servers of different design (different from the Display Server 334), the additional design work can be avoided by operating through the data base system 310 and using the Display Server 334. Even if an application needed a different display server, that display server can still use the Image Access Services (IAS Write Task 322 and IAS Read Task 324) to communicate with the image storage devices.

If an image to be retrieved is stored on one of the bulk image storage devices (e.g., optical disk, microfilm, microfiche), then the Display Server 334, Copy Server 326, or Print Server 328 uses the Image Access Server (IAS Write Task 322 and IAS Read Task 324) to retrieve the image, as discussed above. However, if the image is stored on magnetic disk (which is less well suited to storing large numbers of images than are bulk image storage media such as microfilm and optical disk storage systems), the Display Server 334 uses the file system 318 to retrieve the image data.

Regarding step 10, if the medium is an optical disk, then the operation that the Image Device Driver 428B needs to perform is essentially a file read (with the added complexity of loading the appropriate disk if a jukebox is used); as the image is stored in compressed digital form, no image data compression operation need be performed.

III.C. Compression/Expansion of Image Data

When stored in digital form (as on magnetic or optical disks), image data is stored in compressed form. The data resulting from scanning (e.g., from paper or from microfilm) is immediately compressed. Devices that print or display images are arranged to receive image data in compressed form and these devices then expand the data in

order to create a viewable image. Thus, all image data passing through the computer 110 and over the various communication lines and buses does so in compressed form. This practice (compressing at the source and only expanding for view) contributes to the speed with which image access operations can be performed.

Various compression techniques can be used, such as those standardized by the CCITT (Group 3 and Group 4 methods for facsimile data compression) and that described in U.S. Patent 4,631,521, titled DIFFERENTIAL RUN-LENGTH CODING FOR DITHERED IMAGES. Compression factors of roughly 10:1 can be achieved.

IV. Document Mapping

The data base system 310 is used to implement a document mapping process that maps a logically defined image document to physically stored images and to the physical location in storage devices of the stored images.

The document mapping process uses one of a plurality of Document Locator Data Bases 382 and the Image System Data Base 380. A typical system will have a plurality of Document Locator Data Bases 382, but in a simple situation only a single Document Locator Data Base 382 may be needed; in either case, only a single Image System Data Base 380 is used.

Each Document Locator Data Base 382 can provide a different set of logical document identifiers, and these can map to the same or different combinations of images. A data base application 312 associates itself with one of the Document Locator Data Bases 382; when that application requests an image access function, the associated Document Locator Data Base is used in the document mapping process.

An image document consists of one or more "extents". An extent is a series of images stored contiguously on the storage medium. For a document stored on microfilm, an extent corresponds to a strip of film. A typical document will consist of a single extent. However, if a document is later changed (e.g., by the addition, deletion, or reordering of pages), it will likely be stored as a series of extents. Each of the various extents that make up an image document may be stored on a different medium; this is another illustration of how an image document is defined logically and is storage medium independent.

A Logical Extent Address identifies the particular cassette, fiche, or file on which an extent is stored, and specifies where on that medium the images of the extent are located. A Logical Document Address for an image document is a list of one or more Logical Extent Addresses (one for each of the extents that make up the image document). A Physical Device Address specifies all the information needed to actually read image data, including the device in which the medium (e.g., cassette, fiche, platter) is loaded, where in the device the medium is located, and what portion of the medium (e.g., frame numbers) includes the relevant images.

IV.A. Data Base Terminology

The present invention employs a relational data base system 310, which is an engine for manipulating data bases. The data base system 310 organizes data in a plurality of tables (as do relational data bases in general). A table is logically organized into rows and columns: each row is a record; each column is a field. Each record in a table logically includes data items for each of the fields defined for that table (although an item may be empty).

A data base includes both actual data as well as other information needed by the data base system (e.g., information defining the fields in the various tables, report formats). A data base is stored as a collection of files (i.e., via the file system 318); some of the files store the actual data and other files store the other information. A file of actual data contains one or a plurality of tables; the choice depending upon performance and convenience considerations.

IV.B. Document Locator Data Base

A Document Locator Data Base 382 (Fig. 5) is used to convert (i.e., map) a logical document identifier to a Logical Document Address. Each Document Locator Data Base 382 includes a Document File 510 and an Audit File 520. The Document File includes two tables: a Document Locator Table 512, and an Extent Locator Table 514. The Audit File includes a single table: the Audit Table 522.

The Document Locator Table 512 includes the following fields: Image Document ID -the logical document identifier.
Extent Number -0
Media Type -for extent 0: microfilm, fiche, optical disk, or magnetic disk.
Number of Pages -total pages in all extents of the image document.
Number of Extents -the number of extents beyond the initial extent 0.
Creator User ID -ID of the document originator.
Creation Date -date document was created.

Retention Date -date until which the document should be retained.
Modifier User ID -last user to modify the document.
Date Last Modified -date document was last modified.
Protection Class -of the document.
Initial Address -the Logical Extent Address for the first document extent of the image document; the substructure of this field depends on the media type: microfilm address, fiche address, optical disk file specification, or magnetic disk file specification (see details below).

The Extent Locator Table 614 includes the following fields: Image Document ID -the logical document identifier.
Extent Number -1-99 (information about extent 0 is in the Document Locator Table).
Media Type -for the extent to which the record refers; microfilm, fiche, optical disk, or magnetic disk.
Extent Address -a Logical Extent Address for a document extent; the substructure of this field depends on the media type.

The Initial Address field of the Document Locator Table, and the Extent Address field of the Extent Locator Table each contain a Logical Extent Address. The Logical Extent Address consists of a selection of fields that depends on the type of medium on which the extent is stored.

The Logical Extent Address for a document extent stored on microfilm includes the following fields: Cassette Number -
Start Frame Number -
Frame Length -number of frames in this extent.
Threshold -optical threshold at which the microfilm should be scanned.

The Logical Extent Address for a document extent stored on microfiche includes the following fields: Fiche Number -
Start Frame Number -
Frame Length -number of frames in this extent.
Threshold -optical threshold at which the fiche should be scanned.

The Logical Extent Address for a document extent stored on optical or magnetic disk includes the following fields: Volume -
Library -
File -

The Audit Table 622 includes the following fields: Entry Number -unique audit log sequence number.
Date -of the image access request.
Time -of the image access request.
Image Document ID -the logical document identifier.
User ID -of the user making the image access request.
Function -the image access function requested, e.g., display, copy, print.

In order to access image documents, a data base application must associate itself with one of the Document Locator Data Bases 382.

IV.C. Image System Data Base

The Image System Data Base 380 (Fig. 6) is used to convert a Logical Document Address to a Physical Device Address. The Image System Data Base 380 includes a Media File 610, a Unit File 620, and an ITC File 630. The Media File includes a table for each type of bulk image storage media included in the system: a Cassette Locator Table 612, a Fiche Locator Table 614, and a Volume Locator Table 616. The Unit File includes a single table: the Unit Locator Table 622. The ITC File includes a single table: the ITC Locator Table 632.

The Cassette Locator Table 612 includes the following fields: Media Type -cassette.
Cassette Number -logical ID of the microfilm cassette.
Unit Number -ID number of SAR in which the cassette is located.
Column Number -column address within the SAR.
Level Number -level address within the SAR.
Number of Accesses -cumulative number of accesses to the cassette.
Date Last Accessed -date of last access to the cassette.
Status -of the cassette: not mounted, mounted, mounted exclusive.
User ID -if the status is "mounted exclusive", then this is the ID of the administrator reserving the cassette.

The Fiche Locator Table 614 includes the following fields: Media Type -fiche.
Fiche Number -logical ID of the sheet of microfiche.
Unit Number -ID number of (removable) microfiche storage drum.
Tab Number -fiche address within the SAR, corresponds to the encoding on the metal tag attached to the edge of the fiche.
Number of Accesses -cumulative number of accesses to the fiche.
Date Last Accessed -date of last access to the fiche.

Status -of the fiche: not mounted, mounted, mounted exclusive.
User ID -if the status is "mounted exclusive", then this is the ID of the administrator reserving the fiche.

The Volume Locator Table 618 includes the following fields: Media Type -optical disk.
Volume Name -name of the (removable) disk platter.
Unit Number -ID number of the optical disk drive or jukebox.
Position Number -slot address of the platter within the jukebox.
Number of Accesses -cumulative number of accesses to the volume.
Date Last Accessed -date of last access to the volume.
Status -of the volume: not mounted, mounted, mounted exclusive
User ID -if the status is "mounted exclusive", then this is the ID of the administrator reserving the volume.

The Unit Locator Table 622 includes the following fields: Unit Number -ID number of the storage unit.
Device Type -type of image storage device.
ITC Number -ID number of the ITC to which the device is connected.
Slot Number -slot number or board address to which the device is connected (within the ITC).
Port Number -on the board.
Status -of the unit: not mounted, mounted, mounted exclusive, mounted inhibited.
User ID -if the status is "mounted exclusive" or "mounted inhibited", then this is the ID of the administrator reserving the unit.

The ITC Locator Table 632 includes the following fields: ITC Number -ID number of the ITC.
System Name -system name for the host computer to which the ITC is connected.
Device Number -device number assigned to the ITC on the host computer.
Status -of the ITC: not mounted, mounted, mounted exclusive, mounted inhibited.
User ID -if the status is "mounted exclusive" or "mounted inhibited", then this is the ID of the administrator reserving the ITC.

IV.D. Mapping Steps

The process of locating the images of an image document actually begins outside of the image management components of the system. This process starts with a user querying a data base (e.g., a personnel data base) that includes image fields (e.g., picture of employee). The image field contains a logical document identifier, which is the starting point of the document mapping process.

The following is a description of the steps involved in converting (i.e., mapping) a logical document identifier to a Physical Device Address. In the description of these steps, the underlined fields contain the information that is assembled to become a complete Physical Device Address. The document mapping process involves the following steps:

a. The logical document identifier and Extent Number 0 are applied to the Document Locator Table 612. The result is the Logical Extent Address of the first extent of the image document, and an indication of how many, if any, more extents make up the image document.

b. For each of the additional extents, the logical document identifier and successive Extent Numbers are applied to the Extent Locator Table 614. The result is the Logical Extent Addresses of the remaining extents.

The preceding steps provide the following information for each extent:

i. For extents stored on Microfilm:
1. Media Type
2. Cassette Number
3. Start Frame Number
4. Frame Length
5. Threshold

ii. For extents stored on Fiche
1. Media Type
2. Fiche Number
3. Start Frame Number
4. Frame Length
5. Threshold

iii. For extents stored on Magnetic or Optional Disk:
1. Media Type
2. Volume
3. Library
4. File

The medium has been identified; next, the medium is located. Details depend somewhat on the media type. The following assumes the medium is microfilm.

c. Media Type is used to identify the appropriate media locator table. For microfilm, the Cassette Locator Table 612 is identified.

d. Cassette Number is applied to the Cassette Locator Table 612, resulting in Unit Number, Column Number, Level Number.

e. Unit Number is applied to the Unit Locator Table 622, resulting in ITC Number, Slot Number, Port Number.

5. ITC Number is applied to the ITC Locator Table 632, resulting in VS Name , VS Device.

The resulting Physical Device Address for microfilm includes: -VS Name within a VS cluster or network.
-VS Device which is the relevant ITC.
-Slot Number of the ITC to which the storage unit is physically connected.
-Port Number of the ITC slot.
-Column Number in the storage unit.
-Level Number in the storage unit.
-Start Frame Number on the roll of microfilm.
-Frame Length on the roll of microfilm.
-Threshold for scanning the roll of microfilm.

The foregoing description has been limited to a specific embodiment of the invention. Additional advantages and modifications will be apparent to those skilled in the art. The invention is, therefore, not limited to the specific details, representative apparatus, and illustrative example shown and described in this specification. Rather, it is the object of the appended claims to cover all such variations and modifications as come within the true spirit and scope of the invention.

Claims

1. In an image management system, means for retrieving image documents from a plurality of types of bulk image storage media comprising:

(A) a relational data base system (310),

(B) a plurality of document locator data bases (382), each for use by the relational data base system for determining a media address for an image document from a logical document identifier,

(C) an image system data base (380) for use by the relational data base system for determining a physical device address from a media address, wherein the media address refers to one of a plurality different storage media, and wherein the image system data base includes a table (612, 614, 616) for each type of bulk image storage medium.

2. Document retrieval means as in claim 1 wherein an image document can include a plurality of extents, and wherein the document data base includes

(a) a document locator table (512) and

(b) an extent locator table (514).

3. Document retrieval means as in claim 2 wherein associated with at least some of the media addresses determined by the document data base is an image scan threshold value.

4. An office automation system comprising:

(A) a plurality of bulk image storage devices (180, 182, 184, 186), at least two of which use different types of storage media,

(B) means (380, 382, 384) for defining image documents and associating with each image document a logical document identifier, where an image document is a logical group of stored images, said defining means being capable of including images stored on different types of media in a single image document,

(C) an image access subsystem (322, 324, 356, 358) for providing access to stored images in a manner independent of the medium on which the images are stored,

(D) a word processing subsystem (314) arranged to display an image accessed via the image access subsystem as a part of a word processing document,

(E) a data base subsystem (310) providing a field data type of the type "image document" by which an image document can be associated with a data base record,

(F) a mail subsystem (316) for delivering message packages including image documents retrieved via the image access subsystem.

5. A system as in claim 4 wherein the document defining and associating means includes data tables for use by a relational data base system, said tables including a field of the type "image document" that stores a character string that is a non structured data item and is the logical document identifier for an image document.

6. A system as in claim 4 further comprising a character recognition subsystem (194) arranged to receive image documents retrieved by the image access subsystem and to convert to text form portions of received images.

7. The system of claim 6 wherein the character recognition subsystem can be used by user application programs (312) to perform image-to-text conversion of a portion of an image document specified by the application.

8. The system of claim 4 further comprising a telephone facsimile subsystem (199) for transmitting to a remotely located facsimile system an image retrieved by the image access subsystem and for receiving a document image from a remotely located facsimile system and using the image access subsystem to store the received image.

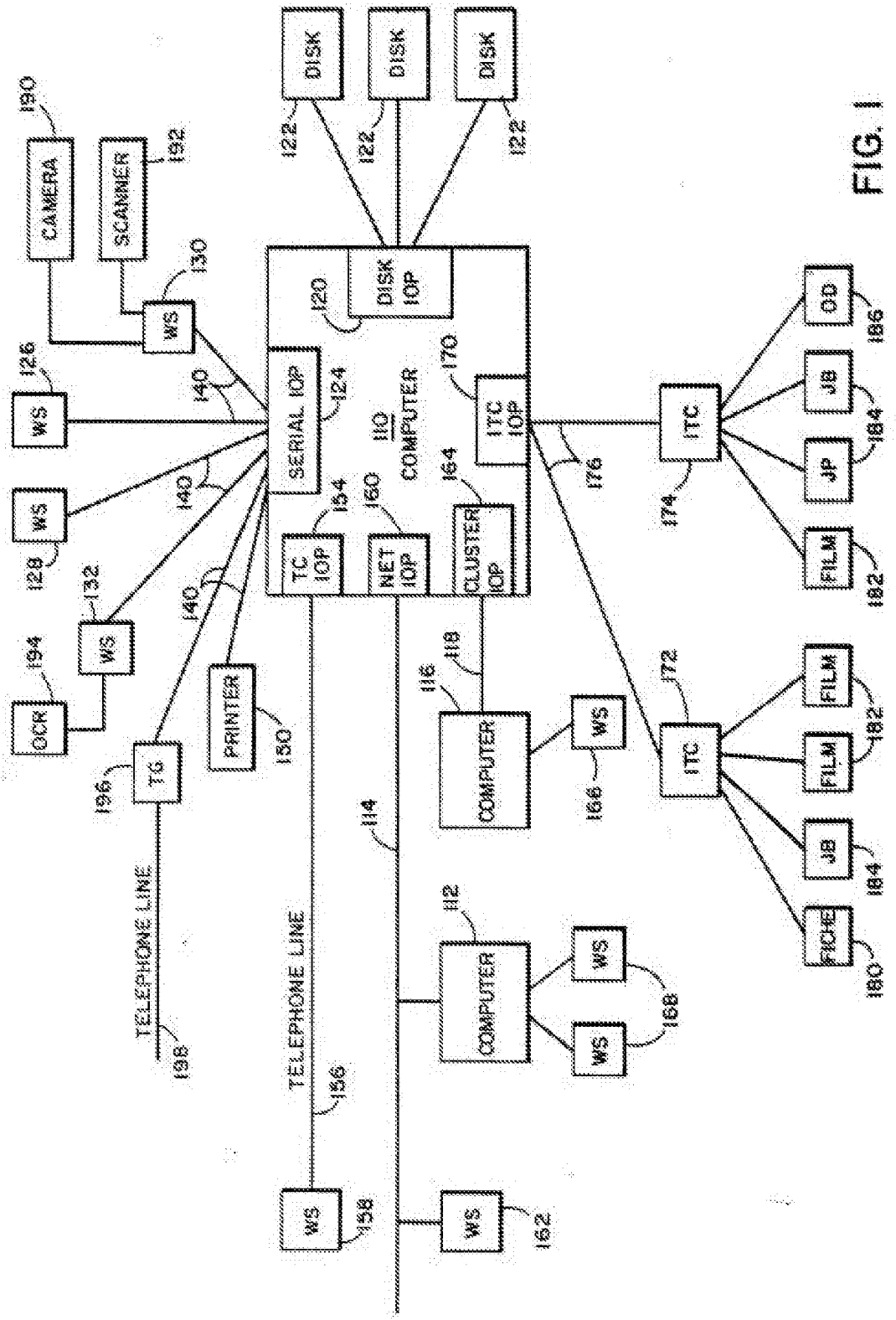


FIG. 1

EP-61 959
Wang Lab.

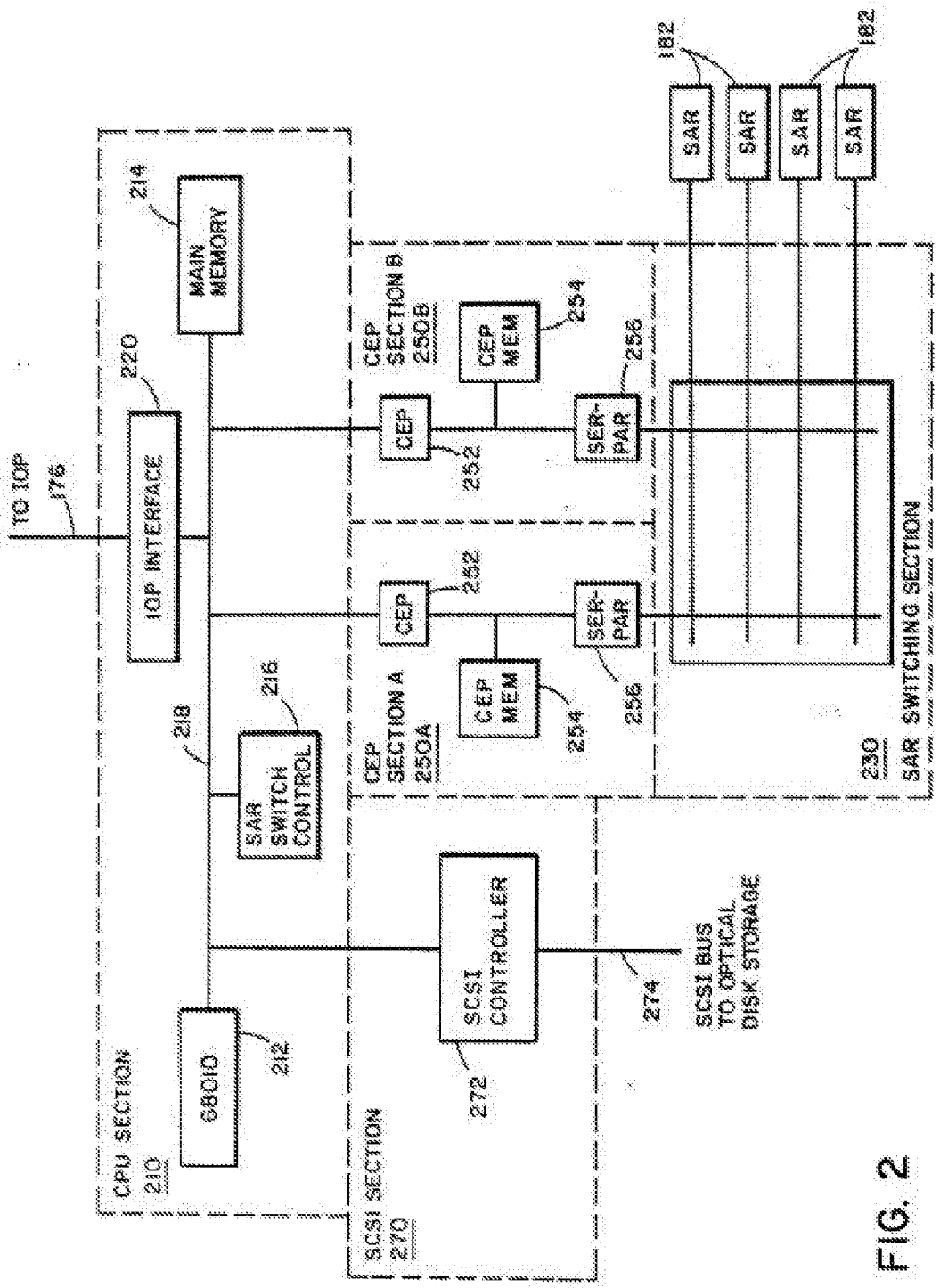
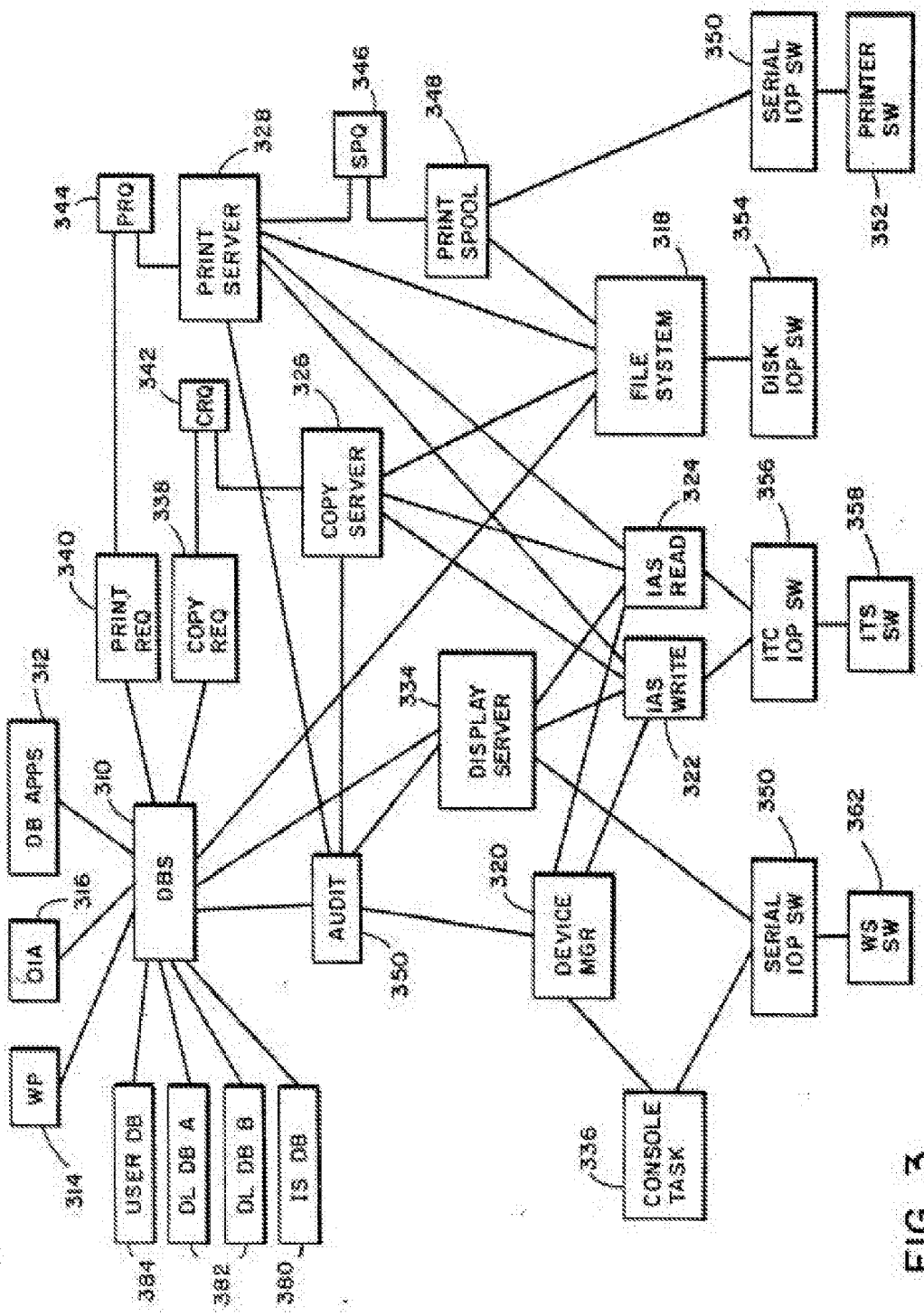

TO IOP
176
IOP INTERFACE
220
MAIN MEMORY
214
CPU SECTION
210
68010
212
SAR SWITCH CONTROL
216
218
SCSI SECTION
270
SCSI CONTROLLER
272
274
SCSI BUS TO OPTICAL DISK STORAGE
CEP SECTION A 250A
CEP SECTION B 250B
CEP
252
CEP MEM
254
SER-PAR
256
SAR
182
SAR SWITCHING SECTION
230

FIG. 2


WP
DIA
DB APPS
OBS
USER DB
DL DB A
DL DB B
IS DB
PRINT REQ
COPY REQ
PRQ
CRQ
PRINT SERVER
COPY SERVER
AUDIT
DISPLAY SERVER
DEVICE MGR
CONSOLE TASK
SPQ
PRINT SPOOL
FILE SYSTEM
IAS READ
IAS WRITE
SERIAL IOP SW
ITC IOP SW
DISK IOP SW
WS SW
ITS SW
PRINTER SW
310
312
314
316
320
322
324
326
328
334
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340
342
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346
348
350
352
354
356
358
362
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382
384

FIG. 3

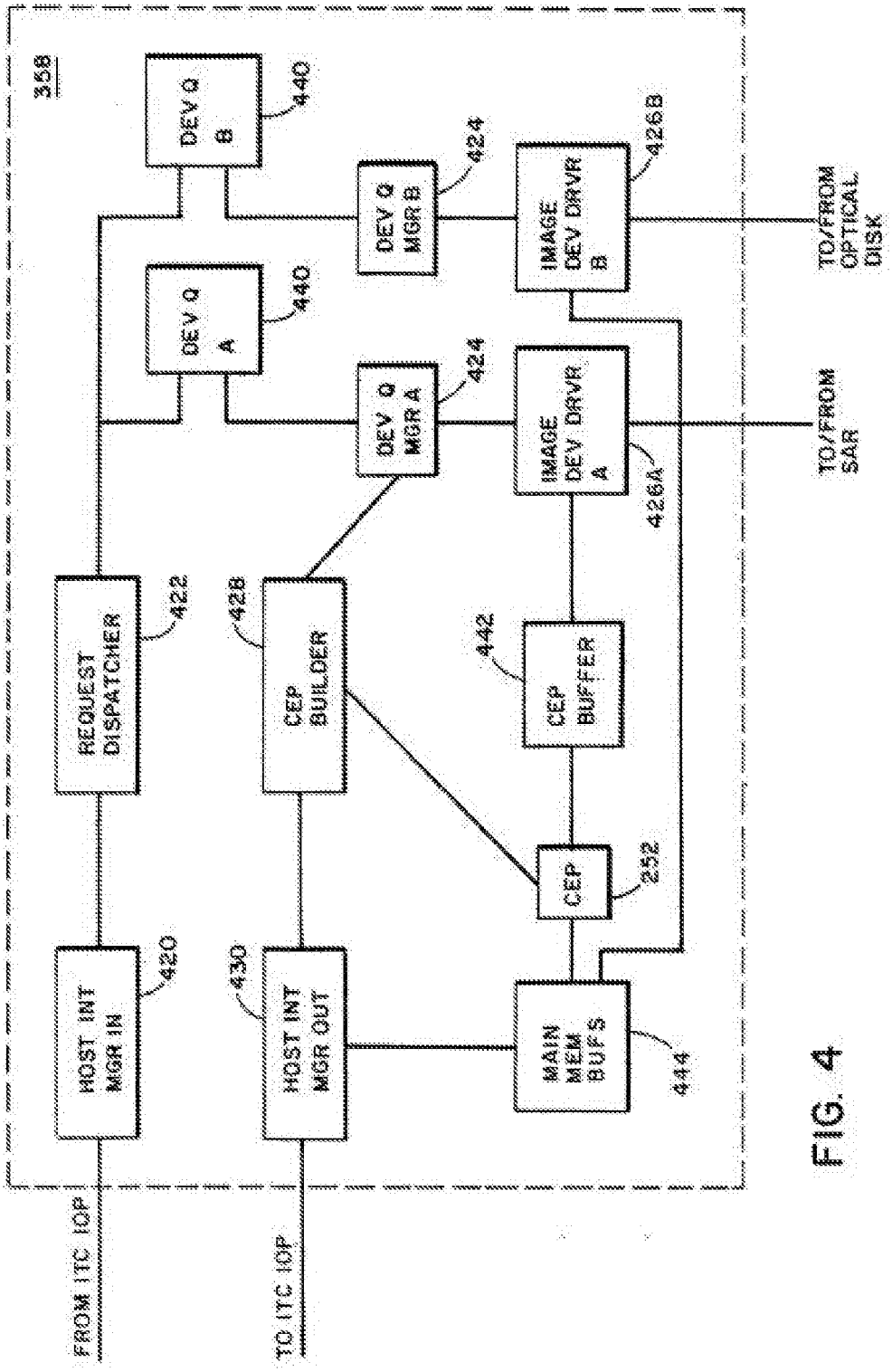
358
DEV Q B
440
DEV Q MGR B
424
IMAGE DEV DRVR B
426B
TO/FROM OPTICAL DISK
DEV Q A
440
DEV Q MGR A
424
IMAGE DEV DRVR A
426A
TO/FROM SAR
REQUEST DISPATCHER
422
CEP BUILDER
428
CEP BUFFER
442
CEP
252
HOST INT MGR IN
420
HOST INT MGR OUT
430
MAIN MEM BUFS
444
FROM ITC IOP
TO ITC IOP

FIG. 4

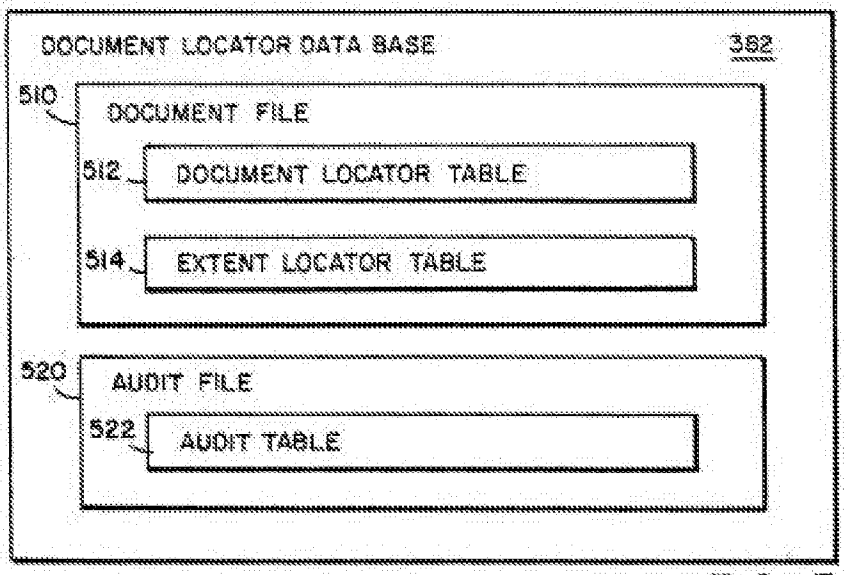
DOCUMENT LOCATOR DATA BASE
382
510
DOCUMENT FILE
512
DOCUMENT LOCATOR TABLE
514
EXTENT LOCATOR TABLE
520
AUDIT FILE
522
AUDIT TABLE

FIG. 5

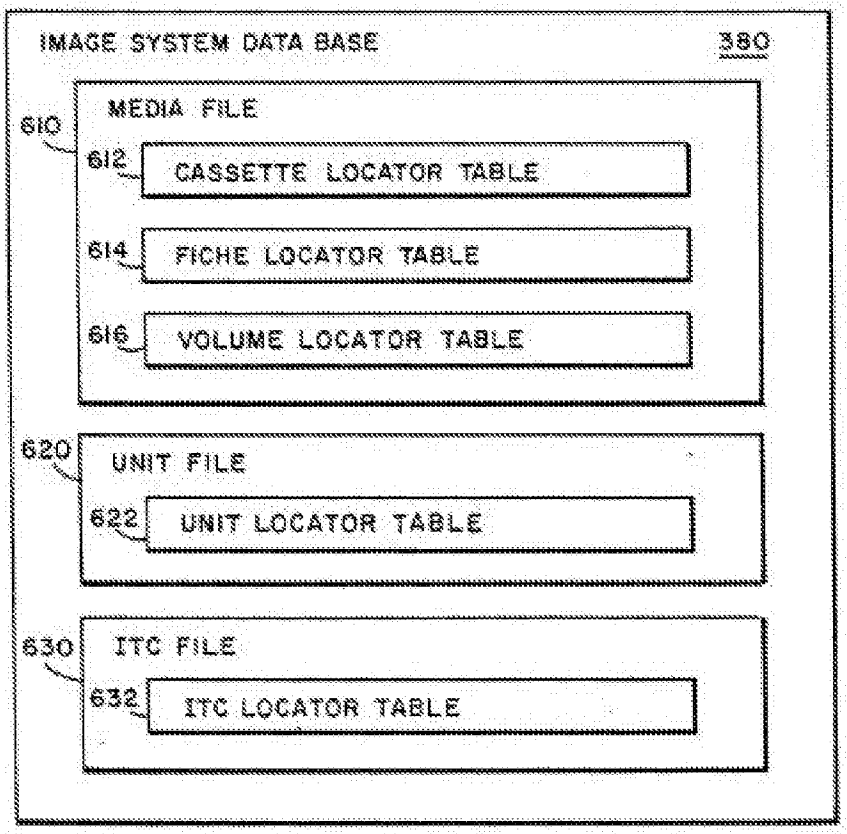
IMAGE SYSTEM DATA BASE
380
610
MEDIA FILE
612
CASSETTE LOCATOR TABLE
614
FICHE LOCATOR TABLE
616
VOLUME LOCATOR TABLE
620
UNIT FILE
622
UNIT LOCATOR TABLE
630
ITC FILE
632
ITC LOCATOR TABLE

FIG. 6

Electronic Acknowledgement Receipt

EFS ID:	30668724
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	23399
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	8580.3005.001
Receipt Date:	16-OCT-2017
Filing Date:	18-SEP-2015
Time Stamp:	16:39:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	IDS_Transmittal.PDF	58301 271af5fb096ac90af9697f4fa2ee49a74778ad82	no	1

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	IDS_10-13-2017.PDF	1036024 98de0d8d4fcba9be3793867966ef2945d8324bb6	no	5
Warnings:					
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3	Non Patent Literature	FIS1022.PDF	795394 ca70c5b290b0f4e2eaaed11470f4e8ef396cdebc	no	1
Warnings:					
Information:					
4	Non Patent Literature	FIS1023.PDF	1054702 2f520bb6989bff72dd65ae5fea992a656b831056	no	4
Warnings:					
Information:					
5	Non Patent Literature	FIS1021.PDF	862869 1e947a1fcc2d1eec76eecab7c08a6a05d891fdbc	no	2
Warnings:					
Information:					
6	Non Patent Literature	Robek-2.PDF	21270087 ad60807f28d41bc958a5217e7153d73e3fb173c5	no	87
Warnings:					
Information:					
7	Non Patent Literature	Robek-1.PDF	19014966 eea20faa398b17af797daea3d9ebcd3b643b5d57	no	87
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Information:					
8	Non Patent Literature	DAlley_Image-PDF.PDF	1693442 4987178c1cd12beef0dd2917df3fb04ffc174f73	no	25
Warnings:					
Information:					

9	Non Patent Literature	DAlley_Net-2-PDF.PDF	5832895 c0026de3f60347959c38e3c26e10b74ce95ce54a	no	84
Warnings:					
Information:					
10	Non Patent Literature	DAlley_Net-1-PDF.PDF	5834699 9a958fe2c55ccfa7bdfd2944e068cd2291b88a74	no	84
Warnings:					
Information:					
11	Non Patent Literature	DAlley_Hand-PDF.PDF	1616687 bb864473d0ba765051e020590f95e1bb4587ed1b	no	27
Warnings:					
Information:					
12	Foreign Reference	EP-2-PDF.PDF	1159005 98ead6f151d65ab9c9530a371b1eb570b32f3aed	no	12
Warnings:					
Information:					
13	Foreign Reference	EP-1-PDF.PDF	2153991 cab1934374e4280fa228bbfd0cfbd6bfd7f6c5c7	no	21
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Information:					
14	Non Patent Literature	Sutton-2-PDF.PDF	5940330 ccd6efe47a79ef3065cbbbf6571fc5caed3b69cd	no	82
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Information:					
15	Non Patent Literature	Sutton-1-PDF.PDF	5624167 1c27fea4b8472baab2a63a90fe260d076b8ac2a6	no	83
Warnings:					
Information:					

16	Non Patent Literature	Muller-2-PDF.PDF	4736006 b4445e41bb2dc3fa4e799a04b47e5c770652473e	no	86
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17	Non Patent Literature	Muller-1-PDF.PDF	4913689 8e287eed779556cb4686b4383fe010907060f7e3	no	87
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Information:					
19	Non Patent Literature	GrayExpertReport-PDF.PDF	2598722 4b50862a2b29b2c220896ae8132dda51b06f0ce3	no	95
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Information:					
		Total Files Size (in bytes):	93478743		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. Serial No.: 14/857,854

Inventor: Schulze, Michael D.

Title: REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Filed: September 18, 2015

Group Art Unit: 2162

Examiner: Lodhi, Andalib FT

Attorney Docket No.: 8580.3005.001

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

This Information Disclosure Statement (IDS) is being submitted to cite art recently made known to the Applicant through CBM2017-00064 – CBM2017-0067 and court proceedings cited to the Office via various AO-120 forms.

The Commissioner is hereby authorized to charge Deposit Account No. 50-0852 for any required fees, or to credit that same deposit account with any overpayment associated with this communication.

Respectfully submitted,

REISING ETHINGTON P.C.

/Shannon K. Smith/

Shannon K. Smith
Registration No. 73,822
P.O. Box 4390
Troy, Michigan 48099
(248) 689-3500

Date: October 16, 2017
RWH/SKS

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/857,854	09/18/2015	Michael D. Schulze	8580.3005.001	2781

23399 7590 08/11/2017

REISING ETHINGTON P.C.
P O BOX 4390
TROY, MI 48099-4390

EXAMINER
LODHI, ANDALIB FT

ART UNIT	PAPER NUMBER
2162	

MAIL DATE	DELIVERY MODE
08/11/2017	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	14/857,854	SCHULZE ET AL.	
	Examiner	Art Unit	
	ANDALIB LODHI	2162	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ANDALIB LODHI*.

(2) *Mohammad Rostami* .

(3) *Applicant: Schulze, Michael D.* .

(4) *Applicant's representative: Shannon K. Smith* .

Date of Interview: *08 August 2017*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☒ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☒101 ☐112 ☐102 ☒103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *23,34 and 43*.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant and Applicant's Representative explained the inventive concept of the invention. During the interview, Applicant's representative and the Examiners discussed issues related to the 101 and 103 issues of the limitaion of claims 23, 34, 43. The Examiners suggest Applicant's Representative to clarify and elaborate 'predetermined parameter' step the independent claim 23. However, Examiner will give further search and consideration to the limitaions of the claims and contact the applicant if necessary.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/MOHAMMAD S ROSTAMI/ Primary Examiner, Art Unit 2154	/ANDALIB LODHI/ Examiner, Art Unit 2162

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. Serial No.:	14/857,854
Inventor:	Schulze, Michael D.
Title:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
Filed:	September 18, 2015
Group Art Unit:	2162
Confirmation No.:	2781
Examiner:	Lodhi, Andalib FT
Attorney Docket No.:	8580.3005.001

AMENDMENT AND RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

This amendment is being filed in response to the First Action Interview Pilot Program Pre-Interview Communication dated July 19, 2017. Please see the following:

Amendments to the claims begin on page 2.

Remarks follow the amendments.

An appendix containing the interview agenda is attached following the remarks.

Electronic Acknowledgement Receipt

EFS ID:	30019622
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	23399
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	8580.3005.001
Receipt Date:	08-AUG-2017
Filing Date:	18-SEP-2015
Time Stamp:	16:09:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AmendmentA.pdf	305304 baaa500307ec5f25ffb0430e4682831f34cab7f7	yes	21

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	7	21
	Claims	2	6
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	305304	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS

This amendment is being filed in response to the First Action Interview Pilot Program Pre-Interview Communication dated July 19, 2017. In that Communication, claims 23-29 and 31-43 were rejected. By this paper, claims 23 and 34 are amended, and claim 43 is cancelled without prejudice or disclaimer. Accordingly, claims 23-29 and 31-42 are pending.

Applicant would like to thank Examiner Lodhi and Examiner Rostami for the courtesy of the telephone interview conducted on August 8, 2017. During that interview, it was agreed that the response submitted herein would address all of the outstanding rejections and place the application in condition for allowance.

Double Patenting

Claims 23-29 and 31-43 stand rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims in one or more of the following patents: 9141612, 7836067, 7552118, 6963866, and/or 6446072. Applicant requests withdrawal of the double patenting rejection at least in view of the terminal disclaimer filed on July 28, 2017, without conceding that the rejected claims are not patentably distinct from the claims of the patents cited above.

Rejections under § 101

Claims 23-29 and 31-43 stand rejected under 35 U.S.C. § 101 as being directed to an abstract idea. As discussed during the interview, the claims, as presented herein, are patent eligible. Eligibility is supported by the legal precedent cited in the interview agenda, a copy of which is included as an appendix to this response for the convenience of the Examiner. In view of the agreement during the interview and the present response, withdrawal of the outstanding rejection under § 101 is requested.

Rejection under § 103

Claim 43 stands rejected under 35 U.S.C. § 103 as being unpatentable over Behera (US 5187750) and Bellinger (US 5870725). Claim 43 has been cancelled without prejudice or disclaimer, and accordingly this rejection is now moot and should be withdrawn.

Conclusion

In view of the foregoing, Applicant respectfully submits that all pending claims are in condition for allowance, and respectfully requests that a Notice of Allowance be issued in due course. The Examiner is invited to telephone the undersigned if doing so would advance prosecution of this case.

The Commissioner is hereby authorized to charge Deposit Account No. 50-0852 for any required fees, or to credit that same deposit account with any overpayment associated with this communication.

Respectfully submitted,

REISING ETHINGTON P.C.

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_____

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Date: August 8, 2017
RWH/SKS

APPLICANT PROPOSED INTERVIEW AGENDA

App. Serial No.: 14/857,854

Inventor: Schulze, Michael D.

Title: REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Filed: September 18, 2015

Group Art Unit: 2162

Confirmation No.: 2781

Examiner: Lodhi, Andalib FT

Attorney Docket No.: 8580.3005.001

Interview: Tuesday, August 8, 2017
2:00 PM EDT via telephone

ISSUES TO BE DISCUSSED

Issues (Rej., Obj., etc.)	**Claims/Fig. #s**	**Prior Art**	**Brief Description of Arguments to be Presented**
§ 101	23-29 and 31-43	n/a	In view of analogous precedent (see attached charts), claims are not directed to an abstract idea because they provide a technological solution (e.g., efficient accessibility and low expenses for retrieving financial documents from storage) for solving a technological problem (e.g., no interface independently inter-linked with the off-site storage system) (see paragraph [0008]).
§ 103	43	Behera and Bellinger	Possible amendment after the receiving step which requires "temporarily storing information relating to the request at a processing unit and transferring the information relating to the request from the processing unit to the off-site storage system." (See paragraphs [0028] and [0036].) Neither Behera nor Bellinger teach or suggest such a step.

Cases Relied upon in § 101 Rejection in Office Action

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
Content Extraction and Transmission LLC v. Wells Fargo Bank et al.	776 F.3d 1343; 113 U.S.P.Q.2d 1354	December 23, 2014 ****Before examination and grant of the 9,141,612 patent of the same family**	A method of processing information from a diversity of types of hard copy documents, said method comprising the steps of: (a) receiving output representing a diversity of types of hard copy documents from an automated digitizing unit and storing information from said diversity of types of hard copy documents into a memory, said information not fixed from one document to the next, said receiving step not preceded by scanning, via said automated digitizing unit, of a separate document containing format requirements; (b) recognizing portions of said hard copy documents corresponding to a first data field; and (c) storing information from said portions of said hard copy documents corresponding to said first data field into memory locations for said first data field.	Invalid under § 101	The "claims are drawn to the basic concept of data recognition and storage." The limitations "recite well-known, routine, and conventional functions of scanners and computers."	The present claims, unlike *Content Extraction*, are limited to financial documents (not just any document) and involve use of computer databases that was novel and unique in the financial industry at the time and served to increase efficiency and productivity in retrieving electronically stored financial documents. Also, by using these computer databases in an efficient manner, the computer can perform more efficiently than other systems at the time. Additionally, the present claims solve the technical problem of locating and retrieving electronically stored financial documents as a result of various business challenges (e.g., mergers, acquisitions, storage area consolidations, etc.)

Intellectual Ventures I LLC v. Erie Indemnity Co.	850 F.3d 1315; 121 U.S.P.Q.2d 1928	March 7, 2017	1. A method for creating a database and an index to search the database, comprising the steps of: creating the index by defining a plurality of XML tags including domain tags and category tags; creating a first metafile that corresponds to a first domain tag; and creating the database by providing a plurality of records, each record having an XML index component.	Invalid under § 101	Claims are "drawn to the abstract idea of 'creating an index and using that index to search for and retrieve data.'" Further, "claims are not focused on *how* usage of the XML tags alters the database in a way that leads to an improvement in the technology of computer databases."	The present claims, unlike *Intellectual Ventures*, are limited to financial documents. Also, the present claims involve more than simply searching a database index via the use of tags and get into how the claimed database usage leads to an improvement. Additionally, use of the "comparing" step in at least some of the present claims further improves the functionality of the computer and efficiency to locate and retrieve electronically stored financial documents.

Fed. Cir. Cases More Applicable than Those Cited in § 101 Rejection in Office Action

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
Amdocs (Israel) Ltd. v. Openet Telecom, Inc.	841 F.3d 1288; 120 U.S.P.Q.2d 1527	November 1, 2016	1. A method for reporting on a collection of network usage information from a plurality of network devices, comprising: collecting network communications usage information in real-time from a plurality of network devices at a plurality of layers; filtering and aggregating the network communications usage information; completing a plurality of data records from the filtered and aggregated network communications usage information, the plurality of data records corresponding to network usage by a plurality of users; storing the plurality of data records in a database; submitting queries to the database utilizing predetermined reports for retrieving information on the collection of the network usage information from the network devices; and outputting a report based on the queries; wherein resource consumption queries are submitted to the database utilizing the reports for retrieving information on resource consumption in a network; and wherein a resource consumption report is outputted based on the resource consumption queries.	Valid under § 101	The claims are distinct from ineligible claims (such as those in *Content Extraction*) because the ineligible claims were not tied to any particularized structure and broadly preempted related technologies. The claims in the case, however, provide "something more" by incorporating "the invention's distributed architecture—an architecture providing a technological solution to a technological problem" (i.e., "massive data flows requiring huge databases").	Similar to *Amdocs*, the present claims include "components [that] are arrayed in a distributed architecture that minimizes the impact on network and system resources." A number of the claims in *Amdocs* are limited to enhancing networking accounting data records, which is similar to the present claims, which are limited to enhancing networking of financial documents.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
Enfish, LLC v. Microsoft Corp.	822 F.3d 1327; 118 U.S.P.Q.2d 1684	May 12, 2016	17. A data storage and retrieval system for a computer memory, comprising: means for configuring said memory according to a logical table, said logical table including: a plurality of logical rows, each said logical row including an object identification number (OID) to identify each said logical row, each said logical row corresponding to a record of information; a plurality of logical columns intersecting said plurality of logical rows to define a plurality of logical cells, each said logical column including an OID to identify each said logical column; and means for indexing data stored in said table.	Valid under § 101	"[C]laims 'purport[ing] to improve the functioning of the computer itself,' or 'improv[ing] an existing technical process' might not succumb to the abstract idea exception." Accordingly, it is appropriate to ask whether the claims are directed to the specific asserted improvement in computer capabilities or instead, on a process that qualifies as an abstract idea.	In the present case, the claims are not focused on "the abstract idea of obtain electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system by storing, receiving, comparing, accessing, retrieving and providing" as specified in the Office Action. Rather, the present claims are directed to a specific database architecture that solves the technological problems relating to two storage systems of electronically stored financial documents as described in the specification. Accordingly, as in *Enfish,* the claims are directed to improving a database system and are not abstract.

Other PTAB Opinions to Demonstrate Validity of Present Claims under § 101

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
Ex Parte Plondke et al.	Appeal 2016-006905; 2017 WL 1231329	March 30, 2017	1. A method of determining an extremum in a processing system, the method comprising: storing a reference location identifier and a reference extremum in a storage medium; receiving an input data set comprising two or more data elements from a memory system; determining an input extremum of the two or more data elements of the input data set; determining a corresponding location identifier of the input extremum; and comparing the input extremum with the reference extremum to determine an output extremum and output location identifier, based on the comparison.	Examiner's rejection under § 101 reversed	The Appellant's specification discussed prior art approaches of data processing applications which included functions for determining min or max values in a data set. The specification described the drawbacks of these methods and provided a technological solution "to provide for fast and efficient searching of extreme values." Claims not directed to an abstract idea because they "are directed to a specific implementation of a solution to a problem in the software arts."	Like *Plondke*, the present claims are directed to a specific implementation of a database/storage solution which provides for fast and efficient searching of financial documents. The present specification describes how the current technical solution provides benefits tied to computer technology which are beyond those in prior art systems and methods.
Ex Parte Carvalho et al.	Appeal 2015-001076; 2016 WL 3646737	July 6, 2016	14. A method comprising: aligning words to a desired word boundary, wherein each of the words has a plurality of bits; receiving from a word aligner, by a bit slipper, information regarding the aligning; and slipping bits of the words, wherein total delay due to the aligning and the slipping is constant for all phases of a recovered clock signal, wherein the aligning and the slipping are performed by a transceiver system.	Examiner's rejection under § 101 reversed	Claims are not directed to an abstract idea under the first step of the *Alice* analysis because the claims "are directed to an improvement in the functioning of a computer (i.e., eliminating word aligner latency delay uncertainty) and not to the addition of general purpose computer components to a fundamental economic	The present claims, like *Carvalho*, are directed to an improvement in the functioning of a prior art computing system, and thus are not an abstract idea.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
					practice or mathematical equation."	
Ex Parte Abraham et al.	Appeal 2017-006823; 2017 WL 3052516 (see also related appeal 2016-000287)	July 11, 2017	1. A non-transitory computer-readable medium having instructions stored thereon that, when executed by a processor, cause the processor to perform a method for simulating supply chain plans, the method comprising: [1] loading a supply chain plan from a database into a planning web service executed at a server of a supply chain planning system by creating an in-memory object residing in a memory of the planning web service executed at the server, wherein the supply chain plan comprises supply chain planning data comprising one or more components for a product; [2] copying the supply chain plan into a new supply chain plan by serializing the in-memory object residing in the memory of the planning web service into a file comprising a sequence of bytes, copying the file into a new file, and de-serializing the new file to create a new in-memory object residing in the memory executed at the server, wherein the new supply chain plan is a copy of the supply chain plan that is created from the new file; [3] modifying the new supply chain plan by modifying the new in-memory object residing in the memory of the planning web service, wherein the modified new supply chain plan comprises an alternate scenario for the supply chain plan; [4] running a planning algorithm on the modified new supply chain plan to generate a planning solution based on the	Examiner's rejection under § 101 reversed	The "claim need not expressly recite 'the improvement itself (e.g., the computer runs faster)' if 'the structure and functionality that leads to the improvement' is recited in the claim." Accordingly, claims are not directed to the abstract idea of "supply chain planning." Further the Board noted that "[t]he present record fails to adequately support a determination that the claimed invention does not improve the functioning of the computer itself."	The present claims are directed to methods and systems that improve back-end functioning and storage operations, as described in the specification. Through the claimed systems and methods, the computing system as a whole and its parts are is improved over the prior art.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
			alternate scenario; [5] saving the modified new supply chain plan within the database as the planning solution; and [6] unloading the supply chain plan from the planning web service.			
Ex Parte Prieditis	Appeal 2017-002637; 2017 WL 2265501	May 15, 2017	1. A method of controlling access to server resources over a network, the method comprising: receiving, at a server on the network, a request for server resources from a network device; receiving a geographic prediction model to predict geographic coordinates of the network device, wherein the geographic prediction model includes conditional multivariate normal distributions grouped into one or more subclasses, each distribution having a mean vector representing typical traceroute information between a plurality of training network devices and one or more beacons; receiving traceroute information between the network device and Internet Protocol (IP) addresses for the one or more beacons associated with the geographic location prediction model without requiring a geographic location for at least one of the beacons; generating, by use of a processor, predicted geographic coordinates for the network device by using the geographic prediction model to compare the traceroute information with geographic locations of the plurality of training network devices; and generating a result including the predicted geographic coordinates of the network	Examiner's rejection under § 101 reversed	"Appellant's claim 1 recites a specific way to '[control] access to server resources over a network' using predicted geographic coordinates for a network device rather than the abstract idea of generating the predicted geographic coordinates." Further, "Appellant's Specification supports the invention as claimed as being in improvement for controlling access to server resources over a network." Claims are thus not directed to an abstract idea.	The present claims are not directed to an abstract idea, as in *Prieditis*, because Applicant's specification supports that the claims are an improvement for controlling and facilitating access to financial documents in a novel and nonobvious system.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
			device and an associated covariance matrix, wherein the result causes the server to grant the network device access to one or more server resources.			
Ex Parte Hwang et al.	Appeal 2015-006629; 2017 WO 2061544	April 24, 2017	1. A method comprising: providing or using a user terminal including a software operating system; providing or using an electronic payment unit included within the user terminal, wherein the electronic payment unit is used to pay a fare using a previous-payment method or a post-payment method, is inactive, and is operable to be activated by a software virtual machine; activating the electronic payment unit using an activating server, including: requesting at the user terminal an activation of the electronic payment unit by transmitting from the user terminal an activation request message to the activating server, the activation request message including a first identification information of the electronic payment unit and a personal user information of the user terminal; authenticating at the activating server the first identification information; detecting at the activating server a class of a user for the electronic payment by using the personal user information; providing at the activating server a first parameter value corresponding to the detected class of the user; generating and transmitting from the activating server to the user terminal an activation approval message including the first parameter value; and establishing at the user terminal the first	Examiner's rejection under § 101 reversed	Case is analogous to *Enfish* and *Amdocs*, and "the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided." "[T]he claims provide enhancing limitations that entail unconventional technological solutions (e.g., 'providing at the activating server a first parameter value corresponding to the detected class of the user' (claim 1)) to a technological problem (electronic payment means activation). While the pieces may be conventional, 'an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces."	Like *Hwang*, although the pieces may be conventional (e.g., database storage) using a non-conventional, non-generic, and inventive arrangement of those conventional pieces is patent eligible, particularly when it solves a technical problem, as the present case does.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
			parameter value, activating the electronic payment unit based on the activation approval message, and paying a fare according to the first parameter value by the electronic payment unit.			
Ex Parte Zidan et al.	Appeal 2016-007482; 2017 WL 1192760	March 29, 2017	13. A system, comprising: at least one computing device; and an application executed in the at least one computing device, the application comprising: logic that obtains a plurality of database sequences; logic that orders the plurality of database sequences; logic that determines a splitting ratio associated with the ordered plurality of database sequences, where the splitting ratio separates the ordered plurality of database sequences into a first portion of the ordered plurality of database sequences associated with at least one central processing unit (CPU) and a second portion of the ordered plurality of database sequences associated with a graphical processing unit (GPU), where the length of the database sequences of the first portion of the ordered plurality of database sequences are shorter than the length of the database sequences of the second portion of the ordered plurality of database sequences; logic that assigns the first portion of the ordered plurality of database sequences to the at least one CPU for sequencing by the at least one CPU; and logic that assigns the second portion of database sequences to the GPU for sequencing by the GPU.	Examiner's rejection under § 101 reversed	Board reversed Examiner's rationale "that the claims are directed to an abstract idea because 'the method relies on the abstract ideas of comparing information, categorizing, organizing and transmitting information and organizing information through mathematical correlations'" without significantly more. The Board cited specification excerpts which discussed the improvements in speed and efficiency, and although the claims mention the use of separating data using a splitting ratio, the claims are directed to a specific application of it to reduce computer processing times.	Like *Zidan*, the present claims are directed to obtaining information from a database given the satisfaction of certain parameters. The claims improve computer speed and efficiency through the use of the claimed systems and methods.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
Ex Parte Sutton-Shearer	Appeal 2015-003977; 2017 WL 837186	February 24, 2017	8. A computer-implemented method of hosting a social network, wherein the method is implemented in a server configured to host webpages that define views of the social network, and to transmit the webpages to client computing platforms that request the webpages over a network, the server comprising one or more processors configured to execute one or more computer program modules, the method comprising: executing, on the one or more processors of the server, one or more computer program modules configured to assemble webpages defining views of a wall associated with a first entity; executing, on the one or more processors of the server, one or more computer program modules configured to maintain associations between entities that use the social network; executing, on the one or more processors of the server, one or more computer program modules configured to transmit a certificate from a second entity to the first entity; executing, on the one or more processors of the server, one or more computer program modules configured to make, responsive to the certificate being a private certificate, the certificate viewable on the wall of the first entity by other entities that are associated with the second entity and to make the certificate hidden on the wall of the receiving entity from other entities that are not associated with the second entity; and executing, on the one or more processors	Examiner's rejection under § 101 reversed	Board "agree[d] with Appellant that '[t]he present invention describes a much more detailed system than is suggested by the Examiner's . . . shorthand description and analysis'" which did not specifically analyze a particular claim with all of its limitations and instead treated the claims as a group directed to the abstract idea of managing the privacy of content posted on a social network. Because the specification supported that the focus of the claims was to solve a problem with the way social networks handle private information, the claims were not directed to an abstract idea.	When looking at the present claims as a whole (e.g., as prescribed by *Enfish*), in light of the specification, it is clear that the claimed methods and systems solve a particular technical problem specific to databases and other storage mechanisms used for financial documents. Thus, the present claims are not directed to an abstract idea.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
			of the server, one or more computer program modules configured to make, responsive to the certificate being a public certificate, the certificate viewable by other entities on the wall of the first entity without regard for associations with the second entity.			
Plaid Technologies v. Yodlee, Inc.	CBM2016-00045; 2016 WL 5030268	August 23, 2016	1. A method for delivering non-public personal information relating to an end user via a wide-area computer network to an end user from at least one of a plurality of information providers securely storing the personal information under control of a processor located remotely from the information providers and the end user, the method comprising the steps of: (a) the processor connecting with at least one information provider; (b) for a selected end user, the processor retrieving personal information for the selected end user from the connected at least one information provider based on end user data associated with the selected end user and information provider data associated with the connected one or more information providers, the end user data including information identifying the plurality of information providers securely storing the personal information relating to the end user, the provider data including a protocol for instructing the processor how to access the securely stored personal information via the network, the information accessible to the processor using the protocol also being accessible by the end user via the network independently of the system	CBM Review under § 101 Denied	Characterizing the claims as an abstract idea of "retrieving and storing personal information is an impermissible over-generalizing of the claims." Claims are patent eligible because they are "directed to retrieving and storing personal information *securely stored under the control of a processor at a remote location*." (Emphasis in original.) The specification further described prior art solutions that were less desirable.	Just like *Plaid Technologies*, the claims are directed to obtaining retrieving and storing information under the control of a processor at a remote location. Thus, the claims may be considered patent eligible.

Case Name	Case No./Citation	Date	Representative Claim	Holding	Rationale	Comparison to Present Claims
			for delivering personal information; and (c) the processor storing the retrieved personal information in a personal information store for access by the selected end user.			
U.S. Bancorp v. Solutran, Inc.	CBM2014-00076; 2015 WL 4698463 (see decision instituting review)	August 17, 2014	1. A method for processing paper checks, comprising: a) electronically receiving a data file containing data captured at a merchant's point of purchase, said data including an amount of a transaction associated with MICR information for each paper check, and said data file not including images of said checks; b) after step a), crediting an account for the merchant; c) after step b), receiving said paper checks and scanning said checks with a digital image scanner thereby creating digital images of said checks and, for each said check, associating said digital image with said check's MICR information; and d) comparing by a computer said digital images, with said data in the data file to find matches.	CBM Review under § 101 Denied	"[W]e find that the basic, core concept of independent claim 1 is a method of processing paper checks, which is more akin to a physical process than an abstract idea. Indeed, there is nothing immediately apparent about this basic, core concept that would indicate it is directed to an abstract idea at all." Further, "we recognize that some fundamental economic practices are recited, such as 'crediting an account for a merchant." But application of the Supreme Court's test cannot disembody such recitations from the claim viewed as a whole—including its recitation of other limitations such as 'receiving said paper checks and scanning said checks with a digital scanner' and 'comparing by a computer said digital images.'"	The claims in *Solutran* are factually analogous to the present claims, and when looking at the present claims as a whole, as in *Solutran*, it is clear that they are not directed to an abstract idea, and instead improve the functionality of a banking computing system.

IN THE CLAIMS:

1.-22. **(Cancelled)**

23. **(Currently Amended)** A system for selectively storing and retrieving electronic images of a plurality of financial documents, each electronic image being associated with a document parameter that includes a numerical sequence that is representative of a record date of the corresponding financial document, the system comprising:

a first storage system including a first fixed medium, the first storage system configured to:

store at least some of the electronic images for the plurality of financial documents wherein the document parameter for each of the at least some of the electronic images that are configured to be stored in the first storage system are greater than a predetermined parameter**, wherein the predetermined parameter is a date or time period**;

a second storage system including a second fixed medium, the second storage system configured to:

store at least some of the electronic images for the plurality of financial documents wherein the document parameter for each of the at least some of the electronic images configured to be stored in the second storage system are less than or equal to the predetermined parameter;

a processor which has electronic access to the first and second storage systems, wherein the processor is configured to:

receive a request for one of the stored electronic images of the plurality of financial documents;

compare the numerical sequence of the document parameter associated with the requested stored electronic image to the predetermined parameter;

access the first storage system when the numerical sequence of the document parameter associated with the requested stored electronic image is greater than the predetermined parameter;

access the second storage system when the numerical sequence of the document parameter associated with the requested stored electronic image is less than or equal to the predetermined parameter; and

automatically retrieve the requested stored electronic image from the first storage system or the second storage system once the first storage system or the second storage system has been accessed.

24. **(Previously Presented)** A system as set forth in claim 23 wherein the first and second fixed mediums are different from each other.

25. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the first fixed medium is further defined as storing the at least some of the electronic images of the plurality of financial documents on a physical media.

26. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the second fixed medium is further defined as electronically storing the at least some of the electronic images of the plurality of financial documents in a fixed electronic medium.

27. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the first fixed medium is further defined as electronically storing the at least some of the electronic images of the plurality of financial documents in a fixed electronic medium.

28. **(Previously Presented)** A system as set forth in claim 23 wherein storing the at least some of the electronic images of the plurality of financial documents in the second fixed medium is further defined as storing the at least some of the electronic images of the plurality of financial documents on a physical media.

29. **(Previously Presented)** A system as set forth in claim 23 wherein the first and second fixed mediums are the same.

30. **(Cancelled)**

31. **(Previously Presented)** A system as set forth in claim 23 further including reproducing the requested stored electronic image after the stored electronic image has been retrieved from the accessed storage system.

32. **(Previously Presented)** A system as set forth in claim 23 wherein accessing the first storage system or the second storage system is further defined as accessing only one of the first storage system or the second storage system at any one time to locate the requested stored electronic image.

33. **(Previously Presented)** A storage system as set forth in claim 23 wherein the processor which has electronic access to the first storage system and the second storage system is also inter-linked to the first storage system and the second storage system.

34. **(Currently Amended)** A method of accessing an electronically-stored financial document from one of a first storage system and a second storage system with the first and second storage systems being different from each other, wherein the first and second storage systems each include a plurality of financial documents stored therein and wherein each of the financial documents has an electronic image and is associated with at least one specific document parameter, said method comprising the steps of:

storing a plurality of images of the financial documents in a first fixed medium at the first storage system when the specific document parameter of the financial document is greater than a predetermined parameter, wherein the predetermined parameter ~~**includes**~~ **is** a numerical record date **or time period**;

storing a plurality of images of the financial documents in a second fixed medium at the second storage system when the specific document parameter of the financial document is less than or equal to the predetermined parameter;

utilizing at least one processor that has access to the first and second storage systems;

receiving a request for an image of one of the stored financial documents at the processor;

comparing the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter after the request has been received, wherein the specific document parameter of the financial document is a particular numerical sequence associated with the specific document parameter, and wherein the particular numerical sequence of the financial document includes a record date of the financial document;

automatically accessing the first storage system when the specific document parameter is greater than the predetermined parameter and automatically accessing the second storage system when the specific document parameter is less than or equal to the predetermined parameter; and

automatically retrieving the image of the requested financial document from the accessed storage system as defined by the received request.

35. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second fixed mediums are different from each other.

36. **(Previously Presented)** A method as set forth in claim 34 further including the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system.

37. **(Previously Presented)** A method as set forth in claim 36 wherein the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system includes reproducing the requested financial document onto paper.

38. **(Previously Presented)** A method as set forth in claim 36 wherein the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system includes electronically reproducing the requested financial document.

39. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second storage systems are associated with the same entity.

40. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second storage systems are associated with different entities.

41. **(Previously Presented)** A method as set forth in claim 34 wherein the first and second fixed mediums are the same.

42. **(Previously Presented)** A method as set forth in claim 34 wherein the step of automatically accessing the first storage system when the specific document parameter is greater than the predetermined parameter and automatically accessing the second storage system when the specific document parameter is less than or equal to the predetermined parameter utilizes a processor inter-linked to the first storage system and the second storage system.

43. **(Cancelled)**

Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed	PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	14857854
Filing Date	18-Sep-2015
First Named Inventor	Michael Schulze
Attorney Docket Number	8580.3005.001
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Mirror Imaging L.L.C.	100%

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

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as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicant claims the following fee status:

○ Small Entity

○ Micro Entity

◉ Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

Registration Number 73822

○ A sole inventor

○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

○ A joint inventor; all of whom are signing this request

Signature	/Shannon Smith/
Name	Shannon Smith

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	14857854
Filing Date:	18-Sep-2015
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Filer:	Shannon Smith
Attorney Docket Number:	8580.3005.001

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 14857854

Filing Date: 18-Sep-2015

Applicant/Patent under Reexamination: Schulze

Electronic Terminal Disclaimer filed on July 28, 2017

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	29922391
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	23399
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	8580.3005.001
Receipt Date:	28-JUL-2017
Filing Date:	18-SEP-2015
Time Stamp:	15:10:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$160
RAM confirmation Number	073117INTEFSW00001546500852
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	35191 8f7e1f8e9ae9ded49e7a5fa7c32d91a4fad73325	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30340 625523b27ec90a613a8d3ae92e586ca7618940b2	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	65531		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Jul 25 2017

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s):
Shannon Smith

S-signature:
/Shannon Smith/

Registration Number:
73822

U.S. Application Number:
14857854

Confirmation Number:
2781

E-mail Address:
smith@reising.com

Phone Number:
2486893500

Proposed Time of Interview:
8-3-2017 2:00 PM ET

Prefered Interview Type:
Telephonic

I am the applicant or applicant's representative for this application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/857,854	09/18/2015	Michael D. Schulze	8580.3005.001	2781

23399 7590 07/19/2017

REISING ETHINGTON P.C.
P O BOX 4390
TROY, MI 48099-4390

EXAMINER
LODHI, ANDALIB FT

ART UNIT	PAPER NUMBER
2162	

MAIL DATE	DELIVERY MODE
07/19/2017	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of References Cited	Application/Control No. 14/857,854	Applicant(s)/Patent Under Reexamination SCHULZE ET AL.	
	Examiner ANDALIB LODHI	Art Unit 2162	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5,187,750 A	02-1993	Behera; Bailochan	G06Q40/02	382/140
*	B	US-5,870,725 A	02-1999	Bellinger; David T.	G06Q20/042	705/44
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

First Action Interview Pilot Program Pre-Interview Communication	Application No. 14/857,854	Applicant(s) SCHULZE ET AL.	
	Examiner ANDALIB LODHI	Art Unit 2162	AIA (First Inventor to File) Status No

-The MAILING OR NOTIFICATION DATE of this communication appears on the cover sheet with the correspondence address -

THE SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **ONE MONTH OR THIRTY (30) DAYS,** WHICHEVER IS LONGER, FROM THE MAILING OR NOTIFICATION DATE OF THIS COMMUNICATION.

This time period for reply is extendable under 37 CFR 1.136(a) for only ONE additional MONTH.

This communication constitutes notice under 37 CFR 1.136(a)(1)(i).

Applicant must, within the time period for reply, file: (1) A letter requesting not to have a first action interview; (2) A reply under 37 CFR 1.111 waiving the first action interview and First Action Interview Office Action; or (3) An Applicant Initiated Interview Request Form (PTOL-413A) electronically via EFS-Web, accompanied by a proposed amendment or arguments, and schedule the interview within 2 months from the filing of the request. A failure to respond to this communication will be treated as a request not to have an interview. If applicant waives the First Action Interview Office Action, the instant Pre-Interview Communication is deemed the first Office Action on the Merits. The next subsequent Office action may be made final if appropriate. See MPEP 706.07(a).

Status

1)☒ Responsive to communication(s) filed on *September 18, 2015*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

Disposition of Claims

2)☒ Claim(s) *23-29 and 31-43* is/are pending in the application.

2a) Of the above claim(s) _____ is/are withdrawn from consideration.

3)☐ Claim(s) _____ is/are allowed.

4)☒ Claim(s) ***23-29 and 31-43*** is/are rejected.

5)☒ Claim(s) *23-29 and 31-42* is/are objected to.

6)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

7)☐ The specification is objected to by the Examiner.

8)☒ The drawing(s) filed on *09/18/2015* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

9)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

Contact Information

Examiner's Telephone Number: (571)270-1759

Examiner's Typical Work Schedule: Monday-Friday, 10:30am-6:30pm, EST Alt Friday off

Supervisor's Name: Pierre Vital

Supervisor's Telephone Number:

Attachment(s)

1) ☒Notice of References Cited (PTO-892)

2) ☒Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/16/2017*.

3) ☐Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

First Action Interview Pilot Program Pre-Interview Communication	Application No. 14/857,854	Applicant(s) SCHULZE ET AL.	
	Examiner ANDALIB LODHI	Art Unit 2162	AIA (First Inventor to File) Status No

Notification of Rejection(s) and/or Objection(s)

#	Claim(s)	Reference(s) (if applicable)	Rejection Statutory Basis	Brief Explanation of Rejection
1	23-29 and 31-43		Double Patenting	Claim 23, and 34 and 43 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 9 and 1 respectively in the patented application no: 9141612, 7836067, 7552118, 6963866, 6446072.
2	23-29 and 31-43		101	Claims 23-29 and 31-43 are directed to the abstract idea of obtain electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system by storing , receiving, comparing, accessing, retrieving and providing
3	43	A,B	103	Reference A discloses claim 43 for limitation storing at least some of the electronic.. (see Fig. 1, ref. 10, 20, 30 as storage, col. 5 lines 1-13, certain days of month and col. 14 lines 43-68,date (of capture of document into the system);Account number
r4	23-29 and 31-42		Allowable Subject Matter	Claims 23-29 and 31-42 would be allowable if claims 23, 34 and 43 rewritten to overcome the rejection(s) under double patenting and 35 U.S.C. 101 set forth in this Office action and to include all of the limitations of the base and any intervening claims.

Expanded Discussion/Commentary

1		Although the conflicting claims are not identical, they are not patentably distinct from each other because it is obvious to one of the ordinary skill in the art, that the broader language of claims 23, and 34 and 43 of the instant application 14/857854 will read on the language of grater scope of claims 9 and 1 respectively in the patented application no: 9141612,
2		electronic image of the financial document that have been identified in the court such as the concept of data recognition and storage in Content Extraction & Transmission v. Wells Fargo Bank, N.A., 113 USPQ2d 1354 (Fed. Cir. 2014) and the concept of remotely accessing and retrieving userspecified information in Intellectual Ventures I LLC v. Erie Indem. Co., 121 USPQ2d 1928 (Fed. Cir. 2017), and thus, the claims include an abstract idea. The claims do not include limitations that are "significantly more" than the abstract idea because the claims do not
		include an improvement to another technology or technical field, an improvement to the functioning of the computer itself, or meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment.
3		Check Number; Amount of Check. (The capture date is placed on the original document); receiving a request from.. (see Fig.1, ref. 12 and corresponding text; see also col 4, lines 24-25, a system operator can use a workstation such as workstation 12 to access data from the SRM 10), see 7 lines 1-9, actual check images are related to an index file; electronically retrieving an electronic image..(see col. 5 lines 1-8, data to be retrieved and Abstract, the system retrieves and accumulates monthly groups of digital image data; see also col 9, lines 19-21);
		providing the electronic image(see col 4 lines 28-30 and lines 52-56).A teaches financial documents, A does not teaches electronic images of financial documents. B teaches at col. 12 lines 21-27, 'check images (i.e. electronic images of financial documents)' are also stored initially on system DASD 2 in the IBM Check Image Management System (CIMS) data base). It would have been obvious to combine these teachings in order to provide easy access to number of electronic image documents and capture data and issue data on the media of choice in formats. compa
4		The dependent claims, being further limiting to the independent claims, definite and enabled by the Specification will be also allowed.

DATE: 17 July, 2017	/Andalib F. Lodhi/ Examiner Art Unit: 2162	/Mohammad S. Rostami/ Primary Examiner Art Unit: 2154

Notice of References Cited	Application/Control No. 14/857,854	Applicant(s)/Patent Under Reexamination SCHULZE ET AL.	
	Examiner ANDALIB LODHI	Art Unit 2162	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5,187,750 A	02-1993	Behera; Bailochan	G06Q40/02	382/140
*	B	US-5,870,725 A	02-1999	Bellinger; David T.	G06Q20/042	705/44
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

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	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14857854
Filing Date	2015-09-18
First Named Inventor	Michael D. Schulze
Art Unit	2162
Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5384835		1995-01-24	Wheeler, et. al	
	2	5373550		1994-12-13	Campbell, et. al	
	3	5602933		1997-02-11	Blackwell, et. al	
	4	5305196		1994-04-19	Deaton, et.al	
	5	5910988		1999-06-08	Ballard	
	6	5926288		1999-07-20	Dellert, et al	
	7	5742792		1998-04-21	Yanai, et. al	
	8	5109439		1992-04-28	Froessl	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.F.L/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
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Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

	9	5097517		1992-03-17	Holt	
	10	5787403		1998-07-28	Randle	
	11	5784610		1998-07-21	Copeland, III et al	
	12	5783808		1998-07-21	Josephson	
	13	5940844		1999-08-17	Cahill et al	
	14	5325511		1994-06-28	Collins et al.	
	15	5339311		1994-08-16	Turner	
	16	5361255		1994-11-01	Diaz et al	
	17	5592432		1997-01-07	Vishlitzky, et al	
	18	5602936		1997-02-01	Green et al.	
	19	5649196		1997-07-15	Woodhill et al.	

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	20	5706457		1998-01-06	Dwyer et al.	
	21	5751993		1998-05-12	Ofek et al.	
	22	5806078		1998-09-08	Hug et al.	
	23	5819300		1998-10-06	Kohno et al.	
	24	5825506		1998-10-20	Bednar et al.	
	25	5825943		1998-10-20	DeVio et al.	
	26	5860066		1999-01-12	Rouse	
	27	5870725		1999-02-09	Bellinger et al.	
	28	5895455		1999-04-20	Bellinger et al.	
	29	5897643		1999-04-27	Matsumoto	
	30	5926623		1999-07-20	Tsukakoshi et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.F.L/

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	31	5949492		1999-09-07	Mankovitz	
	32	5953729		1999-09-14	Cabrera et al.	
	33	5187750		1993-02-16	Behera	
	34	4888812		1989-12-19	Dinan et al.	
	35	4899299		1990-02-06	MacPhail	
	36	4941125		1990-06-10	Boyne	
	37	5170466		1992-12-08	Rogan et al.	
	38	5287497		1994-02-15	Behera	
	39	5301350		1994-04-05	Rogan et al.	
	40	5321816		1994-06-14	Rogan et al.	
	41	6029175		2000-02-22	Chow et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.F.L/

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Attorney Docket Number	8580.3005.001

	42	6061686		2000-05-09	Gauvin et al.	
	43	6065026		2000-05-16	Cornelia et al.	
	44	6157931		2000-12-05	Cane et al.	
	45	6097834		2000-08-01	Krouse et al.	
	46	6115509		2000-09-05	Yeskel	
	47	6124878		2000-09-26	Adams et al.	
	48	6181837		2001-01-30	Cahill et al.	
	49	6212303		2001-04-03	Doran et al.	
	50	6246778		2001-06-12	Moore	
	51	6269380		2001-07-31	Terry et al.	
	52	6269382		2001-07-31	Cabrera et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.F.L/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

	53	6308179		2001-10-23	Petersen et al.	
	54	6321258		2001-11-20	Stollfus et al.	
	55	6446072		2002-09-03	Schulze et al.	
	56	3872448		1975-03-18	Mitchell, Jr.	
	57	4817050		1989-03-28	Komatsu et al.	
	58	5029016		1991-07-02	Hiyama et al.	
	59	5058185		1991-10-15	Morris et al.	
	60	5153936		1992-10-16	Morris et al.	
	61	5218685		1993-06-08	Jones	
	62	5247660		1993-09-21	Ashcraft et al.	
	63	5506986		1996-04-09	Healy	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.F.L/

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	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

	64	5530899		1996-06-25	MacDonald	
	65	5548770		1996-06-20	Bridges	
	66	5550976		1996-08-27	Henderson et al.	
	67	5572726		1996-11-05	Hasuo	
	68	5584008		1996-12-10	Shimada et al.	
	69	5678042		1997-10-14	Pisello et al.	
	70	5678046		1997-10-14	Cahill et al.	
	71	5727164		1998-03-10	Keye et al.	
	72	5732214		1998-03-24	Subrahmanyam	
	73	5742807		1998-04-21	Masinter	
	74	5813009		1998-09-02	Johnson et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.F.L/

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Art Unit	2162
Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

	75	5901228		1999-05-04	Crawford	
	76	5917958		1999-06-29	Nunally et al.	
	77	5924074		1999-07-13	Evans	
	78	60233710		2000-02-08	Steiner et al.	
	79	6081251		2000-06-27	Sakai et al.	
	80	6157930		2000-12-15	Ballard et al.	
	81	6236767		2001-05-22	Altman	
	82	6349330		2002-02-19	Bernadett et al.	
	83	6360306		2002-03-19	Bergsten	
	84	6366930		2002-04-02	Parker et al.	
	85	6557039		2003-04-29	Leong et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.F.L/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

	86	6574629		2003-06-03	Cooke, Jr. et al.	
	87	6584466		2003-06-24	Serbinis et al.	
	88	6886047		2005-04-26	Leong et al.	
	89	6820094		2004-11-16	Ferguson et al.	
	90	7836067	B2	2010-11-16	Schulze et al.	
	91	9141612		2015-03-15	Schulze et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

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Examiner Signature	/ANDALIB F LODHI/	Date Considered	07/17/2017

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14857854
Filing Date	2015-09-18
First Named Inventor	Michael D. Schulze
Art Unit	2162
Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shannon K. Smith/	Date (YYYY-MM-DD)	2017-06-16
Name/Print	Shannon K. Smith	Registration Number	73822

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
		access$3 near5 financial near1 (document record$2 file$1)) with (document file$1 record$2) with (image$2 snap$6) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date and threshold	US-PGPUB; USPAT	OR	ON	2017/07/12 15:53
		"5895455".pn.	US-PGPUB; USPAT	OR	ON	2009/02/25 19:34
L7	12	(financial near1 (document record$2 file$1)) with (image$2 snap$6) and access$3 near5 (document file$1 record$2) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 (record near1 date)	US-PGPUB; USPAT	OR	ON	2017/07/17 16:19
L16	1	"5870725".pn.	US-PGPUB; USPAT	OR	ON	2017/07/17 16:40
L17	3	"5870725".pn.	US-PGPUB; USPAT; DERWENT	OR	ON	2017/07/17 16:40
S1	1	"6963866".pn.	US-PGPUB; USPAT	OR	ON	2007/09/14 15:03
S2	1	"6446072".pn.	US-PGPUB; USPAT	OR	ON	2007/09/18 09:34
S3	2	("20060041493").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/17 11:20
S4	107	"5187750"	US-PGPUB; USPAT	OR	ON	2007/09/17 11:21
S5	1	"5187750".pn.	US-PGPUB; USPAT	OR	ON	2007/09/17 11:21
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S10	330	S9 same index	US-PGPUB; USPAT	OR	ON	2007/09/18 09:51
S11	395	S9 same index$3	US-PGPUB; USPAT	OR	ON	2007/09/18 09:51
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S15	1721	document with process$3 with remote$2	US-PGPUB; USPAT	OR	ON	2007/09/18 10:00
S16	320	S15 same (storage or archival)	US-PGPUB; USPAT	OR	ON	2007/09/18 10:00
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S29	90	S27 and 707/10.ccls.	US-PGPUB; USPAT	OR	ON	2008/07/08 19:08
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S53	931	S52 same (business or enterprise or market)	US-PGPUB; USPAT	OR	ON	2009/02/25 20:02
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S82	3	access$3 near5 (financial near1 (document or file)) same ((electronic or digital) near1 (image or picture or snap))	US-PGPUB; USPAT	OR	ON	2017/07/11 20:12
S83	26	access$3 near5 (financial near1 (document or file)) and ((electronic or digital) near1 (image or picture or snap))	US-PGPUB; USPAT	OR	ON	2017/07/11 20:12
S84	104	(financial near1 (document record$2 file)) with (image$2 snap$6) and access$3 near5 (document file record$2) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date	US-PGPUB; USPAT	OR	ON	2017/07/12 11:45
S85	104	(financial near1 (document record$2 file$1)) with (image$2 snap$6) and access$3 near5 (document file$1 record$2) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date	US-PGPUB; USPAT	OR	ON	2017/07/12 11:46

S86	0	(financial near1 (document record$2 file$1)) with (image$2 snap$6) and access$3 near5 (document file$1 record$2) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date same threshold	US-PGPUB; USPAT	OR	ON	2017/07/12 11:47
S87	0	(financial near1 (document record$2 file$1)) with (image$2 snap$6) and access$3 near5 (document file$1 record$2) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date and @ad<"19990413"	US-PGPUB; USPAT	OR	ON	2017/07/12 11:52
S88	1	"6363488".pn.	US-PGPUB; USPAT	OR	ON	2017/07/12 11:53
S89	1	"8474703".pn.	US-PGPUB; USPAT	OR	ON	2017/07/12 11:54
S91	81	(financial near1 (document record$2 file$1)) with (image$2 snap$6) and access$3 near5 (document file$1 record$2) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date and threshold	US-PGPUB; USPAT	OR	ON	2017/07/12 12:50
S92	0	(financial near1 (document record$2 file$1)) with (image$2 snap$6) and access$3 near5 (document file$1 record$2) and compar$5 near7 (sequenc$4$5 numeric$4 number$2) and compar$4 near7 date same threshold	US-PGPUB; USPAT	OR	ON	2017/07/12 12:50
S94	20	08/780545	US-PGPUB; USPAT	OR	ON	2017/07/12 13:17
S95	0	08/780545.ap.	US-PGPUB; USPAT	OR	ON	2017/07/12 13:17
S96	1	"5917912".pn.	US-PGPUB; USPAT	OR	ON	2017/07/12 13:17
S97	1	"5187750".pn.	US-PGPUB; USPAT	OR	ON	2017/07/12 13:42
S98	1	"4611280".pn.	US-PGPUB; USPAT	OR	ON	2017/07/12 14:30

7/17/2017 4:45:47 PM
C:\Users\alodhi\Documents\EAST\Workspaces\11202790.wsp

PTO/SB/413C (05-11)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR FIRST ACTION INTERVIEW (FULL PILOT PROGRAM)

Attorney Docket Number: 8580.3005.001	Application Number (if known): 14857854	Filing date: 09-18-2015
First Named Inventor: Michael D. Schulze	Title: Remote Document Retrieval and Storage System	

APPLICANT HEREBY REQUESTS A FIRST ACTION INTERVIEW IN THE ABOVE-IDENTIFIED APPLICATION. **See Instruction Sheet on page 2.**

1. The application must contain three (3) or fewer independent claims and twenty (20) or fewer total claims.

2. The application must not contain any multiple dependent claims.

3. By filing this request:

   Applicant is agreeing to make an election without traverse if the Office determines that the claims are not obviously directed to a single invention; and

   Applicant is agreeing not to request for a refund of the search fee and any excess claims fee paid in the application after the mailing or notification of the pre-interview communication prepared by the examiner.

4. Other attachments: _____

Signature /Shannon K. Smith/	Date 07-11-2017
Name (Print/Typed) Shannon K. Smith	Registration Number 73822

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.*

■ *Total of 1 forms are submitted.

The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Instruction Sheet for Request for First Action Interview (Full Pilot Program)

(Not to be Submitted to the USPTO)

A grantable request must meet the following conditions:

1. The application must be a new non-reissue utility application filed under 35 U.S.C. 111(a) or an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).

2. The application must contain three (3) or fewer independent claims and twenty (20) or fewer total claims. The application may not contain any multiple dependent claims.

3. The request must be filed electronically using the Office's electronic filing system, EFS-Web.

4. The claims must be directed to a single invention. If the Office determines that the claims are directed to multiple inventions (*e.g.*, in a restriction requirement), the applicant must make an election without traverse.

5. The request must be filed at least one day before a first Office action on the merits of the application appears in the Patent Application Information Retrieval (PAIR) system (*i.e.*, at least one day prior to the date when a first Office action on the merits, notice of allowability or allowance, or action under Ex parte Quayle, 1935 Dec. Comm'r Pat. 11 (1935) appears in the PAIR system). Applicant may check the status of the application using the PAIR system.

6. The request for a first action interview must include a statement that applicant agrees not to file a request for a refund of the search fee and any excess claims fees paid in the application after the mailing or notification of the Pre-Interview Communication. Any petition for express abandonment under 37 CFR 1.138(d), and request for a refund of the search fee and any excess claims fees, filed after the mailing or notification of the Pre-Interview Communication will not be granted.

For more information, see notice "Full First Action Interview Pilot Program" available on the USPTO web site at http://www.uspto.gov/patents/init_events/faipp_full.jsp

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/413C (05-11)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE
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REQUEST FOR FIRST ACTION INTERVIEW (FULL PILOT PROGRAM)

Attorney Docket Number: 8580.3005.001	Application Number (if known): 14857854	Filing date: 09-18-2015
First Named Inventor: Michael D. Schulze	Title: Remote Document Retrieval and Storage System	

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4. Other attachments: _____

Signature /Shannon K. Smith/	Date 07-11-2017
Name (Print/Typed) Shannon K. Smith	Registration Number 73822

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3. The request must be filed electronically using the Office's electronic filing system, EFS-Web.

4. The claims must be directed to a single invention. If the Office determines that the claims are directed to multiple inventions (*e.g.*, in a restriction requirement), the applicant must make an election without traverse.

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6. The request for a first action interview must include a statement that applicant agrees not to file a request for a refund of the search fee and any excess claims fees paid in the application after the mailing or notification of the Pre-Interview Communication. Any petition for express abandonment under 37 CFR 1.138(d), and request for a refund of the search fee and any excess claims fees, filed after the mailing or notification of the Pre-Interview Communication will not be granted.

For more information, see notice "Full First Action Interview Pilot Program" available on the USPTO web site at http://www.uspto.gov/patents/init_events/faipp_full.jsp

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	29754442
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	23399
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	8580.3005.001
Receipt Date:	11-JUL-2017
Filing Date:	18-SEP-2015
Time Stamp:	22:38:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	First Action Interview - Enrollment Request	FirstActionInterviewRequest.pdf	621925 75e23e77fb51fed8dff70fea4e9bdb1ebfbe874c	no	3

Warnings:

Information:	
Total Files Size (in bytes):	621925

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	8580.3005.001

CONFIRMATION NO. 2781

23399
REISING ETHINGTON P.C.
P O BOX 4390
TROY, MI 48099-4390

POA ACCEPTANCE LETTER

OC000000092584553

Date Mailed: 07/06/2017

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/05/2017.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/cvorachack/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/857,854	09/18/2015	2162	1600	8580.3005.001	10	1

CONFIRMATION NO. 2781

CORRECTED FILING RECEIPT

23399
REISING ETHINGTON P.C.
P O BOX 4390
TROY, MI 48099-4390

Date Mailed: 07/06/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Michael D. Schulze, Troy, MI;
Richard J. Gagnon, Grosse Pointe Park, MI;

Applicant(s)

Mirror Imaging L.L.C., Warren, MI;

Assignment For Published Patent Application

Mirror Imaging L.L.C., Warren, MI

Power of Attorney: The patent practitioners associated with Customer Number 23399

Domestic Priority data as claimed by applicant

This application is a CON of 13/840,892 03/15/2013 PAT 9141612
which is a CON of 13/272,936 10/13/2011 ABN
which is a CON of 12/902,973 10/12/2010 ABN
which is a CON of 12/489,087 06/22/2009 PAT 7836067
which is a CON of 11/202,790 08/12/2005 PAT 7552118
which is a CON of 10/104,541 03/22/2002 PAT 6963866
which is a CON of 09/548,490 04/13/2000 PAT 6446072
which claims benefit of 60/129,021 04/13/1999

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: No

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 09/30/2015
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/857,854**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
Title

REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Preliminary Class

707

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Doc Code: PA..
Document Description: Power of Attorney

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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/857,854
Filing Date	September 18, 2015
First Named Inventor	Michael D. Schulze
Title	Remote Document Retrieval and Storage System
Art Unit	2162
Examiner Name	Lodhi, Andalib FT
Attorney Docket Number	8580.3005.001

SIGNATURE of Applicant or Patent Practitioner

Signature	/Shannon K. Smith/	Date (Optional)	
Name	Shannon K. Smith	Registration Number	73822
Title (if Applicant is a juristic entity)	Attorney of Record		
Applicant Name (if Applicant is a juristic entity)	Mirror Imaging L.L.C.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 23399

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Mirror Imaging L.L.C.

☐ Inventor or Joint Inventor (title not required below)
☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	6-6-17
Name	Michael D. Schulze		
Title	President, Mirror Imaging L.L.C.		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	D.	Schulze	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Troy	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	1607 Kirts		
Address 2	Apartment 103		
City	Troy	State/Province	MI
Postal Code	48084	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Richard	J.	Gagnon	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Grosse Pointe Farms	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	69 Touraine Road		
Address 2			
City	Grosse Pointe Farms	State/Province	MI
Postal Code	48236	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	23399		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM		
Attorney Docket Number	8580.3005.001	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	~~000113243~~ 23399		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
13840892	Continuation of	13272936	2013-03-15
Prior Application Status	Abandoned		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
~~3272936~~ 13272936	Continuation of	12902973	2010-10-12
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12902973	Continuation of	12489087	2009-06-22	7836067	2010-11-16
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12489087	Continuation of	11202790	2005-08-12	7552118	2009-06-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11202790	Continuation of	10104541	2002-03-22	6963866	2005-11-08
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10104541	Continuation of	09548490	2000-04-13	6446072	2002-09-03
Prior Application Status	Expired			Remove	

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
09548490	Claims benefit of provisional	60129021	1999-04-13

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Mirror Imaging L.L.C.		
Mailing Address Information For Applicant:			
Address 1	27500 Donald Court		
Address 2			
City	Warren	**State/Province**	MI
Country	US	Postal Code	48092
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Mirror Imaging L.L.C.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	27500 Donald Court		
Address 2			
City	Warren	**State/Province**	MI
Country	US	Postal Code	48092
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Shannon K. Smith/			Date (YYYY-MM-DD)	2016-06-16
First Name	Shannon K.	Last Name	Smith	Registration Number	73822

Additional Signature may be generated within this form by selecting the Add button.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	29689661
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	113243
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	05-JUL-2017
Filing Date:	18-SEP-2015
Time Stamp:	14:44:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	ResponseToPOADenial.pdf	67475 eb548f62b00c9533d63cf7449584cdce06747066	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	373withAssignment.pdf	1639354 0fcc34d7882ae297952132416ef76d1578d800df	no	4
Warnings:					
Information:					
3	Power of Attorney	POA-Mirror_Imaging-Signed.pdf	215580 8bbd8a45e6d8e61d7188b5c89818b4740b6bf3f2	no	2
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
4	Application Data Sheet	ADS-revised.pdf	197043 5534a7ae65af24496056f72472a8b9b7deac0ba8	no	9
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
			Total Files Size (in bytes):	2119452	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. Serial No.:	14/857,854
Inventor:	Schulze, Michael D.
Title:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
Filed:	September 18, 2015
Group Art Unit:	2162
Confirmation No.:	2781
Examiner:	Lodhi, Andalib FT
Attorney Docket No.:	8580.3005.001

RESPONSE TO DENIAL OF REQUEST FOR POWER OF ATTORNEY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

On June 16, 2017, a Power of Attorney was filed with a revised ADS to name Mirror Imaging L.L.C. as the Applicant. The request for Power of Attorney was not granted because a statement under 3.73 was not yet filed. Accordingly, submitted herewith is the Power of Attorney, the revised ADS to name Mirror Imaging LLC as the Applicant, and a 3.73 statement. An assignment from the inventors to the Applicant/patent owner Mirror Imaging L.L.C. is submitted with the 3.73 statement. It should be noted that the application number listed on the assignment is the application for the parent application of the present, continuation application. *See* MPEP § 306 ("In the case of a division or continuation application, a prior assignment recorded against the original application is applied (effective) to the division or continuation application because the assignment recorded

against the original application gives the assignee rights to the subject matter common to both applications."). The assignment has been submitted to the Assignment Division for recordation, but has yet to be assigned a reel/frame number.

The Examiner or a representative from the Application Assistance Unit is invited to telephone the undersigned if doing so would advance prosecution of this case.

The Commissioner is hereby authorized to charge any deficiencies, or credit any overpayment, associated with this communication to Deposit Account No. 50-0852.

Respectfully submitted,

REISING ETHINGTON P.C.

/Shannon K. Smith/

Shannon K. Smith
Registration No. 73,822
P.O. Box 4390
Troy, Michigan 48099
(248) 689-3500

Date: July 5, 2017
RWH/SKS

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Mirror Imaging L.L.C.

Application No./Patent No.: 14/857,854 Filed/Issue Date: September 18, 2015

Titled: Remote Document Retrieval and Storage System

Mirror Imaging L.L.C., a limited liability company

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Michael D. Schulze and Richard J. Gagnon (Inventors) To: Mirror Imaging L.L.C.

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Shannon K. Smith/	July 5, 2017
Signature	Date
Shannon K. Smith	73822
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Docket No. 60,419-002

ASSIGNMENT
(Joint Inventors)

For the sum of One Dollar ($1.00) and other good and valuable consideration, receipt of which is hereby acknowledged, we, **Michael D. Schulze and Richard J. Gagnon**, residing respectively at **1607 Kirts Blvd., Troy, Michigan 48084 and 69 Touraine Road, Grosse Pointe Farms, Michigan 48236**, do hereby assign, sell and set over to **Mirror Imaging L.L.C.** organized and existing under the laws of the State of **Michigan** and having a place of business at **26011 Evergreen Road, Suite 205, Southfield, Michigan 48076**, hereinafter referred to as ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in

METHOD OF OBTAINING AN ELECTRONICALLY STORED FINANCIAL DOCUMENT

which is set forth in an application for Letters Patent in the United States filed on April 13, 2000 and having Serial No. 09/548,490, attorney docket number 60,419-002; including the right of said ASSIGNEE, its successors, assigns or other legal representatives to file foreign patent applications corresponding to said application, and the right to claim the priority date of said application and any legal equivalents thereof, and any and all Letters Patent or Patents in the United States of America and all foreign countries which may be granted therefor and thereon, and to any and all divisions, continuations, and continuations-in-part of said application, or re-issues or extensions of said Letters Patent or Patents, the same to be held and enjoyed by the ASSIGNEE, as fully and entirely as the same would have been held by us had this Assignment and sale not been made.

And we hereby covenant and agree that we, our heirs, successors, assigns or other legal representatives will at any time upon the request and at the expense of the ASSIGNEE, its successors, assigns, or other legal representatives execute and deliver any and all papers and do all lawful acts that may be necessary or desirable to perfect the title to said invention and to obtain Letters Patent therefor.

And we hereby authorize and request the Commissioner of Patents to issue said Letters Patent to the ASSIGNEE in accordance with this Agreement.

And we hereby represent and warrant that we have not granted any rights inconsistent with the rights granted herein.

6-28-02
Date

Michael D. Schulze

6-28-02
Date

Richard D. Gagnon

Please address all correspondence and telephone calls and, upon recordation, please return this document to:

SAMUEL J. HAIDLE
HOWARD & HOWARD
39400 Woodward Avenue, Suite 101
Bloomfield Hills, Michigan 48304-5151
(248) 645-1483

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Organization _____ Bldg./Room _____

UNITED STATES PATENT AND TRADEMARK OFFICE
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

OC000000092221064

113243
Michael Schulze
1607 Kirts Blvd.
#103
Troy, MI 48084

Cc: REISING ETHINGTON P.C.
P O BOX 4390
TROY, MI 48099-4390

Date Mailed: **06/20/2017**

DENIAL OF REQUEST FOR POWER OF ATTORNEY

The request for Power of Attorney filed **06/16/2017** is acknowledged. However, the request cannot be granted at this time for the reason stated below.

- ☐ The Power of Attorney you provided did not comply with the new Power of Attorney rules that became effective on June 25, 2004. See 37 CFR 1.32.
- ☐ The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.
- ☐ The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73(c) has not been received.
- ☐ The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
- ☐ The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
- ☐ The signature(s) of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor(s).
- ☐ The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent and Trademark Office.
- ☐ Only one Customer Number can be designated for the Power of Attorney in an application. The Customer Number that was captured is the first Customer Number provided on the Power of Attorney document.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

- ☐ A request under 37 CFR 1.48 to add an inventor was granted in this application, however, no power of attorney consistent with the power of attorney granted by the originally named inventive entity has been received. Thus, the addition of the inventor has resulted in the loss of power of attorney in the application. See 37 CFR 1.32(e).

- ☒ The power of attorney has not been accepted because the party who is giving power of attorney has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A patent owner who was not the applicant must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

- ☐ The power of attorney from the inventors has not been accepted because it is a copy from a prior national application for which benefit is claimed and the continuing application names an inventor who was not named as an inventor in the prior application.

- ☐ The power of attorney from the inventors has not been accepted because the power of attorney must be signed by the applicant for patent. See 37 CFR 1.32(b)(4).

- ☒ Any request to correct or update the name of the applicant must include an application data sheet (ADS) in compliance with 37 CFR 1.76 specifying the correct or updated name of the applicant in the applicant information section. Any request to change the applicant after an original applicant has been specified under 37 CFR 1.46(b) must include a new ADS in compliance with 37 CFR 1.76 specifying the applicant in the applicant information section and comply with 37 CFR 3.71 and 3.73. See 37 CFR 1.46(c).

Any inquiries regarding this notice should be directed to the Application Assistance Unit at 571-272-4200.

Application Assistance Unit
571-272-4200

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

IMPROPER CFR REQUEST

113243
Michael Schulze
1607 Kirts Blvd.
#103
Troy, MI 48084

OC00000092221131

Date Mailed: 06/20/2017

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- The ADS submitted on 06/16/2017 attempts to change the applicant but cannot be entered. Any request to change the applicant once the applicant has been specified must include (1) an application data sheet specifying the new applicant in the Applicant Information section, and (2) a statement under 37 CFR 3.73(c) (USPTO Form PTO/AIA/96 or an equivalent) to show chain of title to the new applicant. The application data sheet must contain markings to show the information that is being changed, with underlining for additions and strike-through or brackets for deletions. See 37 CFR 1.76(c)(2).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ctuazon/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

113243
Michael Schulze
1607 Kirts Blvd.
#103
Troy, MI 48084

MISCELLANEOUS NOTICE

OC00000092221064

Date Mailed: 06/20/2017

A communication which cannot be delivered in electronic form has been mailed to the applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

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113243
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Cc: REISING ETHINGTON P.C.
P O BOX 4390
TROY, MI 48099-4390

Date Mailed: **06/20/2017**

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- ☐ The Power of Attorney you provided did not comply with the new Power of Attorney rules that became effective on June 25, 2004. See 37 CFR 1.32.
- ☐ The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.
- ☐ The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73(c) has not been received.
- ☐ The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
- ☐ The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
- ☐ The signature(s) of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor(s).
- ☐ The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent and Trademark Office.
- ☐ Only one Customer Number can be designated for the Power of Attorney in an application. The Customer Number that was captured is the first Customer Number provided on the Power of Attorney document.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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- ☐ A request under 37 CFR 1.48 to add an inventor was granted in this application, however, no power of attorney consistent with the power of attorney granted by the originally named inventive entity has been received. Thus, the addition of the inventor has resulted in the loss of power of attorney in the application. See 37 CFR 1.32(e).

- ☒ The power of attorney has not been accepted because the party who is giving power of attorney has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A patent owner who was not the applicant must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

- ☐ The power of attorney from the inventors has not been accepted because it is a copy from a prior national application for which benefit is claimed and the continuing application names an inventor who was not named as an inventor in the prior application.

- ☐ The power of attorney from the inventors has not been accepted because the power of attorney must be signed by the applicant for patent. See 37 CFR 1.32(b)(4).

- ☒ Any request to correct or update the name of the applicant must include an application data sheet (ADS) in compliance with 37 CFR 1.76 specifying the correct or updated name of the applicant in the applicant information section. Any request to change the applicant after an original applicant has been specified under 37 CFR 1.46(b) must include a new ADS in compliance with 37 CFR 1.76 specifying the applicant in the applicant information section and comply with 37 CFR 3.71 and 3.73. See 37 CFR 1.46(c).

Any inquiries regarding this notice should be directed to the Application Assistance Unit at 571-272-4200.

Application Assistance Unit
571-272-4200

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. Serial No.:	14/857,854
Inventor:	Schulze, Michael D.
Title:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
Filed:	September 18, 2015
Group Art Unit:	2162
Confirmation No.:	2781
Examiner:	Lodhi, Andalib FT
Attorney Docket No.:	8580.3005.001

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Please amend the subject application as indicated on the following pages prior to determining the claims fee and conducting the first examination on the merits.

Amendments to the claims begin on page 2.

Remarks follow the amendments.

IN THE CLAIMS:

1.-22. **(Cancelled)**

23. **(Currently Amended)** A system **for selectively storing and retrieving electronic images of a plurality of financial documents, each electronic image being associated with a document parameter that includes a numerical sequence that is representative of a record date of the corresponding financial document, the system** comprising:

a. a first storage system including a first fixed medium, the first storage system configured to:

i. store **a at least some of the electronic images for the** plurality of financial documents wherein **each financial document has an electronic image in the first fixed medium when a specific the** document parameter **of a financial document is for each of the at least some of the electronic images that are configured to be stored in the first storage system are** greater than a predetermined parameter;

b. a second storage system including a second fixed medium, the second storage system configured to:

i. store **a at least some of the electronic images for the** plurality of financial documents wherein **each financial document has an electronic image in the second fixed medium when the specific the** document parameter **is for each of the at least some of the electronic images configured to be stored in the second storage system are** less than or equal to the predetermined parameter;

c. a processor which has electronic access to the first and second storage systems, wherein the processor is configured to:

i. receive a request for **an image of** one of the stored **financial documents electronic images of the plurality of financial documents**;

~~ii.~~ compare ~~a specific requested document parameter of a requested financial document~~ **the numerical sequence of the document parameter associated with the requested stored electronic image** to the predetermined parameter~~, wherein the specific document parameter of the financial document is a particular numerical sequence associated with the specific document parameter, and wherein the particular numerical sequence of the financial document includes a record date of the financial document~~;

~~iii.~~ access the first storage system when the ~~specific requested document parameter~~ **numerical sequence of the document parameter associated with the requested stored electronic image** is greater than the predetermined parameter;

~~iv.~~ access the second storage system when the ~~specific requested document parameter~~ **numerical sequence of the document parameter associated with the requested stored electronic image** is less than or equal to the predetermined parameter; **and**

~~v.~~ **automatically** retrieve the **requested stored electronic** image ~~of the requested financial document~~ from the first **storage system** or **the** second storage system once the **first storage system or the second** storage system has been accessed.

24. **(Previously Presented)** A system as set forth in claim 23 wherein the first and second fixed mediums are different from each other.

25. **(Currently Amended)** A system as set forth in claim 23 wherein storing ~~a plurality of~~ **the at least some of the electronic images of the plurality of** financial documents in ~~a~~ **the** first fixed medium is further defined as storing ~~a plurality of~~ **the at least some of the electronic images of the plurality of** financial documents on a physical media.

26. **(Currently Amended)** A system as set forth in claim 23 wherein storing ~~**a plurality of**~~ **the at least some of the electronic images of the plurality of** financial documents in ~~**a**~~ **the** second fixed medium is further defined as electronically storing ~~**the plurality of**~~ **the at least some of the electronic images of the plurality of** financial documents in a fixed electronic medium.

27. **(Currently Amended)** A system as set forth in claim 23 wherein storing ~~**the plurality of**~~ **the at least some of the electronic images of the plurality of** financial documents in ~~**a**~~ **the** first fixed medium is further defined as electronically storing ~~**the plurality of**~~ **the at least some of the electronic images of the plurality of** financial documents in a fixed electronic medium.

28. **(Currently Amended)** A system as set forth in claim 23 wherein storing ~~**the plurality of**~~ **the at least some of the electronic images of the plurality of** financial documents in ~~**a**~~ **the** second fixed medium is further defined as storing ~~**the plurality of**~~ **the at least some of the electronic images of the plurality of** financial documents on a physical media.

29. **(Previously Presented)** A system as set forth in claim 23 wherein the first and second fixed mediums are the same.

30. **(Cancelled)**

31. **(Currently Amended)** A system as set forth in claim 23 further including reproducing the requested ~~**financial document**~~ **stored electronic image** after the ~~**requested financial document**~~ **stored electronic image** has been retrieved from the accessed storage system.

32. **(Currently Amended)** A system as set forth in claim 23 wherein accessing the first ~~**and**~~ **storage system or the** second storage ~~**systems**~~ **system** is further defined as

accessing only one of the ~~storage systems~~ **first storage system or the second storage system** at any one time to locate the requested ~~financial document~~ **stored electronic image**.

33. **(New)** A storage system as set forth in claim 23 wherein the processor which has electronic access to the first storage system and the second storage system is also inter-linked to the first storage system and the second storage system.

34. **(New)** A method of accessing an electronically-stored financial document from one of a first storage system and a second storage system with the first and second storage systems being different from each other, wherein the first and second storage systems each include a plurality of financial documents stored therein and wherein each of the financial documents has an electronic image and is associated with at least one specific document parameter, said method comprising the steps of:

storing a plurality of images of the financial documents in a first fixed medium at the first storage system when the specific document parameter of the financial document is greater than a predetermined parameter, wherein the predetermined parameter includes a numerical record date;

storing a plurality of images of the financial documents in a second fixed medium at the second storage system when the specific document parameter of the financial document is less than or equal to the predetermined parameter;

utilizing at least one processor that has access to the first and second storage systems;

receiving a request for an image of one of the stored financial documents at the processor;

comparing the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter after the request has been received, wherein the specific document parameter of the financial document is a particular numerical sequence associated with

the specific document parameter, and wherein the particular numerical sequence of the financial document includes a record date of the financial document;

automatically accessing the first storage system when the specific document parameter is greater than the predetermined parameter and automatically accessing the second storage system when the specific document parameter is less than or equal to the predetermined parameter; and

automatically retrieving the image of the requested financial document from the accessed storage system as defined by the received request.

35. **(New)** A method as set forth in claim 34 wherein the first and second fixed mediums are different from each other.

36. **(New)** A method as set forth in claim 34 further including the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system.

37. **(New)** A method as set forth in claim 36 wherein the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system includes reproducing the requested financial document onto paper.

38. **(New)** A method as set forth in claim 36 wherein the step of reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system includes electronically reproducing the requested financial document.

39. **(New)** A method as set forth in claim 34 wherein the first and second storage systems are associated with the same entity.

40. **(New)** A method as set forth in claim 34 wherein the first and second storage systems are associated with different entities.

41. **(New)** A method as set forth in claim 34 wherein the first and second fixed mediums are the same.

42. **(New)** A method as set forth in claim 34 wherein the step of automatically accessing the first storage system when the specific document parameter is greater than the predetermined parameter and automatically accessing the second storage system when the specific document parameter is less than or equal to the predetermined parameter utilizes a processor inter-linked to the first storage system and the second storage system.

43. **(New)** A method for selectively storing and retrieving electronic images of financial documents, each electronic image being associated with a document parameter that includes a numerical sequence that is representative of a record date of the corresponding financial document, the method comprising the steps of:

storing at least some of the electronic images of financial documents at an off-site storage system, wherein the record date of the at least some of the electronic images stored at the off-site storage system is earlier than or equal to a date that is before a current date;

receiving a request from a requester for a financial document at a processor associated with the off-site storage system, wherein an origination of the request is remotely located from the off-site storage system;

electronically retrieving an electronic image of the requested financial document from the at least some of the electronic images of financial documents stored at the off-site storage system when the record date of the requested financial document is earlier than or equal to the date that is before the current date; and

providing the electronic image of the requested financial document from the at least some of the electronic images of financial documents stored at the off-site storage system to the requester when the record date of the requested

financial document is earlier than or equal to the date that is before the current date.

REMARKS

This preliminary amendment is being filed for the above-identified application in compliance with 37 C.F.R. § 1.121. In view of the fact that the current status of the case is "Docketed New Case – Ready for Examination," Applicant respectfully submits that disapproval of the enclosed amendment is not appropriate. Accordingly, Applicant requests entry of the foregoing amendment prior to calculation of the fees and prior to the first examination on the merits.

The Examiner is invited to telephone the undersigned if doing so would advance prosecution of this case.

The Commissioner is hereby authorized to charge any deficiencies except for excess claim fees required under 37 C.F.R. 1.492(d) and (e), or credit any overpayment, associated with this communication to Deposit Account No. 50-0852.

Respectfully submitted,

REISING ETHINGTON P.C.

/Shannon K. Smith/

Shannon K. Smith
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Date: June 16, 2017
RWH/SKS

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/857,854
Filing Date	September 18, 2015
First Named Inventor	Michael D. Schulze
Title	Remote Document Retrieval and Storage System
Art Unit	2162
Examiner Name	Lodhi, Andalib FT
Attorney Docket Number	8580.3005.001

SIGNATURE of Applicant or Patent Practitioner

Signature	/Shannon K. Smith/	Date (Optional)	
Name	Shannon K. Smith	Registration Number	73822
Title (if Applicant is a juristic entity)	Attorney of Record		
Applicant Name (if Applicant is a juristic entity)	Mirror Imaging L.L.C.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 23399

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Mirror Imaging L.L.C.

☐ Inventor or Joint Inventor (title not required below)
☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	6-6-17
Name	Michael D. Schulze		
Title	President, Mirror Imaging L.L.C.		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	D.	Schulze	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Troy	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	1607 Kirts		
Address 2	Apartment 103		
City	Troy	State/Province	MI
Postal Code	48084	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Richard	J.	Gagnon	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Grosse Pointe Farms	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	69 Touraine Road		
Address 2			
City	Grosse Pointe Farms	State/Province	MI
Postal Code	48236	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	23399		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM		
Attorney Docket Number	8580.3005.001	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	~~000113243~~ 23399		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
13840892	Continuation of	13272936	2013-03-15
Prior Application Status	Abandoned		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
~~3272936~~ 13272936	Continuation of	12902973	2010-10-12
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12902973	Continuation of	12489087	2009-06-22	7836067	2010-11-16
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12489087	Continuation of	11202790	2005-08-12	7552118	2009-06-23
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11202790	Continuation of	10104541	2002-03-22	6963866	2005-11-08
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10104541	Continuation of	09548490	2000-04-13	6446072	2002-09-03

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
09548490	Claims benefit of provisional	60129021	1999-04-13

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Mirror Imaging L.L.C.		
Mailing Address Information For Applicant:			
Address 1	27500 Donald Court		
Address 2			
City	Warren	**State/Province**	MI
Country	US	Postal Code	48092
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Mirror Imaging L.L.C.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	27500 Donald Court		
Address 2			
City	Warren	**State/Province**	MI
Country	US	Postal Code	48092
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Shannon K. Smith/			Date (YYYY-MM-DD)	2016-06-16
First Name	Shannon K.	Last Name	Smith	Registration Number	73822

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	8580.3005.001
	Application Number	14/857,854
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	14857854
Filing Date	2015-09-18
First Named Inventor	Michael D. Schulze
Art Unit	2162
Examiner Name	Andalib Ft Lodhi
Attorney Docket Number	8580.3005.001

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5384835		1995-01-24	Wheeler, et. al	
	2	5373550		1994-12-13	Campbell, et. al	
	3	5602933		1997-02-11	Blackwell, et. al	
	4	5305196		1994-04-19	Deaton, et.al	
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	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

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	10	5787403		1998-07-28	Randle	
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	14	5325511		1994-06-28	Collins et al.	
	15	5339311		1994-08-16	Turner	
	16	5361255		1994-11-01	Diaz et al	
	17	5592432		1997-01-07	Vishlitzky, et al	
	18	5602936		1997-02-01	Green et al.	
	19	5649196		1997-07-15	Woodhill et al.	

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	20	5706457		1998-01-06	Dwyer et al.	
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	26	5860066		1999-01-12	Rouse	
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	Attorney Docket Number	8580.3005.001

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	Attorney Docket Number	8580.3005.001

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	Attorney Docket Number	8580.3005.001

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	Attorney Docket Number	8580.3005.001

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	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

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	90	7836067	B2	2010-11-16	Schulze et al.	
	91	9141612		2015-03-15	Schulze et al.	

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	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
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	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14857854
	Filing Date	2015-09-18
	First Named Inventor	Michael D. Schulze
	Art Unit	2162
	Examiner Name	Andalib Ft Lodhi
	Attorney Docket Number	8580.3005.001

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Shannon K. Smith/	Date (YYYY-MM-DD)	2017-06-16
Name/Print	Shannon K. Smith	Registration Number	73822

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Electronic Acknowledgement Receipt

EFS ID:	29521542
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	113243
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	16-JUN-2017
Filing Date:	18-SEP-2015
Time Stamp:	13:27:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PreliminaryAmendment.pdf	106689 9fd0f47bbfe9bdd8fa2b562b427fe2bb67ef2100	yes	9

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	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	9

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/130 (07-09)
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PETITION TO MAKE SPECIAL BASED ON AGE FOR ADVANCEMENT OF EXAMINATION UNDER 37 CFR 1.102(c)(1)

Application Information

Application Number	14857854	Confirmation Number	1132	Filing Date	18-Sep-2015
Attorney Docket Number (optional)		Art Unit	2162	Examiner	ANDALIB LODHI
First Named Inventor	Michael D. Schulze				
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM				

Attention: Office of Petitions

An application may be made special for advancement of examination upon filing of a petition showing that the applicant is 65 years of age, or more. No fee is required with such a petition. See 37 CFR 1.102(c)(1) and MPEP 708.02 (II).

APPLICANT HEREBY PETITIONS TO MAKE SPECIAL FOR ADVANCEMENT OF EXAMINATION IN THIS APPLICATION UNDER 37 CFR 1.102(c)(1) and MPEP 708.02 (II) ON THE BASIS OF THE APPLICANT'S AGE.

A grantable petition requires one of the following items:
(1) Statement by one named inventor in the application that he/she is 65 years of age, or more; or
(2) Certification by a registered attorney/agent having evidence such as a birth certificate, passport, driver's license, etc. showing one named inventor in the application is 65 years of age, or more.

Name of Inventor who is 65 years of age, or older

Given Name	Middle Name	Family Name	Suffix
Richard	J	Gagnon	

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18.
Please see 37 CFR 1.4(d) for the format of the signature.

Select (1) or (2) :

○ (1) I am an inventor in this application and I am 65 years of age, or more.

◉ (2) I am an attorney or agent registered to practice before the Patent and Trademark Office, and I certify that I am in possession of evidence, and will retain such in the application file record, showing that the inventor listed above is 65 years of age, or more.

Signature	/Shannon Smith/		
Name	Shannon Smith	Registration Number	73822

PTO/SB/130 (07-09)
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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about indivi duals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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In re Application of
Michael D. Schulze

Application No. 14857854

Filed: September 18,2015

Attorney Docket No.

:
:
:DECISION ON PETITION TO MAKE SPECIAL
:UNDER 37 CFR 1.102(c)(1)
:

This is a decision on the electronic petition under 37 CFR 1.102 (c)(1), filed 16-JUN-2017 to make the above-identified application special based on applicant's age as set forth in MPEP § 708.02, Section II.

The petition is **GRANTED**.

A grantable petition to make an application special under 37 CFR 1.102(c)(1), MPEP § 708.02, Section II : Applicant's Age must include a statement by applicant or a registered practitioner having evidence that applicant is at least 65 years of age. No fee is required.

Accordingly, the above-identified application has been accorded "special" status and will be taken up for action by the examiner upon the completion of all pre-examination processing.

Telephone inquiries concerning this electronic decision should be directed to the Electronic Business Center at 866-217-9197.

All other inquiries concerning either the examination or status of the application should be directed to the Technology Center.

Electronic Acknowledgement Receipt

EFS ID:	29523927
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Customer Number:	113243
Filer:	Shannon Smith
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	16-JUN-2017
Filing Date:	18-SEP-2015
Time Stamp:	15:04:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition automatically granted by EFS	petition-request.pdf	38101 ace6f8d8a3770bfacd962b6af4553813ec831c32	no	2

Warnings:

Information:	
Total Files Size (in bytes):	38101

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/857,854	Filing Date 09/18/2015	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☒ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	**280**
☒ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	**600**
☒ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	**720**
TOTAL CLAIMS (37 CFR 1.16(i))	10 minus 20 =	* 0	x $80 =	**0**
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	* 0	x $420 =	**0**
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	**1600**

APPLICATION AS AMENDED – PART II

AMENDMENT **09/18/2015**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 10	Minus	** 20	= 0	x $80 =	0
Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	x $420 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**0**

AMENDMENT **06/16/2017**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x $80 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x $420 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**0**

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
AJAY R. DAVID

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

PUBLICATION NOTICE

113243
Michael Schulze
1607 Kirts Blvd.
#103
Troy, MI 48084

OC000000080161431

Title:REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Publication No.US-2016-0026685-A1
Publication Date:01/28/2016

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/857,854	09/18/2015	2162	1600		10	1

CONFIRMATION NO. 2781

REPLACEMENT FILING RECEIPT

113243
Michael Schulze
1607 Kirts Blvd.
#103
Troy, MI 48084

OC000000078310630

Date Mailed: 10/28/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Michael D. Schulze, Troy, MI;
Richard J. Gagnon, Grosse Pointe Park, MI;

Applicant(s)

Michael D. Schulze, Troy, MI;
Richard J. Gagnon, Grosse Pointe Park, MI;

Assignment For Published Patent Application

Mirror Imaging L.L.C., Warren, MI

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/840,892 03/15/2013 PAT 9141612
which is a CON of 13/272,936 10/13/2011 ABN
which is a CON of 12/902,973 10/12/2010 ABN
which is a CON of 12/489,087 06/22/2009 PAT 7836067
which is a CON of 11/202,790 08/12/2005 PAT 7552118
which is a CON of 10/104,541 03/22/2002 PAT 6963866
which is a CON of 09/548,490 04/13/2000 PAT 6446072
which claims benefit of 60/129,021 04/13/1999

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 09/30/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/857,854**

Projected Publication Date: 01/28/2016

Non-Publication Request: No

Early Publication Request: No
Title

REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Preliminary Class

707

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

1135408829

CONFIRMATION NO. 2781

OC000000077776374

Michael Schulze
Apt. #103
1607 Kirts Blvd
Troy, MI 48084

Date Mailed: 10/01/2015

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

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In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request.

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A copy of this notice MUST be returned with the reply.

B. Nguyen

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/AIA/122 (08-12)
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CHANGE OF CORRESPONDENCE ADDRESS
Application

Address to:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	14/857,854
Filing Date	09-18-2015
First Named Inventor	Schulze
Art Unit	2162
Examiner Name	
Attorney Docket Number	

Please change the Correspondence Address for the above-identified patent application to:

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City | State | Zip

Country

Telephone | Email

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I am the:

☒ Applicant

☐ Attorney or agent of record. Registration Number _____.

☐ Registered practitioner named in the application transmittal papers who acts in a representative capacity under 37 CFR 1.34. See 37 CFR 1.33(a)(1). Registration Number _____.

Signature

Typed or Printed Name Michael Schulze

Date 10-22-2015 | Telephone 586-850-8143

NOTE: This form must be signed in accordnace with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of 2 forms are submitted.

This collection of information is required by 37 CFR 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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CHANGE OF CORRESPONDENCE ADDRESS
Application

Address to:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	14/857,854
Filing Date	09-18-2015
First Named Inventor	Schulze
Art Unit	2162
Examiner Name	
Attorney Docket Number	

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I am the:

☒ Applicant

☐ Attorney or agent of record. Registration Number _____

☐ Registered practitioner named in the application transmittal papers who acts in a representative capacity under 37 CFR 1.34. See 37 CFR 1.33(a)(1). Registration Number _____

Signature

Typed or Printed Name Richard Gagnon

Date 10-22-2015 | Telephone 248-977-8671

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☐ *Total of 2 forms are submitted.

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If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	23869280
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Correspondence Address:	Michael Schulze - Apt. #103 1607 Kirts Blvd Troy MI 48084 US 5868508143 michaelschulze@hotmail.com
Filer:	Michael Schulze
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	22-OCT-2015
Filing Date:	18-SEP-2015
Time Stamp:	20:32:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	newcustomernumberchangeform.pdf	3019851 c81cccbaa804406145d444823fa5d9bf09d5892a	no	4
Warnings:					
Information:					
		Total Files Size (in bytes):	3019851		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/857,854

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	10 minus 20 =	*			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*				x 420 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1600

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/857,854	09/18/2015	3693	1600		10	1

CONFIRMATION NO. 2781

UPDATED FILING RECEIPT

Michael Schulze
Apt. #103
1607 Kirts Blvd
Troy, MI 48084

OC000000078150850

Date Mailed: 10/20/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Michael D. Schulze, Troy, MI;
Richard J. Gagnon, Grosse Pointe Park, MI;

Applicant(s)

Michael D. Schulze, Troy, MI;
Richard J. Gagnon, Grosse Pointe Park, MI;

Assignment For Published Patent Application

Mirror Imaging L.L.C., Warren, MI

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/840,892 03/15/2013 PAT 9141612
which is a CON of 13/272,936 10/13/2011 ABN
which is a CON of 12/902,973 10/12/2010 ABN
which is a CON of 12/489,087 06/22/2009 PAT 7836067
which is a CON of 11/202,790 08/12/2005 PAT 7552118
which is a CON of 10/104,541 03/22/2002 PAT 6963866
which is a CON of 09/548,490 04/13/2000 PAT 6446072
which claims benefit of 60/129,021 04/13/1999

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 09/30/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/857,854**

Projected Publication Date: 01/28/2016

Non-Publication Request: No

Early Publication Request: No
Title

REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Preliminary Class

705

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

Michael Schulze
Apt. #103
1607 Kirts Blvd
Troy, MI 48084

FORMALITIES LETTER

OC000000077776429

Date Mailed: 10/01/2015

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- A mailing address for each inventor has not been submitted. A new application data sheet (ADS) in compliance with 37 CFR 1.76 or inventor's oath or declaration in compliance with 37 CFR 1.63 identifying the mailing address and residence (if the inventor lives at a location which is different from where the inventor customarily receives mail) is required.
  Michael D. Schulze
  Richard J. Gagnon

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- The ADS received on 09/18/2015 was not properly signed. Therefore, the Office will treat it only as a transmittal letter. See 37 CFR 1.76(e). Inventorship has not been set by this document and any foreign priority or domestic benefit claims contained therein are ineffective. See 37 CFR 1.55 or 37 CFR 1.78.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/cnguyen/

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	D.	Schulze	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Troy	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	1607 Kirts Blvd		
Address 2	Apartment 103		
City	Troy	State/Province	MI
Postal Code	48084	Country i	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Richard	J.	Gagnon	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Grosse Pointe Park	State/Province	MI	Country of Residence	US

Mailing Address of Inventor:

Address 1	1232 Whittier Road		
Address 2			
City	Grosse Pointe Park	State/Province	MI
Postal Code	48230	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

PTO/AIA/14 (07-14)
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	000113243		
Email Address	michaelschulze@hotmail.com	Add Email	Remove Email

Application Information:

Title of the Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM		
Attorney Docket Number		**Small Entity Status Claimed** ☐	
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	**Suggested Figure for Publication (if any)**	

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	000113243		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	13840892	2013-03-15
Prior Application Status	Abandoned		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13840892	Continuation of	13272936	2011-10-13
Prior Application Status	Abandoned		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13272936	Continuation of	12902973	2010-10-12
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12902973	Continuation of	12489087	2009-06-22	7836067	2010-11-16
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12489087	Continuation of	11202790	2005-08-12	7552118	2009-06-23
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11202790	Continuation of	10104541	2002-03-22	6963866	2005-11-08
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10104541	Continuation of	09548490	2000-04-13	6446072	2002-09-03
Prior Application Status	Expired				Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
09548490	Continuation of	60129021	1999-04-13

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◯ Assignee	◯ Legal Representative under 35 U.S.C. 117	◯ Joint Inventor
◯ Person to whom the inventor is obligated to assign.	◯ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Mailing Address Information For Applicant:			
Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Mirror Imaging, LLC

Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	27500 Donald Court		
Address 2			
City	Warren	**State/Province**	MI
Country	US	Postal Code	48092
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Signature		Date (YYYY-MM-DD)	2015-10-09

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

First Name	Michael	Last Name	Schulze	Registration Number	

Additional Signature may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Signature				Date (YYYY-MM-DD)	2015-10-09
First Name	Richard	Last Name	Gagnon	Registration Number	

Additional Signature may be generated within this form by selecting the Add button.

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent C o o p eration Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	23749764
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
Correspondence Address:	Michael Schulze - Apt. #103 1607 Kirts Blvd Troy MI 48084 US 5868508143 michaelschulze@hotmail.com
Filer:	Michael Schulze
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	10-OCT-2015
Filing Date:	18-SEP-2015
Time Stamp:	12:34:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	Responsetomissingpartswhichisads.pdf	7416117 b46aea67e87e649652bbabb0a1d00789729d8bce	no	10
Warnings:					
Information:					
		Total Files Size (in bytes):	7416117		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

Michael Schulze
Apt. #103
1607 Kirts Blvd
Troy, MI 48084

FORMALITIES LETTER

OC000000077776429

Date Mailed: 10/01/2015

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- A mailing address for each inventor has not been submitted. A new application data sheet (ADS) in compliance with 37 CFR 1.76 or inventor's oath or declaration in compliance with 37 CFR 1.63 identifying the mailing address and residence (if the inventor lives at a location which is different from where the inventor customarily receives mail) is required.
  Michael D. Schulze
  Richard J. Gagnon

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- The ADS received on 09/18/2015 was not properly signed. Therefore, the Office will treat it only as a transmittal letter. See 37 CFR 1.76(e). Inventorship has not been set by this document and any foreign priority or domestic benefit claims contained therein are ineffective. See 37 CFR 1.55 or 37 CFR 1.78.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/cnguyen/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/857,854

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	10 minus 20 =	*			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*				x 420 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1600

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/857,854	09/18/2015	3693	1600		10	1

CONFIRMATION NO. 2781

Michael Schulze
Apt. #103
1607 Kirts Blvd
Troy, MI 48084

FILING RECEIPT

OC000000077776428

Date Mailed: 10/01/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Michael D. Schulze, Residence Not Provided;
Richard J. Gagnon, Residence Not Provided;

Applicant(s)

Michael D. Schulze, Residence Not Provided;
Richard J. Gagnon, Residence Not Provided;

Assignment For Published Patent Application

Mirror Imaging L.L.C., Warren, MI

Power of Attorney: None

Domestic Applications for which benefit is claimed - None.
A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 09/30/2015
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/857,854**
Projected Publication Date: To Be Determined - pending completion of Missing Parts
Non-Publication Request: No
Early Publication Request: No

Title

REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

Preliminary Class

705

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

Michael Schulze
Apt. #103
1607 Kirts Blvd
Troy, MI 48084

MISCELLANEOUS NOTICE

OC00000077776374

Date Mailed: 10/01/2015

A communication which cannot be delivered in electronic form has been mailed to the applicant.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/857,854	09/18/2015	Michael D. Schulze	

CONFIRMATION NO. 2781

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Application

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Application Number	14/857,854
Filing Date	09-18-2015
First Named Inventor	Schulze
Art Unit	2162
Examiner Name	
Attorney Docket Number	

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Date 09-21-2015	Telephone 586-850-8143

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Electronic Acknowledgement Receipt

EFS ID:	23546162
Application Number:	14857854
International Application Number:	
Confirmation Number:	2781
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael D. Schulze
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Filer:	Michael Schulze
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Attorney Docket Number:	
Receipt Date:	21-SEP-2015
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Application Type:	Utility under 35 USC 111(a)

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Michael D. Schulze et al.

Serial No.: To Be Assigned **Group Art Unit:** 2162
(Continuation of Serial No.: 13/840,892)

Filed: Concurrent Herewith **Examiner:** To Be Assigned

Title: **REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM**

PRELIMINARY AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Prior to examination of the above-identified application, please amend the subject application as follows and consider the accompanying remarks.

Amendments to the specification begin on page 2. Amendments to the Abstract begin on page 7. Amendments to the Claims begin on page 9.

Amendments to the Specification

Please amend the paragraph beginning at page 4, line 5, as follows;

This patent application is a continuation of U.S. Patent Application Serial No. 13/840,892 filed on March 15, 2013 now _____ which is a continuation of U.S. Patent Application Serial No. 13/272,936 filed on October 13, 2011 now abandoned which is continuation of U.S. Patent Application Serial No. 12/902,973 filed on October 12, 2010 now abandoned, which is a continuation of U.S. Patent Application Serial No. 12/489,087 filed on June 22, 2009, now U.S. Patent No. 7,836,067, which is a continuation of U.S. Patent Application Serial No. 11/202,790 filed on August 12, 2005, now U.S. Patent No. 7,552,118, which is a continuation of U.S. Patent Application Serial No. 10/104,541 filed on March 22, 2002, now U.S. Patent No. 6,963,866, which is a continuation of U.S. Patent Application Serial No. 09/548,490 filed on April 13, 2000, now U.S. Patent No. 6,446,072, which in turn claims priority to and all the advantages of United States Provisional Patent Application Serial No. 60/129,021, which was filed on April 13, 1999 ~~and is entitled "REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM".~~

Please amend the paragraph beginning at page 4, line 5, as follows:

A method for a financial institution to obtain electronically-stored financial documents having a specific document parameter is disclosed. The specific document parameter is typically a particular numerical sequence, such as a record date of the financial document. The method of the subject invention enables the financial institution to obtain the financial documents from a first or an off-site storage system. The first or off-site storage system is ~~remotely-located~~ different from a second or an on-site storage system and is preferably remotely-located from the second or on-site storage system. In one embodiment, the [[The]] financial documents of the financial institution are maintained in the first or off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter. The financial documents that are less than or equal to the predetermined parameter are

maintained in the second or on-site storage system. In another embodiment, the specific document parameter of the financial document that is less than or equal to the predetermined parameter is maintained in the first or off-site storage system and the financial document that is greater than the predetermined parameter is maintained in the second or on-site storage system.

Please amend the paragraph beginning at page 4, line 15, as follows;

When the financial institution receives a request for a financial document, the financial institution compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. A computer terminal located at the financial institution is connected to both the off-site and on-site storage systems through a processing unit. The ~~computer terminal~~ processing unit is utilized to, at least partially, automatically access one of the storage systems in response to the comparison of the specific document parameter to the predetermined parameter. For instance, if it is determined that the specific document parameter is less than or equal to the predetermined document parameter, then the ~~computer terminal~~ processing unit accesses the second or on-site storage system. On the other hand, if it is determined that the specific document parameter of the financial document is greater than the predetermined parameter, then the ~~computer terminal~~ processing unit accesses the first or off-site storage system. As stated below, the computer terminal may be used to feed a request into the processing unit.

Please delete the paragraph beginning at page 5, line 5, and ending at page 5, line 12.

Please amend the paragraph beginning at page 5, line 13, as follows;

~~Finally, after the identification data of~~ After the requested financial document is accessed ~~inputted~~, the requested document is then retrieved in order to reproduce the financial document, and distribute the financial document to an end user of the financial institution.

Please amend the paragraph beginning at page 5, line 16, as follows;

The subject invention therefore provides a method that enables financial institutions to obtain electronically-stored financial documents from [[an]] on-site and off-site storage systems ~~system via a secondary interface that is specifically inter-linked with the off-site storage system and the financial documents electronically stored in that system~~. As such, the financial institution can selectively store financial documents in either an on-site storage system or the off-site storage system, and the responsibility for the financial documents in the on-site or off-site storage systems ~~system~~ can be outsourced to a third party entity. Further, the documents can be stored in different fixed mediums, such as microfiche, microfilm, digitally, electronically, etc., and can be stored in different geographical locations. Therefore, the back office production of the financial institution associated with the retrieval and distribution of financial documents stored in the on-site or off-site storage systems ~~system~~ is strategically reduced or even completely eliminated.

Please amend the paragraph beginning at page 6, line 20, as follows;

Referring to the Figures, wherein like numerals indicate like or corresponding parts throughout the several views, a method for a financial institution to obtain an

electronically-stored financial document is schematically shown at 10 in Figure 1. The method introduced in the subject invention enables the financial institution to obtain the financial document from one of a first or an off-site storage system and ~~remotely located from~~ a second or an on-site storage system with the storage systems being different from each other. Preferably, the on-site storage system is located at the financial institution and the off-site storage system is located at a remote location distant from the financial institution. This allows the financial institution to 'outsource' the responsibilities associated with obtaining the financial document.

Please amend the paragraph beginning at page 10, line 7, as follows;

Referring now to Figure 1, the method for banks to obtain electronically-stored financial documents is discussed in detail in accordance with a general scope of the subject invention. Initially, the requesting client requests a particular financial document, such as a paid check. The client is typically a customer of the bank or other financial institution. The client's request is inputted into a computer terminal 11 at the financial institution. The computer terminal 11 will be discussed in more detail hereinbelow.

Please amend the paragraph beginning at page 10, line 13, as follows;

From the computer terminal 11, the request is fed into a processing unit 12, which is illustrated as a mainframe computer 12 at the bank. In the preferred embodiment of the subject invention, if the client requests a financial document having a record date earlier than or equal to one year before the current date, then the request, and other requests like it, are processed at the bank in the on-site storage system. That is, the requests are grouped together and downloaded to a downloading terminal 14 at the bank. The downloading may occur at particular intervals such as at the end of each day, every three hours, etc. The sequence number of each check requested is then

determined. A document terminal 16 subsequently creates or reproduces the document, i.e., a photocopy of the check. The photocopy is then distributed to the client via facsimile, mail, or hand delivery.

Please amend the paragraph beginning at page 13, line 2, as follows;

[[A]] In accordance with one contemplated embodiment of the invention, a bank employee, such as a bank teller first determines a status of the requested document. More specifically, the employee compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. If the specific document parameter is a particular numerical sequence and the predetermined parameter is a predetermined numerical value, then the employee compares the particular numerical sequence of the financial document to the predetermined numerical value to determine if the particular numerical sequence is greater than, less than, or equal to the predetermined numerical value. Further, if as in the preferred embodiment, the particular numerical sequence is a record date of the financial document, and the predetermined numerical value is a pre-selected date, then the employee compares the record date of the financial document to the pre-selected date to determined if the record date is later than, earlier than, or equal to the pre-selected date.

Amendments to the Abstract

Please amend the Abstract as follows;

~~A method for a bank to obtain an electronically stored financial document is disclosed. The financial document includes a specific document parameter, such as a record date. The bank maintains the financial document in an off-site storage system when the record date is later than a pre-selected date and in an on-site storage system when the record date is earlier than or equal to the pre-selected date. The off-site storage system is different remotely located from the on-site storage system. The bank receives and inputs a request for the financial document from a client and compares the record date to the pre-selected date to determine if the record date is later than, earlier than, or equal to the pre-selected date. In processing the request, the bank utilizes a computer terminal, connected to the off-site and on-site storage systems through a processing unit, to access one of the storage systems in response to the comparison of the record date to the pre-selected date. After accessing the appropriate storage system, the bank inputs data into the computer terminal to identify the requested financial document and then retrieves the requested financial document. The bank then reproduces the requested financial document and distributes the requested financial document to the requesting client, or some other end user of the bank.~~

An electronically stored financial document is either maintained in a first storage system when a parameter associated with the document is greater than a pre-selected parameter or in a second storage system when the parameter associated with the document is less than or equal to the pre-selected parameter. A request for a stored financial document is received and the requested financial document parameter is compared to the pre-selected financial document parameter to determine if the electronically stored financial document's parameter is more than, less than, or equal to the pre-selected parameter . In processing the request, a processing unit compares and electronically accesses one of the storage systems in response to the comparison of the pre-selected parameter to the electronically

stored financial document's parameters. After accessing the appropriate storage system, the requested electronically stored financial document can be reproduced, and/or distributed.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. - 22. (Cancelled).

23. A system comprising:

a. a first storage system including a first fixed medium, the first storage system configured to:

i. store a plurality of financial documents wherein each financial document has an electronic image in the first fixed medium when a specific document parameter of a financial document is greater than a predetermined parameter;

b. a second storage system including a second fixed medium, the second storage system configured to:

i. store a plurality of financial documents wherein each financial document has an electronic image in the second fixed medium when the specific document parameter is less than or equal to the predetermined parameter;

c. a processor which has electronic access to the first and second storage systems, wherein the processor is configured to:

i. receive a request for an image of one of the stored financial documents;

ii. compare a specific requested document parameter of a requested financial document to the predetermined parameter, wherein the specific document parameter of the financial document is a particular numerical sequence associated with the specific document parameter, and wherein the particular numerical sequence of the financial document includes a record date of the financial document;

iii. access the first storage system when the specific requested document parameter is greater than the predetermined parameter;

iv. access the second storage system when the specific requested document parameter is less than or equal to the predetermined parameter;

v. retrieve the image of the requested financial document from the first or second storage system once the storage system has been accessed.

24. A system as set forth in claim 23 wherein the first and second fixed mediums are different from each other.

25. A system as set forth in claim 23 wherein storing a plurality of financial documents in a first fixed medium is further defined as storing a plurality of financial documents on a physical media.

26. A system as set forth in claim 23 wherein storing a plurality of financial documents in a second fixed medium is further defined as electronically storing the plurality of financial documents in a fixed electronic medium.

27. A system as set forth in claim 23 wherein storing a plurality of financial documents in a first fixed medium is further defined as electronically storing the plurality of financial documents in a fixed electronic medium.

28. A system as set forth in claim 23 wherein storing a plurality of financial documents in a second fixed medium is further defined as storing a plurality of financial documents on a physical media.

29. A system as set forth in claim 23 wherein the first and second fixed mediums are the same.

30. A system as set forth in claim 23 wherein storing a plurality of financial documents in a first fixed medium is further defined as electronically storing the plurality of financial documents in a first fixed electronic medium, and wherein storing a plurality of financial documents in a second fixed medium is further defined as electronically storing the plurality of financial documents in a second fixed electronic medium.

31. A system as set forth in claim 23 further including reproducing the requested financial document after the requested financial document has been retrieved from the accessed storage system.

32. A system as set forth in claim 23 wherein accessing the first and second storage systems is further defined as accessing only one of the storage systems at any one time to locate the requested financial document.

Remarks

The subject continuation patent application is being filed for continued prosecution of the claims set forth in the parent application. The assigned art unit of the parent application is identified above.

The specification has been amended to set forth a proper claim of priority as is required by 35 U.S.C. 120 and to coincide with the terminology of the claims. No new matter is being introduced.

After entry of the subject preliminary amendment, claims 23-32 will remain pending in the application. Claims 1-22 are currently being cancelled and claims 23-32 are being added. No new matter is being introduced.

It is respectfully submitted that the Application, as amended, is now presented in condition for examination.

Respectfully submitted,

Date: September 18, 2015

/Michael D. Schulze/

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REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

RELATED APPLICATIONS

This patent application is a continuation of U.S. Patent Application Serial No. 13/840,892 filed on March 15, 2013 now _____ which is a continuation of U.S. Patent Application Serial No. 13/272,936 filed on October 13, 2011 now abandoned which is continuation of U.S. Patent Application Serial No. 12/902,973 filed on October 12, 2010 now abandoned, which is a continuation of U.S. Patent Application Serial No. 12/489,087 filed on June 22, 2009, now U.S. Patent No. 7,836,067, which is a continuation of U.S. Patent Application Serial No. 11/202,790 filed on August 12, 2005, now U.S. Patent No. 7,552,118, which is a continuation of U.S. Patent Application Serial No. 10/104,541 filed on March 22, 2002, now U.S. Patent No. 6,963,866, which is a continuation of U.S. Patent Application Serial No. 09/548,490 filed on April 13, 2000, now U.S. Patent No. 6,446,072, which in turn claims priority to and all the advantages of United States Provisional Patent Application Serial No. 60/129,021, which was filed on April 13, 1999 ~~and is entitled "REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM".~~

BACKGROUND OF THE INVENTION

1) TECHNICAL FIELD

The subject invention relates to a method for a financial institution to obtain electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system.

2) DESCRIPTION OF THE PRIOR ART

Methods for obtaining electronically-stored financial documents are generally known in the art. Financial institutions, such as banks and credit unions, utilize such methods to rapidly and efficiently obtain financial documents for distribution to clients upon request. Such financial documents include paid checks, account statements, and other related documents. These financial documents are typically stored on microfiche, microfilm, digitally, or by some other electronic storage means. Further, these financial documents are typically electronically-stored in an on-site storage system located at the financial institution or in an off-site storage system. Electronic storage of these financial documents permits financial institutions to eliminate storage of paper or "hard" copies of these documents. The electronic storage of these documents also provides a means of retrieving the information from the on-site and off-site storage systems.

Once the document is stored, the client may request an image of a particular stored document. Client requests are made to replace lost or stolen documents, for tax purposes, for proof of financial transactions, for legal disputes, and other similar matters. The client's request is inputted into a computer terminal at the financial institution. More specifically, conventional methods for obtaining an electronically-stored financial document enable an employee of the financial institution, such as a bank teller, to input

the request into an interface incorporated into the computer terminal. The interface is inter-linked with the on-site storage system. Typically, all requests for a particular period are grouped together and subsequently downloaded for retrieval of the requested image by the financial institution. The financial institution retrieves the image, e.g. a photocopy of the check, and then distributes the photocopy to the client via facsimile, mail or hand delivery. The storing, downloading, and retrieving of the financial document, including the reproduction and the distribution of the document, are known in the industry as back office production. Back office production for financial institutions is particularly resource intensive, time consuming, and expensive. Also, back office production becomes increasingly expensive if the client requests a particularly old financial document because older financial documents frequently require more resources and time to locate and retrieve.

The majority of financial institutions electronically store financial documents only in an on-site storage system and not in an off-site storage system. Consequently, these financial institutions are unable to outsource the responsibilities for the back office production to third party entities to alleviate the expenses and resources associated with the back office production. These financial institutions realize a significant financial burden since the back office production is concentrated strictly at the financial institution.

Other financial institutions do electronically store financial documents in on-site and off-site storage systems. However, the methods utilized by these financial institutions to access the financial documents stored in the off-site storage system are deficient in that the

interface utilized in such methods is only inter-linked with the on-site storage system. That is, there is no interface independently inter-linked with the off-site storage system. As a result, the financial documents stored in the off-site storage system can not be efficiently accessed. These financial institutions are still responsible for retrieving the requested financial documents through their back office production and their expenses remain high. One such method of retrieving documents from on-site and off-sited storage systems is disclosed in United States Patent No. 5,784,610 to Copeland, III et al.

Due to the inefficiencies identified in the conventional methods used by financial institutions to obtain financial documents, it is desirable to implement a method for a financial institution to obtain electronically-stored financial documents from both on-site and off-site storage systems that reduces, if not eliminates, the back office production of the financial institution by providing a direct interface inter-linked with the off-site storage system. With such an interface, the responsibility for retrieving financial documents from the off-site storage can be outsourced to third party entities while still providing the financial institution with efficient access to any financial documents electronically-stored in the off-site storage system.

SUMMARY OF THE INVENTION AND ADVANTAGES

A method for a financial institution to obtain electronically-stored financial documents having a specific document parameter is disclosed. The specific document parameter is typically a particular numerical sequence, such as a record date of the

financial document. The method of the subject invention enables the financial institution to obtain the financial documents from a first or an off-site storage system. The first or off-site storage system is ~~remotely located~~ different from a second or an on-site storage system and is preferably remotely-located from the second or on-site storage system. In one embodiment, the [[The]] financial documents of the financial institution are maintained in the first or off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter. The financial documents that are less than or equal to the predetermined parameter are maintained in the second or on-site storage system. In another embodiment, the specific document parameter of the financial document that is less than or equal to the predetermined parameter is maintained in the first or off-site storage system and the financial document that is greater than the predetermined parameter is maintained in the second or on-site storage system.

When the financial institution receives a request for a financial document, the financial institution compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. A computer terminal located at the financial institution is connected to both the off-site and on-site storage systems through a processing unit. The ~~computer terminal~~ processing unit is utilized to, at least partially, automatically access one of the storage systems in response to the comparison of the specific document parameter to the predetermined parameter.

For instance, if it is determined that the specific document parameter is less than or equal to the predetermined document parameter, then the ~~computer terminal~~ processing unit accesses the second or on-site storage system. On the other hand, if it is determined that the specific document parameter of the financial document is greater than the predetermined parameter, then the ~~computer terminal~~ processing unit accesses the first or off-site storage system. As stated below, the computer terminal may be used to feed a request into the processing unit.

~~After the computer terminal accesses the appropriate storage system, identification data of the requested financial document is inputted into the computer. More specifically, to access the on site storage system, the identification data is input into a primary interface that is specifically inter linked vlith the on site storage system. To access the off site storage system, an mdt function is selected at the primary interface and the identification data is then input into a secondary interface that is initiated upon selection of the exit function. The secondary interface is specifically inter linked vlith the off site storage system.~~

~~Finally, after the identification data of~~ After the requested financial document is accessed ~~inputted~~, the requested document is then retrieved in order to reproduce the financial document, and distribute the financial document to an end user of the financial institution.

The subject invention therefore provides a method that enables financial

institutions to obtain electronically-stored financial documents from [[an]] on-site and off-site storage systems ~~system via a secondary interface that is specifically inter linked with the off-site storage system and the financial documents electronically stored in that system~~. As such, the financial institution can selectively store financial documents in either an on-site storage system or the off-site storage system, and the responsibility for the financial documents in the on-site or off-site storage systems ~~system~~ can be outsourced to a third party entity. Further, the documents can be stored in different fixed mediums, such as microfiche, microfilm, digitally, electronically, etc., and can be stored in different geographical locations. Therefore, the back office production of the financial institution associated with the retrieval and distribution of financial documents stored in the on-site or off-site storage systems ~~system~~ is strategically reduced or even completely eliminated.

BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

Figure 1 is a flow diagram schematically detailing an on-site storage system, and an off-site storage system in accordance with the subject invention;

Figure 2 is a block diagram generally representing a method for a financial institution to obtain electronically-stored financial documents from the on-site and off-site storage systems;

Figure 3 is a block diagram completing the method of obtaining electronically-stored financial documents from the on-site storage system; and

Figure 4 is a block diagram completing the method of obtaining electronically-stored financial documents from the off-site storage system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the Figures, wherein like numerals indicate like or corresponding parts throughout the several views, a method for a financial institution to obtain an electronically-stored financial document is schematically shown at 10 in Figure 1. The method introduced in the subject invention enables the financial institution to obtain the financial document from one of a first or an off-site storage system and ~~remotely located from~~ a second or an on-site storage system with the storage systems being different from each other. Preferably, the on-site storage system is located at the financial institution and the off-site storage system is located at a remote location distant from the financial institution. This allows the financial institution to 'outsource' the responsibilities associated with obtaining the financial document.

Methods for financial institutions to obtain electronically-stored documents are frequently used by such entities as banks, credit unions, and other financially-oriented institutions. For illustrative purposes only, the description of the subject invention is discussed with reference to banks. However, as appreciated by those skilled in the art,

other businesses, such as insurance companies, may also utilize similar methods and incorporate the aspects of the subject invention.

Methods for banks to obtain electronically-stored financial documents are generally used by banks to rapidly and efficiently obtain financial documents for distribution to clients upon request. As described above, the financial documents for banks are usually paid checks, checking statements, and other related financial documents, and these documents include at least one specific document parameter. As appreciated by those skilled in the art, it is not the financial document (e.g. the paid check) itself that is electronically-stored. Rather, it is data included on the document such as a sequence number that is electronically stored to make up the financial document. The specific document parameter is preferably a particular numerical sequence. As appreciated, the specific document parameter of the financial document can include, but is not limited to, a record date or age of the document, a series number, or some other document identifying number of the financial document. More specifically, in the preferred embodiment of the subject invention, the particular numerical sequence of the financial document is the record date of the financial document. That is, the date that the particular financial document was created or posted.

The financial documents are typically stored on microfiche, microfilm, digitally, or by some other electronic storage means. As appreciated, the electronic storage of the financial documents is frequently created by taking an electronic photo image of the document and storing the photo image in a computer system. One such digital electronic

storage device is sold by Kodak under the name of *IMAGELINK*™ Digital Workstation (IDW). Electronic storage of these financial documents permits banks to eliminate storage of paper or "hard" copies of these documents. The electronic storage of these documents also provides an efficient means of retrieving the information from the on-site and off-site storage systems. This will be discussed further herein below.

As described above, the financial documents are electronically-stored in either the on-site storage system located at the bank or in the off-site storage system remotely located from the on-site storage system. More specifically, the subject invention includes the step of maintaining the financial documents in the off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter. Financial documents are maintained in the on-site storage system when the specific document parameter of the financial document is less than or equal to the predetermined parameter. As appreciated, the document parameter of the financial documents stored in the off-site storage system may be greater than or equal to the predetermined parameter with the on-site storage system having documents only less than the predetermined parameter.

Similar to the specific document parameter of the financial document, the predetermined parameter is also a numerical value. The predetermined parameter is specifically a numerical value predetermined by the bank. For instance, if the specific document parameter is a series number of a paid check and the series number is greater

than the predetermined parameter which, in this case, would be an arbitrarily selected base series number, then the paid check would be stored in the off-site storage system.

In the preferred embodiment of the subject invention, the predetermined numerical value is a date pre-selected by the bank. For instance, the bank may pre-select a date that is one year before a current date-the current date being the actual date that the client requests the financial document. Of course, the bank may pre-select a date that is some other time period before a current date (e.g. two or three years) without varying from the scope of the subject invention. As such, if the record date of the particular financial document is older than one year, then the particular financial document is maintained in the off-site storage system. If the record date of the particular financial document is earlier than or equal to one year, then the particular financial document is maintained in the on-site storage system. As discussed above, the document having record dates equal to the one year may be stored in the off-site or on-site storage systems.

Once the financial document is maintained in the appropriate storage system, the bank is capable of receiving a request for the financial document from the client. In reality, the client is requesting an image of the stored financial document. As appreciated, clients request the image for various reasons. As discussed above, requests are typically made for replacing lost or stolen financial documents, for tax purposes, for proof of financial transactions, for legal disputes, and other similar matters. Ultimately, the bank retrieves the image, reproduces the image, and distributes the reproduced image to the requesting client of the bank.

Referring now to Figure 1, the method for banks to obtain electronically-stored financial documents is discussed in detail in accordance with a general scope of the subject invention. Initially, the requesting client requests a particular financial document, such as a paid check. The client is typically a customer of the bank or other financial institution. The client's request is inputted into a computer terminal 11 at the financial institution. The computer terminal 11 will be discussed in more detail hereinbelow.

From the computer terminal 11, the request is fed into a processing unit 12, which is illustrated as a mainframe computer 12 at the bank. In the preferred embodiment of the subject invention, if the client requests a financial document having a record date earlier than or equal to one year before the current date, then the request, and other requests like it, are processed at the bank in the on-site storage system. That is, the requests are grouped together and downloaded to a downloading terminal 14 at the bank. The downloading may occur at particular intervals such as at the end of each day, every three hours, etc. The sequence number of each check requested is then determined. A document terminal 16 subsequently creates or reproduces the document, i.e., a photocopy of the check. The photocopy is then distributed to the client via facsimile, mail, or hand delivery.

It is known in the art that the majority of requests for financial documents are requests for documents which were created in the most recent year. That is, if the pre-selected date is one year before the current date, as in the preferred embodiment, then the majority of requests are seeking financial documents having a record date earlier than or

equal to the pre-selected date. The remaining document requests relate to financial documents that are older than one year. Since, as described in the Background of the Invention, retrieval of financial documents that are older than one year is particularly expensive, the preferred embodiment of the subject invention outsources all of the document requests which relate to documents having a record date later than one year before the current date. As appreciated, the particular time frame which is outsourced is not a critical feature of the subject invention and may be adjusted to meet the needs of any particular financial institution. In fact, all of the document requests, including the most recent, may be outsourced using the outsourcing procedure of the subject invention.

In the preferred embodiment, if the client requests a financial document having a record date later than one year before the current date, then the request, and others like it, are grouped together and downloaded from the mainframe computer 12 to an outsourced downloading terminal 18. As above, the downloading may be at particular intervals as needed. The sequence number is determined by a sequencing terminal 20. The sequence number is then sent back to the outsourced downloading terminal 18. An outsourced document terminal 22 then creates or reproduces the desired document which is then distributed to either the client or the bank. As appreciated, two document retrieval operations, one for the bank to retrieve financial documents having record dates earlier than or equal to one year before the current date, and another to retrieve outsourced financial documents having record dates later than one year before the current date, preferably operate simultaneously. It is to be understood that the computer terminals and the

accompanying PC bases are illustrated highly schematically in Figure 1 and are not intended to be limiting in any manner. For instance, the schematic illustration of the outsourced document terminal 22 need not include a computer terminal and an accompanying PC base. Instead, the outsourced document terminal 22 is preferably some sort of printing device.

Referring to Figures 2 through 4, the method for banks to obtain electronically-stored financial documents is described in even greater detail. The request is first generated by the client. The request is then processed by the bank. The processing, retrieval and reproduction of the requested financial document is typically controlled by one interlinked computer software program. One such computer software program is a software program called Antinori Software Incorporated or ASI which is sold under the name of *INNOVASION*™ by Carreker-Antinori of Dallas, Texas. However, other frequently used software programs include *PEGA*™ and *Sterling*™. Any of these computer software systems can provide the necessary means for implementing the discussed procedures.

The processing of the request is completed by a customer service tracking system and the computer terminal **11**. The customer service tracking system assists the financial institution in receiving the request. More specifically, the customer service tracking system gives branches, customer service, and other bank departments the capability to enter, log, track, route and monitor the status of all requests for financial documents. The customer service tracking system also provides the capability to enter, log, track, route and monitor the status of customer complaints and other customer service related items.

[[A]] In accordance with one contemplated embodiment of the invention, a bank

employee, such as a bank teller first determines a status of the requested document. More specifically, the employee compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. If the specific document parameter is a particular numerical sequence and the predetermined parameter is a predetermined numerical value, then the employee compares the particular numerical sequence of the financial document to the predetermined numerical value to determine if the particular numerical sequence is greater than, less than, or equal to the predetermined numerical value. Further, if as in the preferred embodiment, the particular numerical sequence is a record date of the financial document, and the predetermined numerical value is a pre-selected date, then the employee compares the record date of the financial document to the pre-selected date to determined if the record date is later than, earlier than, or equal to the pre-selected date.

The customer service tracking system enables a bank employee, such as a bank teller, to submit the request. More specifically, the employee utilizes the computer terminal **11** located at the bank and connected to both the off-site and on-site storage systems to access one of the storage systems in response to the comparison of the specific document parameter of the requested financial document to the predetermined parameter. For instance, when the particular numerical sequence of the financial document is greater than the predetermined numerical value, the employee preferably utilizes the computer terminal **11** to access the off-site storage system, and when the particular numerical

sequence of the financial document is less than or equal to the predetermined numerical value, the employee preferably utilizes the computer terminal 11 to access the on-site storage system. As discussed above, the documents have a numerical sequence equal to the predetermined numerical value may be stored in either the off-site or on-site storage systems.

After the computer terminal 11 is utilized to access the desired storage system, the employee manually inputs identification data of the requested financial document into the computer terminal 11. More specifically, when the particular numerical sequence of the financial document is less than or equal to the predetermined numerical value, the employee inputs identification data into a primary interface and selects the requested document. Also, the primary interface preferably provides an option for the employee to select among several different output formats. The primary interface is inter-linked with the on-site storage system. In the preferred embodiment of the subject invention, the primary interface appears as follows and includes the identification data detailed below:

Account Number:	Prod Type:
Account Name:	Customer Code:
Address:	
City: State:	Zip Code:
Home Phone: ( )	Work Phone: ( )
Fax: ( )	
Service Code:	

For Items Posted Within A Year

Copy of Statement Only	Savings Items
Copy of Check/Deposit Ticket	Misc (G/L, Loans, Teller, Etc)
Check(s)/Deposit(s)<30 Items	Cash Letter Reconstruction
Statements and<30 Items	Lockbox
Statements and>30 Items	Legal Statement Only
Deposit Reconstruction	Legal Statement and Items

Regardless of Posting Date

Missing Transactions	Returned Items
Online (Backdated/Unpasted)	Encoding Error/Wrong Account

EXITFUNCTION

Alternatively, when the particular numerical sequence of the financial document is greater than the predetermined numerical value, the employee selects an exit function at the primary interface. The exit function distinguishes that the request is to be sent to an outsourcing third party entity. Upon selection of the exit function at the primary interface, a secondary interface, inter-linked with the exit function, is initiated. The secondary interface is inter-linked with the off-site storage system. The employee inputs identification data into the secondary interface and selects the requested document. Also,

the secondary interface preferably provides an option for the employee to select among several different output formats. Preferably, routing, or service codes will be generated automatically upon the initiation of the secondary interface and the inputting of the identification data into the secondary interface. The routing codes enable the bank to recognize that the request is being sent to the outsourced third party entity. Furthermore, the routing codes are configured to automatically forward the inputted identification data to the off-site storage system. The inputted identification data and the routing codes are forwarded into the mainframe computer 12 introduced above for temporary storage before transfer to the off-site storage system. This temporary storage also serves to defend against unexpected power outages, computer malfunctions, and the like. In the preferred embodiment of the subject invention, the secondary interface appears as follows and includes the identification data detailed below:

Account Number:	Prod Type:
Account Name:	Customer Code:
Address:	
City: State:	Zip Code:
Home Phone: ( )	Work Phone: ( )
Fax: ( )	
Service Code:	

For Items Posted Priorto a Year

Copy of Statement Only	Savings Items
Copy of Check/Deposit Ticket	Misc (G/L, Loans, Teller, Etc)
Check(s)/Deposit(s)<30 Items	Cash Letter Reconstruction
Statements and<30 Items	Lockbox
Statements and>30 Items	Legal Statement Only
Deposit Reconstruction	Legal Statement and Items

Once the bank employee has inputted the necessary identification data into either the primary or secondary interlace, then retrieval of the financial document can continue. Specifically, the requested financial document is retrieved as defined by the inputted identification data. Two separate document retrieval procedures are discussed hereinbelow. One document retrieval procedure is for the financial documents having a record date earlier than or equal to the pre-selected date-one year before the current date in this example. The other document retrieval procedure is for the financial documents having a record date later than the pre-selected date. As discussed above, the one year timing selected for the pre-selected date is simply shown as an example and any suitable time frame may be utilized. In fact, even all financial document retrievals may be outsourced to

the third party entity. As also discussed above, the two separate document retrieval procedures will typically operate simultaneously.

With reference to the subject example, if the record date of the financial document is earlier than or equal to one year before the current date, the remaining steps occur at the bank. As discussed above, these steps are known as the back office production of the bank. The request is first categorized by a research automation system. The research automation system automates the entire workflow of a bank's research and photocopy departments by sending requests to the appropriate sequence for processing. The downloading terminal 14 serves to perform the research automation system's tasks.

Photocopy requests are routed to an image control system, statement requests are sent to a document retrieval system, and requests for financial adjustments are routed to an adjustment system. The document terminal 16 serves to perform these tasks. In the illustrated embodiment of the subject invention, the sample document request is for a paid check. Hence, the categorized sequence will be the image control system which handles photocopy requests.

Referring now to Figure 3, after the request is categorized, the request is verified for completeness and accuracy. If the request is not complete then additional data is retrieved. The additional data is retrieved by using a sequence number retrieval system and/or an all items research system. Once the request is complete and accurate, then the image reference number can be determined. That is, once the request is complete and accurate, then the requested financial document can be electronically located in the on-site storage system.

The reference number may be a routing, sequence, or any other type of indicator. The reference number is determined by the image control system. The image control system is an image retrieval and routing management system which works in conjunction with Kodak's *IMAGELINK*™ Digital Workstations (IDW). Specifically, the image control system first connects to a network node. The network node is any type of storage device as is known in the art. Preferably a Kodak network node is used. The network node drives the IDW to find the location of the image by using the reference number. Specifically, the employee is prompted to verify that the correct media is loaded in the IDW such that the IDW can locate the image. The reference number for the document is known and the document image is now verified and located.

The requested image can now be retrieved and reproduced. In other words a copy of the digitized document (the check) is created. The copy may be created by manually pulling the microfilm, microfiche, or the like and photocopying the document. The copy may also be made by printing the document from a digitized record. The photocopy of the check is then distributed to the requesting client or other end user of the financial institution. Other end users of the financial institution include, but are not limited to, other financial institutions and federal and state governments. Additional information such as a photocopy report, a statement of charges, a research report and/or a daily status report may also be produced for the requesting client, the other end user, and/or the financial institution. The document retrieval system incorporated at the bank and the method for obtaining electronically-stored financial documents from the on-site storage

system is now completed.

Continuing with the subject example, if the record date of the financial document is later than one year before the current date, the automated retrieval of the financial document is outsourced to the third party entity. To begin, a separate file is automatically generated at the bank by the input of the identification data into the secondary interface. Referring specifically to Figure 4, the routing codes direct the request created on the separate file to be routed separately to the outsourced third party entity. In the preferred embodiment of the subject invention, additional user ID's are created to allow only selected users into the secondary interface. The identification data stored in the separate file and the routing codes are downloaded to the off-site storage system for retrieval of the requested financial documents by the outsourced downloading terminal 18. Preferably, the identification data and routing codes are grouped into batches of common requests for optimum retrieval of the requested financial document by the outsourced third party entity at the off-site storage system. The downloading step may occur at any suitable predetermined interval. Preferably, the downloading will occur three times a day. The downloaded documents are known in the industry as a basket of requests.

The subject method further includes the step of creating a back-up file of the downloaded identification data and routing codes in the off-site storage system. The back-up file acts as an emergency information source in case the mainframe computer 12 at the financial institution has a catastrophic failure. In addition, the outsourced third party entity is in direct connection with the mainframe computer 12 of the bank wherein the

outsourced third party entity may produce a backup directory of each database file. This database backup is an additional safe guard for the financial institution.

The downloaded identification data and routing codes are then categorized for processing in the off-site storage system. The research automation system categorizes this information in a like fashion as discussed above. In fact, the outsourced third party entity uses the same computer software package as the financial institution such that the flow of information is optimum and not interrupted. As discussed above, the subject example request is for a paid check. Hence, the request will be categorized into the image control system and a sequence number will be determined by the sequencing terminal 20. Also, a status to update the progress of the requested financial document is provided to the financial institution.

After the request is categorized, the request, specifically the inputted identification data, is verified for completeness and accuracy. If the request is not complete or accurate, then additional data is retrieved. In a similar fashion as above, the additional data is retrieved by using the sequence number retrieval system and/or the all items research system. As appreciated, the outsourced third party entity may retrieve this information from the mainframe computer 12, via its direct line, or from its own backup database files. Once the request is complete and accurate, the image reference number can be determined. Again, as above, the reference number is determined by the image control system.

The requested image is then retrieved. More specifically, the requested financial

document is electronically located in the off-site storage system. Additionally, the requested financial document is also reproduced after the document is electronically located in the off-site storage system by the outsourced document terminal 22. In other words, a copy of the digitized document (the check) is created. A status file is then created for the completed transaction. Also, a status of the request is sent to the financial institution wherein the institution may update their records. The status updates, as well as the information connections, create a two way information exchange between the outsourced third party entity and the bank.

The photocopy of the check is then distributed or digitally transferred to the requesting client, the financial institution, or other end users of the financial institution. In the preferred embodiment of the subject invention, the photocopy of the request is distributed to the requesting client, etc. based on the routing codes. That is, in addition to directing the request to be separately routed to the outsourced third party entity, the routing codes also indicate an appropriate distribution for the request client or other end user. The request is now completed.

A special circumstance occurs when the record date of one portion of the client's request is earlier than or equal to one year before the current date, and when the record date of another portion of the client's request is later than one year before the current date. These types of requests are known in the industry as spanned requests. One solution is to incorporate an additional interlace utilized when the employee of the bank is utilizing the computer terminal 11 and comparing the specific document parameter of the requested

financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. If the request is a spanned request, then the request will be split into two separate requests which can be handled simultaneously. A special notation would be put onto the requests such that they may be put back together before distributing the documents to the client or other end user. Another solution simply notifies the inputting employee that two requests should be entered separately. A third solution sends the request to the back office production at the bank wherein the back office employees notify the outsourced third party entity by a separate request to retrieve the requested financial documents.

The invention has been described in an illustrative manner, and it is to be understood that the terminology which has been used is intended to be in the nature of words of description rather than of limitation. Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, wherein reference numerals are merely for convenience and are not to be in any way limiting, the invention may be practiced otherwise than as specifically described.

ABSTRACT

~~A method for a bank to obtain an electronically stored financial document is disclosed. The financial document includes a specific document parameter, such as a record date. The bank maintains the financial document in an off-site storage system when the record date is later than a pre-selected date and in an on-site storage system when the record date is earlier than or equal to the pre-selected date. The off-site storage system is different remotely located from the on-site storage system. The bank receives and inputs a request for the financial document from a client and compares the record date to the pre-selected date to determine if the record date is later than, earlier than, or equal to the pre-selected date. In processing the request, the bank utilizes a computer terminal, connected to the off-site and on-site storage systems through a processing unit, to access one of the storage systems in response to the comparison of the record date to the pre-selected date. After accessing the appropriate storage system, the bank inputs data into the computer terminal to identify the requested financial document and then retrieves the requested financial document. The bank then reproduces the requested financial document and distributes the requested financial document to the requesting client, or some other end user of the bank.~~

An electronically stored financial document is either maintained in a first storage system when a parameter associated with the document is greater than a pre-selected parameter or in a second storage system when the parameter associated with the document is less than or equal to the pre-selected parameter. A request for a stored financial document is received and the requested financial document parameter is compared to the pre-selected financial document parameter to determine if the electronically stored financial document's parameter is more than, less than, or equal to the pre-selected parameter . In processing the request, a processing unit compares and electronically accesses one of the storage systems in response to the comparison of the pre-selected parameter to the electronically stored financial document's parameters. After accessing the appropriate storage system, the requested electronically stored financial document can be reproduced, and/or distributed.

REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

RELATED APPLICATIONS

This patent application is a continuation of U.S. Patent Application Serial No. 13/840,892 filed on March 15, 2013 now _____ which is a continuation of U.S. Patent Application Serial No. 13/272,936 filed on October 13, 2011 now abandoned which is continuation of U.S. Patent Application Serial No. 12/902,973 filed on October 12, 2010 now abandoned, which is a continuation of U.S. Patent Application Serial No. 12/489,087 filed on June 22, 2009, now U.S. Patent No. 7,836,067, which is a continuation of U.S. Patent Application Serial No. 11/202,790 filed on August 12, 2005, now U.S. Patent No. 7,552,118, which is a continuation of U.S. Patent Application Serial No. 10/104,541 filed on March 22, 2002, now U.S. Patent No. 6,963,866, which is a continuation of U.S. Patent Application Serial No. 09/548,490 filed on April 13, 2000, now U.S. Patent No. 6,446,072, which in turn claims priority to and all the advantages of United States Provisional Patent Application Serial No. 60/129,021, which was filed on April 13, 1999.

BACKGROUND OF THE INVENTION

1) TECHNICAL FIELD

The subject invention relates to a method for a financial institution to obtain electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system.

2) DESCRIPTION OF THE PRIOR ART

Methods for obtaining electronically-stored financial documents are generally known in the art. Financial institutions, such as banks and credit unions, utilize such methods to rapidly and efficiently obtain financial documents for distribution to clients upon request. Such financial documents include paid checks, account statements, and other related documents. These financial documents are typically stored on microfiche, microfilm, digitally, or by some other electronic storage means. Further, these financial documents are typically electronically-stored in an on-site storage system located at the financial institution or in an off-site storage system. Electronic storage of these financial documents permits financial institutions to eliminate storage of paper or "hard" copies of these documents. The electronic storage of these documents also provides a means of retrieving the information from the on-site and off-site storage systems.

Once the document is stored, the client may request an image of a particular stored document. Client requests are made to replace lost or stolen documents, for tax purposes, for proof of financial transactions, for legal disputes, and other similar matters. The client's request is inputted into a computer terminal at the financial institution. More specifically, conventional methods for obtaining an electronically-stored financial document enable an employee of the financial institution, such as a bank teller, to input

the request into an interface incorporated into the computer terminal. The interface is inter-linked with the on-site storage system. Typically, all requests for a particular period are grouped together and subsequently downloaded for retrieval of the requested image by the financial institution. The financial institution retrieves the image, e.g. a photocopy of the check, and then distributes the photocopy to the client via facsimile, mail or hand delivery. The storing, downloading, and retrieving of the financial document, including the reproduction and the distribution of the document, are known in the industry as back office production. Back office production for financial institutions is particularly resource intensive, time consuming, and expensive. Also, back office production becomes increasingly expensive if the client requests a particularly old financial document because older financial documents frequently require more resources and time to locate and retrieve.

The majority of financial institutions electronically store financial documents only in an on-site storage system and not in an off-site storage system. Consequently, these financial institutions are unable to outsource the responsibilities for the back office production to third party entities to alleviate the expenses and resources associated with the back office production. These financial institutions realize a significant financial burden since the back office production is concentrated strictly at the financial institution.

Other financial institutions do electronically store financial documents in on-site and off-site storage systems. However, the methods utilized by these financial institutions to access the financial documents stored in the off-site storage system are deficient in that the

interface utilized in such methods is only inter-linked with the on-site storage system. That is, there is no interface independently inter-linked with the off-site storage system. As a result, the financial documents stored in the off-site storage system can not be efficiently accessed. These financial institutions are still responsible for retrieving the requested financial documents through their back office production and their expenses remain high. One such method of retrieving documents from on-site and off-sited storage systems is disclosed in United States Patent No. 5,784,610 to Copeland, III et al.

Due to the inefficiencies identified in the conventional methods used by financial institutions to obtain financial documents, it is desirable to implement a method for a financial institution to obtain electronically-stored financial documents from both on-site and off-site storage systems that reduces, if not eliminates, the back office production of the financial institution by providing a direct interface inter-linked with the off-site storage system. With such an interface, the responsibility for retrieving financial documents from the off-site storage can be outsourced to third party entities while still providing the financial institution with efficient access to any financial documents electronically-stored in the off-site storage system.

SUMMARY OF THE INVENTION AND ADVANTAGES

A method for a financial institution to obtain electronically-stored financial documents having a specific document parameter is disclosed. The specific document parameter is typically a particular numerical sequence, such as a record date of the

financial document. The method of the subject invention enables the financial institution to obtain the financial documents from a first or an off-site storage system. The first or off-site storage system is different from a second or an on-site storage system and is preferably remotely-located from the second or on-site storage system. In one embodiment, the financial documents of the financial institution are maintained in the first or off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter. The financial documents that are less than or equal to the predetermined parameter are maintained in the second or on-site storage system. In another embodiment, the specific document parameter of the financial document that is less than or equal to the predetermined parameter is maintained in the first or off-site storage system and the financial document that is greater than the predetermined parameter is maintained in the second or on-site storage system.

When the financial institution receives a request for a financial document, the financial institution compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. A computer terminal located at the financial institution is connected to both the off-site and on-site storage systems through a processing unit. The processing unit is utilized to, at least partially, automatically access one of the storage systems in response to the comparison of the specific document parameter to the predetermined parameter.

For instance, if it is determined that the specific document parameter is less than or equal to the predetermined document parameter, then the processing unit accesses the second or on-site storage system. On the other hand, if it is determined that the specific document parameter of the financial document is greater than the predetermined parameter, then the processing unit accesses the first or off-site storage system. As stated below, the computer terminal may be used to feed a request into the processing unit.

After the requested financial document is accessed, the requested document is then retrieved in order to reproduce the financial document, and distribute the financial document to an end user of the financial institution.

The subject invention therefore provides a method that enables financial

institutions to obtain electronically-stored financial documents from an on-site and off-site storage systems. As such, the financial institution can selectively store financial documents in

either an on-site storage system or the off-site storage system, and the responsibility for the financial documents in the on-site or off-site storage systems can be outsourced to a third party entity. Further, the documents can be stored in different fixed mediums, such as microfiche, microfilm, digitally, electronically, etc., and can be stored in different geographical locations. Therefore, the back office production of the financial institution associated with the retrieval and distribution of financial documents stored in the on-site or off-site storage systems is strategically reduced or even completely eliminated.

BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

Figure 1 is a flow diagram schematically detailing an on-site storage system, and an off-site storage system in accordance with the subject invention;

Figure 2 is a block diagram generally representing a method for a financial institution to obtain electronically-stored financial documents from the on-site and off-site storage systems;

Figure 3 is a block diagram completing the method of obtaining electronically-stored financial documents from the on-site storage system; and

Figure 4 is a block diagram completing the method of obtaining electronically-stored financial documents from the off-site storage system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the Figures, wherein like numerals indicate like or corresponding parts throughout the several views, a method for a financial institution to obtain an electronically-stored financial document is schematically shown at 10 in Figure 1. The method introduced in the subject invention enables the financial institution to obtain the financial document from one of a first or an off-site storage system and a second or an on-site storage system with the storage systems being different from each other. Preferably, the on-site storage system is located at the financial institution and the off-site storage system is located at a remote location distant from the financial institution. This allows the financial institution to 'outsource' the responsibilities associated with obtaining the financial document.

Methods for financial institutions to obtain electronically-stored documents are frequently used by such entities as banks, credit unions, and other financially-oriented institutions. For illustrative purposes only, the description of the subject invention is discussed with reference to banks. However, as appreciated by those skilled in the art,

other businesses, such as insurance companies, may also utilize similar methods and incorporate the aspects of the subject invention.

Methods for banks to obtain electronically-stored financial documents are generally used by banks to rapidly and efficiently obtain financial documents for distribution to clients upon request. As described above, the financial documents for banks are usually paid checks, checking statements, and other related financial documents, and these documents include at least one specific document parameter. As appreciated by those skilled in the art, it is not the financial document (e.g. the paid check) itself that is electronically-stored. Rather, it is data included on the document such as a sequence number that is electronically stored to make up the financial document. The specific document parameter is preferably a particular numerical sequence. As appreciated, the specific document parameter of the financial document can include, but is not limited to, a record date or age of the document, a series number, or some other document identifying number of the financial document. More specifically, in the preferred embodiment of the subject invention, the particular numerical sequence of the financial document is the record date of the financial document. That is, the date that the particular financial document was created or posted.

The financial documents are typically stored on microfiche, microfilm, digitally, or by some other electronic storage means. As appreciated, the electronic storage of the financial documents is frequently created by taking an electronic photo image of the document and storing the photo image in a computer system. One such digital electronic

storage device is sold by Kodak under the name of *IMAGELINK*™ Digital Workstation (IDW). Electronic storage of these financial documents permits banks to eliminate storage of paper or "hard" copies of these documents. The electronic storage of these documents also provides an efficient means of retrieving the information from the on-site and off-site storage systems. This will be discussed further herein below.

As described above, the financial documents are electronically-stored in either the on-site storage system located at the bank or in the off-site storage system remotely located from the on-site storage system. More specifically, the subject invention includes the step of maintaining the financial documents in the off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter. Financial documents are maintained in the on-site storage system when the specific document parameter of the financial document is less than or equal to the predetermined parameter. As appreciated, the document parameter of the financial documents stored in the off-site storage system may be greater than or equal to the predetermined parameter with the on-site storage system having documents only less than the predetermined parameter.

Similar to the specific document parameter of the financial document, the predetermined parameter is also a numerical value. The predetermined parameter is specifically a numerical value predetermined by the bank. For instance, if the specific document parameter is a series number of a paid check and the series number is greater

than the predetermined parameter which, in this case, would be an arbitrarily selected base series number, then the paid check would be stored in the off-site storage system.

In the preferred embodiment of the subject invention, the predetermined numerical value is a date pre-selected by the bank. For instance, the bank may pre-select a date that is one year before a current date-the current date being the actual date that the client requests the financial document. Of course, the bank may pre-select a date that is some other time period before a current date (e.g. two or three years) without varying from the scope of the subject invention. As such, if the record date of the particular financial document is older than one year, then the particular financial document is maintained in the off-site storage system. If the record date of the particular financial document is earlier than or equal to one year, then the particular financial document is maintained in the on-site storage system. As discussed above, the document having record dates equal to the one year may be stored in the off-site or on-site storage systems.

Once the financial document is maintained in the appropriate storage system, the bank is capable of receiving a request for the financial document from the client. In reality, the client is requesting an image of the stored financial document. As appreciated, clients request the image for various reasons. As discussed above, requests are typically made for replacing lost or stolen financial documents, for tax purposes, for proof of financial transactions, for legal disputes, and other similar matters. Ultimately, the bank retrieves the image, reproduces the image, and distributes the reproduced image to the requesting client of the bank.

Referring now to Figure 1, the method for banks to obtain electronically-stored financial documents is discussed in detail in accordance with a general scope of the subject invention. Initially, the requesting client requests a particular financial document, such as a paid check. The client is typically a customer of the bank or other financial institution. The client's request is inputted into a computer terminal 11 at the financial institution. The computer terminal 11 will be discussed in more detail hereinbelow.

From the computer terminal 11, the request is fed into a processing unit 12, which is illustrated as a mainframe computer 12 at the bank. In the preferred embodiment of the subject invention, if the client requests a financial document having a record date earlier than or equal to one year before the current date, then the request, and other requests like it, are processed at the bank in the on-site storage system. That is, the requests are grouped together and downloaded to a downloading terminal 14 at the bank. The downloading may occur at particular intervals such as at the end of each day, every three hours, etc. The sequence number of each check requested is then determined. A document terminal 16 subsequently creates or reproduces the document, i.e., a photocopy of the check. The photocopy is then distributed to the client via facsimile, mail, or hand delivery.

It is known in the art that the majority of requests for financial documents are requests for documents which were created in the most recent year. That is, if the pre-selected date is one year before the current date, as in the preferred embodiment, then the majority of requests are seeking financial documents having a record date earlier than or

equal to the pre-selected date. The remaining document requests relate to financial documents that are older than one year. Since, as described in the Background of the Invention, retrieval of financial documents that are older than one year is particularly expensive, the preferred embodiment of the subject invention outsources all of the document requests which relate to documents having a record date later than one year before the current date. As appreciated, the particular time frame which is outsourced is not a critical feature of the subject invention and may be adjusted to meet the needs of any particular financial institution. In fact, all of the document requests, including the most recent, may be outsourced using the outsourcing procedure of the subject invention.

In the preferred embodiment, if the client requests a financial document having a record date later than one year before the current date, then the request, and others like it, are grouped together and downloaded from the mainframe computer 12 to an outsourced downloading terminal 18. As above, the downloading may be at particular intervals as needed. The sequence number is determined by a sequencing terminal 20. The sequence number is then sent back to the outsourced downloading terminal 18. An outsourced document terminal 22 then creates or reproduces the desired document which is then distributed to either the client or the bank. As appreciated, two document retrieval operations, one for the bank to retrieve financial documents having record dates earlier than or equal to one year before the current date, and another to retrieve outsourced financial documents having record dates later than one year before the current date, preferably operate simultaneously. It is to be understood that the computer terminals and the

accompanying PC bases are illustrated highly schematically in Figure 1 and are not intended to be limiting in any manner. For instance, the schematic illustration of the outsourced document terminal 22 need not include a computer terminal and an accompanying PC base. Instead, the outsourced document terminal 22 is preferably some sort of printing device.

Referring to Figures 2 through 4, the method for banks to obtain electronically-stored financial documents is described in even greater detail. The request is first generated by the client. The request is then processed by the bank. The processing, retrieval and reproduction of the requested financial document is typically controlled by one interlinked computer software program. One such computer software program is a software program called Antinori Software Incorporated or ASI which is sold under the name of *INNOVASION*™ by Carreker-Antinori of Dallas, Texas. However, other frequently used software programs include *PEGA*™ and *Sterling*™. Any of these computer software systems can provide the necessary means for implementing the discussed procedures.

The processing of the request is completed by a customer service tracking system and the computer terminal **11.** The customer service tracking system assists the financial institution in receiving the request. More specifically, the customer service tracking system gives branches, customer service, and other bank departments the capability to enter, log, track, route and monitor the status of all requests for financial documents. The customer service tracking system also provides the capability to enter, log, track, route and monitor the status of customer complaints and other customer service related items.

In accordance with one contemplated embodiment of the invention, a bank

employee, such as a bank teller first determines a status of the requested document. More specifically, the employee compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. If the specific document parameter is a particular numerical sequence and the predetermined parameter is a predetermined numerical value, then the employee compares the particular numerical sequence of the financial document to the predetermined numerical value to determine if the particular numerical sequence is greater than, less than, or equal to the predetermined numerical value. Further, if as in the preferred embodiment, the particular numerical sequence is a record date of the financial document, and the predetermined numerical value is a pre-selected date, then the employee compares the record date of the financial document to the pre-selected date to determine if the record date is later than, earlier than, or equal to the pre-selected date.

The customer service tracking system enables a bank employee, such as a bank teller, to submit the request. More specifically, the employee utilizes the computer terminal **11** located at the bank and connected to both the off-site and on-site storage systems to access one of the storage systems in response to the comparison of the specific document parameter of the requested financial document to the predetermined parameter. For instance, when the particular numerical sequence of the financial document is greater than the predetermined numerical value, the employee preferably utilizes the computer terminal **11** to access the off-site storage system, and when the particular numerical

sequence of the financial document is less than or equal to the predetermined numerical value, the employee preferably utilizes the computer terminal 11 to access the on-site storage system. As discussed above, the documents have a numerical sequence equal to the predetermined numerical value may be stored in either the off-site or on-site storage systems.

After the computer terminal 11 is utilized to access the desired storage system, the employee manually inputs identification data of the requested financial document into the computer terminal 11. More specifically, when the particular numerical sequence of the financial document is less than or equal to the predetermined numerical value, the employee inputs identification data into a primary interface and selects the requested document. Also, the primary interface preferably provides an option for the employee to select among several different output formats. The primary interface is inter-linked with the on-site storage system. In the preferred embodiment of the subject invention, the primary interface appears as follows and includes the identification data detailed below:

Account Number:	Prod Type:
Account Name:	Customer Code:
Address:	
City: State:	Zip Code:
Home Phone: ( )	Work Phone: ( )
Fax: ( )	
Service Code:	

For Items Posted Within A Year

Copy of Statement Only	Savings Items
Copy of Check/Deposit Ticket	Misc (G/L, Loans, Teller, Etc)
Check(s)/Deposit(s)<30 Items	Cash Letter Reconstruction
Statements and<30 Items	Lockbox
Statements and>30 Items	Legal Statement Only
Deposit Reconstruction	Legal Statement and Items

Regardless of Posting Date

Missing Transactions	Returned Items
Online (Backdated/Unpasted)	Encoding Error/Wrong Account

EXITFUNCTION

Alternatively, when the particular numerical sequence of the financial document is greater than the predetermined numerical value, the employee selects an exit function at the primary interface. The exit function distinguishes that the request is to be sent to an outsourcing third party entity. Upon selection of the exit function at the primary interface, a secondary interface, inter-linked with the exit function, is initiated. The secondary interface is inter-linked with the off-site storage system. The employee inputs identification data into the secondary interface and selects the requested document. Also,

the secondary interface preferably provides an option for the employee to select among several different output formats. Preferably, routing, or service codes will be generated automatically upon the initiation of the secondary interface and the inputting of the identification data into the secondary interface. The routing codes enable the bank to recognize that the request is being sent to the outsourced third party entity. Furthermore, the routing codes are configured to automatically forward the inputted identification data to the off-site storage system. The inputted identification data and the routing codes are forwarded into the mainframe computer 12 introduced above for temporary storage before transfer to the off-site storage system. This temporary storage also serves to defend against unexpected power outages, computer malfunctions, and the like. In the preferred embodiment of the subject invention, the secondary interface appears as follows and includes the identification data detailed below:

Account Number:	Prod Type:
Account Name:	Customer Code:
Address:	
City: State:	Zip Code:
Home Phone: ( )	Work Phone: ( )
Fax: ( )	
Service Code:	

For Items Posted Priorto a Year

Copy of Statement Only	Savings Items
Copy of Check/Deposit Ticket	Misc (G/L, Loans, Teller, Etc)
Check(s)/Deposit(s)<30 Items	Cash Letter Reconstruction
Statements and<30 Items	Lockbox
Statements and>30 Items	Legal Statement Only
Deposit Reconstruction	Legal Statement and Items

Once the bank employee has inputted the necessary identification data into either the primary or secondary interlace, then retrieval of the financial document can continue. Specifically, the requested financial document is retrieved as defined by the inputted identification data. Two separate document retrieval procedures are discussed hereinbelow. One document retrieval procedure is for the financial documents having a record date earlier than or equal to the pre-selected date-one year before the current date in this example. The other document retrieval procedure is for the financial documents having a record date later than the pre-selected date. As discussed above, the one year timing selected for the pre-selected date is simply shown as an example and any suitable time frame may be utilized. In fact, even all financial document retrievals may be outsourced to

the third party entity. As also discussed above, the two separate document retrieval procedures will typically operate simultaneously.

With reference to the subject example, if the record date of the financial document is earlier than or equal to one year before the current date, the remaining steps occur at the bank. As discussed above, these steps are known as the back office production of the bank. The request is first categorized by a research automation system. The research automation system automates the entire workflow of a bank's research and photocopy departments by sending requests to the appropriate sequence for processing. The downloading terminal 14 serves to perform the research automation system's tasks.

Photocopy requests are routed to an image control system, statement requests are sent to a document retrieval system, and requests for financial adjustments are routed to an adjustment system. The document terminal 16 serves to perform these tasks. In the illustrated embodiment of the subject invention, the sample document request is for a paid check. Hence, the categorized sequence will be the image control system which handles photocopy requests.

Referring now to Figure 3, after the request is categorized, the request is verified for completeness and accuracy. If the request is not complete then additional data is retrieved. The additional data is retrieved by using a sequence number retrieval system and/or an all items research system. Once the request is complete and accurate, then the image reference number can be determined. That is, once the request is complete and accurate, then the requested financial document can be electronically located in the on-site storage system.

The reference number may be a routing, sequence, or any other type of indicator. The reference number is determined by the image control system. The image control system is an image retrieval and routing management system which works in conjunction with Kodak's *IMAGELINK*™ Digital Workstations (IDW). Specifically, the image control system first connects to a network node. The network node is any type of storage device as is known in the art. Preferably a Kodak network node is used. The network node drives the IDW to find the location of the image by using the reference number. Specifically, the employee is prompted to verify that the correct media is loaded in the IDW such that the IDW can locate the image. The reference number for the document is known and the document image is now verified and located.

The requested image can now be retrieved and reproduced. In other words a copy of the digitized document (the check) is created. The copy may be created by manually pulling the microfilm, microfiche, or the like and photocopying the document. The copy may also be made by printing the document from a digitized record. The photocopy of the check is then distributed to the requesting client or other end user of the financial institution. Other end users of the financial institution include, but are not limited to, other financial institutions and federal and state governments. Additional information such as a photocopy report, a statement of charges, a research report and/or a daily status report may also be produced for the requesting client, the other end user, and/or the financial institution. The document retrieval system incorporated at the bank and the method for obtaining electronically-stored financial documents from the on-site storage

system is now completed.

Continuing with the subject example, if the record date of the financial document is later than one year before the current date, the automated retrieval of the financial document is outsourced to the third party entity. To begin, a separate file is automatically generated at the bank by the input of the identification data into the secondary interface. Referring specifically to Figure 4, the routing codes direct the request created on the separate file to be routed separately to the outsourced third party entity. In the preferred embodiment of the subject invention, additional user ID's are created to allow only selected users into the secondary interface. The identification data stored in the separate file and the routing codes are downloaded to the off-site storage system for retrieval of the requested financial documents by the outsourced downloading terminal 18. Preferably, the identification data and routing codes are grouped into batches of common requests for optimum retrieval of the requested financial document by the outsourced third party entity at the off-site storage system. The downloading step may occur at any suitable predetermined interval. Preferably, the downloading will occur three times a day. The downloaded documents are known in the industry as a basket of requests.

The subject method further includes the step of creating a back-up file of the downloaded identification data and routing codes in the off-site storage system. The back-up file acts as an emergency information source in case the mainframe computer 12 at the financial institution has a catastrophic failure. In addition, the outsourced third party entity is in direct connection with the mainframe computer 12 of the bank wherein the

outsourced third party entity may produce a backup directory of each database file. This database backup is an additional safe guard for the financial institution.

The downloaded identification data and routing codes are then categorized for processing in the off-site storage system. The research automation system categorizes this information in a like fashion as discussed above. In fact, the outsourced third party entity uses the same computer software package as the financial institution such that the flow of information is optimum and not interrupted. As discussed above, the subject example request is for a paid check. Hence, the request will be categorized into the image control system and a sequence number will be determined by the sequencing terminal 20. Also, a status to update the progress of the requested financial document is provided to the financial institution.

After the request is categorized, the request, specifically the inputted identification data, is verified for completeness and accuracy. If the request is not complete or accurate, then additional data is retrieved. In a similar fashion as above, the additional data is retrieved by using the sequence number retrieval system and/or the all items research system. As appreciated, the outsourced third party entity may retrieve this information from the mainframe computer 12, via its direct line, or from its own backup database files. Once the request is complete and accurate, the image reference number can be determined. Again, as above, the reference number is determined by the image control system.

The requested image is then retrieved. More specifically, the requested financial

document is electronically located in the off-site storage system. Additionally, the requested financial document is also reproduced after the document is electronically located in the off-site storage system by the outsourced document terminal 22. In other words, a copy of the digitized document (the check) is created. A status file is then created for the completed transaction. Also, a status of the request is sent to the financial institution wherein the institution may update their records. The status updates, as well as the information connections, create a two way information exchange between the outsourced third party entity and the bank.

The photocopy of the check is then distributed or digitally transferred to the requesting client, the financial institution, or other end users of the financial institution. In the preferred embodiment of the subject invention, the photocopy of the request is distributed to the requesting client, etc. based on the routing codes. That is, in addition to directing the request to be separately routed to the outsourced third party entity, the routing codes also indicate an appropriate distribution for the request client or other end user. The request is now completed.

A special circumstance occurs when the record date of one portion of the client's request is earlier than or equal to one year before the current date, and when the record date of another portion of the client's request is later than one year before the current date. These types of requests are known in the industry as spanned requests. One solution is to incorporate an additional interlace utilized when the employee of the bank is utilizing the computer terminal 11 and comparing the specific document parameter of the requested

financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. If the request is a spanned request, then the request will be split into two separate requests which can be handled simultaneously. A special notation would be put onto the requests such that they may be put back together before distributing the documents to the client or other end user. Another solution simply notifies the inputting employee that two requests should be entered separately. A third solution sends the request to the back office production at the bank wherein the back office employees notify the outsourced third party entity by a separate request to retrieve the requested financial documents.

The invention has been described in an illustrative manner, and it is to be understood that the terminology which has been used is intended to be in the nature of words of description rather than of limitation. Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, wherein reference numerals are merely for convenience and are not to be in any way limiting, the invention may be practiced otherwise than as specifically described.

ABSTRACT

An electronically stored financial document is either maintained in a first storage system when a parameter associated with the document is greater than a pre-selected parameter or in a second storage system when the parameter associated with the document is less than or equal to the pre-selected parameter. A request for a stored financial document is received and the requested financial document parameter is compared to the pre-selected financial document parameter to determine if the electronically stored financial document's parameter is more than, less than, or equal to the pre-selected parameter . In processing the request, a processing unit compares and electronically accesses one of the storage systems in response to the comparison of the pre-selected parameter to the electronically stored financial document's parameters. After accessing the appropriate storage system, the requested electronically stored financial document can be reproduced, and/or distributed.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM
First Named Inventor/Applicant Name:	Michael Schulze
Filer:	Michael Schulze
Attorney Docket Number:	

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1600**

Electronic Acknowledgement Receipt

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Warnings:					
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2	Abstract	originallyfiledabstract.pdf	34665 82da5c772d1ea1a77dad6fb06655891ebaa88492	no	1
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6	Drawings-only black and white line drawings	originallyfileddrawings.pdf	123318 f490dfbfa3ba968bb1d60dc1d4b4045367676e22	no	4
Warnings:					
Information:					
7	Preliminary Amendment	Preliminaryamendment.pdf	6840726 fb43a5f9fa980aa1f1c014b4c3f4b0b4d10e86e4	no	12
Warnings:					
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8	Specification	Markedupspec.pdf	15270667 88fd7614c9dd8d7974a1e9819b2501c23f829e0d	no	26
Warnings:					
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9	Specification	Cleanspec.pdf	14431412 eeef37b98348dfcfc6bef393185e02282c63c120	no	26
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PTO/AIA/01 (06-12)
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: Michael D. Schulze Date (Optional): 9-17-15

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

  filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Richard J. Gagnon Date (Optional): 9/17/2015

Signature: _____

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ABSTRACT OF THE DISCLOSURE

A method for a bank to obtain an electronically-stored financial document is disclosed. The financial document includes a specific document parameter, such as a record date. The bank maintains the financial document in an off-site storage system when the record date is later than a pre-selected date and in an on-site storage system when the record date is earlier than or equal to the pre-selected date. The off-site storage system is remotely-located from the on-site storage system. The bank receives a request for the financial document from a client and compares the record date to the pre-selected date to determine if the record date is later than, earlier than, or equal to the pre-selected date. In processing the request, the bank utilizes a computer terminal connected to the off-site and on-site storage systems to access one of the storage systems in response to the comparison of the record date to the pre-selected date. After accessing the appropriate storage system, the bank inputs data into the computer terminal to identify the requested financial document and then retrieves the requested financial document. The bank then reproduces the requested financial document and distributes the requested financial document to the requesting client, or some other end user of the bank.

CLAIMS

What is claimed is:

1. A method for a financial institution to obtain an electronically-stored financial document from an off-site storage system remotely-located from an on-site storage system wherein the financial document includes at least one specific document parameter, said method comprising the steps of:

maintaining the financial document in the off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter;

maintaining the financial document in the on-site storage system when the specific document parameter of the financial document is less than or equal to the predetermined parameter;

receiving a request for the financial document at the financial institution;

comparing the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter;

utilizing a computer terminal located at the financial institution and connected to the off-site and on-site storage systems to access one of the storage systems in response to the comparison of the specific document parameter of the requested financial document to the predetermined parameter;

inputting identification data of the requested financial document into the computer

terminal after the desired storage system is accessed; and

retrieving the requested financial document as defined by the inputted identification data.

2. A method as set forth in claim 1 wherein the specific document parameter of the financial document is a particular numerical sequence and the predetermined parameter is a predetermined numerical value.

3. A method as set forth in claim 2 wherein the step of comparing the specific document parameter to the predetermined parameter is further defined by comparing the particular numerical sequence of the financial document to the predetermined numerical value to determine if the particular numerical sequence is greater than, less than, or equal to the predetermined numerical value.

4. A method as set forth in claim 2 wherein the particular numerical sequence of the financial document is a record date of the financial document and the predetermined numerical value is a pre-selected date.

5. A method as set forth in claim 4 wherein the step of comparing the specific document parameter to the predetermined parameter is further defined by comparing the record date of the financial document to the pre-selected date to determined if the record date is later than, earlier than, or equal to the pre-selected date.

6. A method as set forth in claim 2 wherein the step of utilizing the computer

terminal to access one of the storage systems is further defined by accessing the off-site storage system when the particular numerical sequence is greater than the predetermined numerical value and accessing the on-site storage system when the particular numerical sequence is less than or equal to the predetermined numerical value.

7. A method as set forth in claim 6 wherein the step of inputting identification data of the requested financial document into the computer terminal is further defined by inputting identification data into a primary interface inter-linked with the on-site storage system when the particular numerical sequence of the financial document is less than or equal to the predetermined numerical value.

8. A method as set forth in claim 7 wherein the step of inputting identification data of the requested financial document into the computer terminal is further defined by selecting an exit function at the primary interface when the particular numerical sequence of the financial document is greater than the predetermined numerical value.

9. A method as set forth in claim 8 wherein the selection of the exit function is further defined by initiating a secondary interface inter-linked with the off-site storage system and inputting identification data into the secondary interface.

10. A method as set forth in claim 9 wherein the step of inputting identification data into the secondary interface is further defined by selecting a desired output format for the requested financial document.

11. A method as set forth in claim 9 further including the step of automatically generating routing codes upon the initiation of the secondary interface and the inputting of the identification data into the secondary interface.

12. A method as set forth in claim 11 further including the step of inter-linking the exit function with the secondary interface and configuring the routing codes to automatically forward the inputted identification data to the off-site storage system.

13. A method as set forth in claim 12 further including the step of forwarding the inputted identification data and the routing codes into a mainframe computer for temporarily storing the identification data and routing codes in the mainframe computer.

14. A method as set forth in claim 13 further including the step of downloading the stored identification data and routing codes to the off-site storage system for retrieval of the requested financial documents.

15. A method as set forth in claim 14 further including the step of grouping the stored identification data and routing codes into batches of common requests for optimum retrieval of the requested financial document.

16. A method as set forth in claim 14 further including the step of creating a back-up file of the downloaded identification data and routing codes in the off-site storage system.

17. A method as set forth in claim 14 further including the step of categorizing the downloaded identification data and routing codes for processing in the off-site storage system.

18. A method as set forth in claim 17 further including the step of providing a status of the requested financial document to update progress to the financial institution.

19. A method as set forth in claim 17 further including the step of verifying the completeness and accuracy of the inputted identification data.

20. A method as set forth in claim 19 wherein the step of retrieving the requested financial document is further defined by electronically locating the requested financial document in the off-site storage system.

21. A method as set forth in claim 20 wherein the step of retrieving the requested financial document is further defined by reproducing the requested financial document after the requested financial document is electronically located in the off-site storage system.

22. A method as set forth in claim 21 further including the step of distributing the reproduced financial document to an end user of the financial institution based on the routing codes.

METHOD OF OBTAINING AN ELECTRONICALLY-STORED FINANCIAL DOCUMENT

RELATED APPLICATIONS

This patent application claims priority to and all advantages of United States Provisional Patent Application Serial No. 60/129,021 which was filed on April 13, 1999 and is entitled "REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM."

BACKGROUND OF THE INVENTION

1) TECHNICAL FIELD

The subject invention relates to a method for a financial institution to obtain electronically-stored financial documents from an off-site storage system remotely-located from an on-site storage system.

2) DESCRIPTION OF THE PRIOR ART

Methods for obtaining electronically-stored financial documents are generally known in the art. Financial institutions, such as banks and credit unions, utilize such methods to rapidly and efficiently obtain financial documents for distribution to clients upon request. Such financial documents include paid checks, account statements, and other related documents. These financial documents are typically stored on microfiche, microfilm, digitally, or by some other electronic storage means. Further, these financial documents are typically electronically-stored in an on-site storage system located at the financial institution or in an off-site storage system. Electronic storage of these financial documents permits financial institutions to eliminate storage of paper or "hard" copies of these documents. The

electronic storage of these documents also provides a means of retrieving the information from the on-site and off-site storage systems.

Once the document is stored, the client may request an image of a particular stored document. Client requests are made to replace lost or stolen documents, for tax purposes, for proof of financial transactions, for legal disputes, and other similar matters. The client's request is inputted into a computer terminal at the financial institution. More specifically, conventional methods for obtaining an electronically-stored financial document enable an employee of the financial institution, such as a bank teller, to input the request into an interface incorporated into the computer terminal. The interface is inter-linked with the on-site storage system. Typically, all requests for a particular period are grouped together and subsequently downloaded for retrieval of the requested image by the financial institution. The financial institution retrieves the image, e.g. a photocopy of the check, and then distributes the photocopy to the client via facsimile, mail or hand delivery. The storing, downloading, and retrieving of the financial document, including the reproduction and the distribution of the document, are known in the industry as back office production. Back office production for financial institutions is particularly resource intensive, time consuming, and expensive. Also, back office production becomes increasingly expensive if the client requests a particularly old financial document because older financial documents frequently require more resources and time to locate and retrieve.

The majority of financial institutions electronically store financial documents only in an on-site storage system and not in an off-site storage system. Consequently, these financial

institutions are unable to outsource the responsibilities for the back office production to third party entities to alleviate the expenses and resources associated with the back office production. These financial institutions realize a significant financial burden since the back office production is concentrated strictly at the financial institution.

Other financial institutions do electronically store financial documents in on-site and off-site storage systems. However, the methods utilized by these financial institutions to access the financial documents stored in the off-site storage system are deficient in that the interface utilized in such methods is only inter-linked with the on-site storage system. That is, there is no interface independently inter-linked with the off-site storage system. As a result, the financial documents stored in the off-site storage system can not be efficiently accessed. These financial institutions are still responsible for retrieving the requested financial documents through their back office production and their expenses remain high. One such method of retrieving documents from on-site and off-sited storage systems is disclosed in United States Patent No. 5,784,610 to Copeland, III et al.

Due to the inefficiencies identified in the conventional methods used by financial institutions to obtain financial documents, it is desirable to implement a method for a financial institution to obtain electronically-stored financial documents from both on-site and off-site storage systems that reduces, if not eliminates, the back office production of the financial institution by providing a direct interface inter-linked with the off-site storage system. With such an interface, the responsibility for retrieving financial documents from the off-site storage can be outsourced to third party entities while still providing the financial institution

with efficient access to any financial documents electronically-stored in the off-site storage system.

SUMMARY OF THE INVENTION AND ADVANTAGES

A method for a financial institution to obtain electronically-stored financial documents having a specific document parameter is disclosed. The specific document parameter is typically a particular numerical sequence, such as a record date of the financial document. The method of the subject invention enables the financial institution to obtain the financial documents from an off-site storage system. The off-site storage system is remotely-located from an on-site storage system. The financial documents of the financial institution are maintained in the off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter. The financial documents that are less than or equal to the predetermined parameter are maintained in the on-site storage system.

When the financial institution receives a request for a financial document, the financial institution compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. A computer terminal located at the financial institution is connected to both the off-site and on-site storage systems. The computer terminal is utilized to access one of the storage systems in response to the comparison of the specific document parameter to the predetermined parameter. For instance,

if it is determined that the specific document parameter is less than or equal to the predetermined document parameter, then the computer terminal accesses the on-site storage system. On the other hand, if it is determined that the specific document parameter of the financial document is greater than the predetermined parameter, then the computer terminal accesses the off-site storage system.

After the computer terminal accesses the appropriate storage system, identification data of the requested financial document is inputted into the computer. More specifically, to access the on-site storage system, the identification data is input into a primary interface that is specifically inter-linked with the on-site storage system. To access the off-site storage system, an exit function is selected at the primary interface and the identification data is then input into a secondary interface that is initiated upon selection of the exit function. The secondary interface is specifically inter-linked with the off-site storage system.

Finally, after the identification data of the requested financial document is inputted, the requested document is then retrieved in order to reproduce the financial document, and distribute the financial document to an end user of the financial institution.

The subject invention therefore provides a method that enables financial institutions to obtain electronically-stored financial documents from an off-site storage system via a secondary interface that is specifically inter-linked with the off-site storage system and the financial documents electronically-stored in that system. As such, the financial institution can selectively store financial documents in either an on-site storage system or the off-site storage system, and the responsibility for the financial documents in the off-site storage system can be

outsourced to a third party entity. Therefore, the back office production of the financial institution associated with the retrieval and distribution of financial documents stored in the off-site storage system is strategically reduced or even completely eliminated.

BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

Figure 1 is a flow diagram schematically detailing an on-site storage system, and an off-site storage system in accordance with the subject invention;

Figure 2 is a block diagram generally representing a method for a financial institution to obtain electronically-stored financial documents from the on-site and off-site storage systems;

Figure 3 is a block diagram completing the method of obtaining electronically-stored financial documents from the on-site storage system; and

Figure 4 is a block diagram completing the method of obtaining electronically-stored financial documents from the off-site storage system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the Figures, wherein like numerals indicate like or corresponding parts throughout the several views, a method for a financial institution to obtain an electronically-stored financial document is schematically shown at 10 in Figure 1. The method introduced in

the subject invention enables the financial institution to obtain the financial document from an off-site storage system remotely located from an on-site storage system. Preferably, the on-site storage system is located at the financial institution and the off-site storage system is located at a remote location distant from the financial institution. This allows the financial institution to 'outsource' the responsibilities associated with obtaining the financial document.

Methods for financial institutions to obtain electronically-stored documents are frequently used by such entities as banks, credit unions, and other financially-oriented institutions. For illustrative purposes only, the description of the subject invention is discussed with reference to banks. However, as appreciated by those skilled in the art, other businesses, such as insurance companies, may also utilize similar methods and incorporate the aspects of the subject invention.

Methods for banks to obtain electronically-stored financial documents are generally used by banks to rapidly and efficiently obtain financial documents for distribution to clients upon request. As described above, the financial documents for banks are usually paid checks, checking statements, and other related financial documents, and these documents include at least one specific document parameter. As appreciated by those skilled in the art, it is not the financial document (e.g. the paid check) itself that is electronically-stored. Rather, it is data included on the document such as a sequence number that is electronically stored to make up the financial document. The specific document parameter is preferably a particular numerical sequence. As appreciated, the specific document parameter of the financial document can include, but is not limited to, a record date or age of the document, a series number, or some

other document identifying number of the financial document. More specifically, in the preferred embodiment of the subject invention, the particular numerical sequence of the financial document is the record date of the financial document. That is, the date that the particular financial document was created or posted.

The financial documents are typically stored on microfiche, microfilm, digitally, or by some other electronic storage means. As appreciated, the electronic storage of the financial documents is frequently created by taking an electronic photo image of the document and storing the photo image in a computer system. One such digital electronic storage device is sold by Kodak under the name of *IMAGELINK*^{TM} Digital Workstation (IDW). Electronic storage of these financial documents permits banks to eliminate storage of paper or "hard" copies of these documents. The electronic storage of these documents also provides an efficient means of retrieving the information from the on-site and off-site storage systems. This will be discussed further herein below.

As described above, the financial documents are electronically-stored in either the on-site storage system located at the bank or in the off-site storage system remotely located from the on-site storage system. More specifically, the subject invention includes the step of maintaining the financial documents in the off-site storage system when the specific document parameter of the financial document is greater than a predetermined parameter. Financial documents are maintained in the on-site storage system when the specific document parameter of the financial document is less than or equal to the predetermined parameter. As appreciated, the document parameter of the financial documents stored in the off-site storage

system may be greater than or equal to the predetermined parameter with the on-site storage system having documents only less than the predetermined parameter.

Similar to the specific document parameter of the financial document, the predetermined parameter is also a numerical value. The predetermined parameter is specifically a numerical value predetermined by the bank. For instance, if the specific document parameter is a series number of a paid check and the series number is greater than the predetermined parameter which, in this case, would be an arbitrarily selected base series number, then the paid check would be stored in the off-site storage system.

In the preferred embodiment of the subject invention, the predetermined numerical value is a date pre-selected by the bank. For instance, the bank may pre-select a date that is one year before a current date—the current date being the actual date that the client requests the financial document. Of course, the bank may pre-select a date that is some other time period before a current date (e.g. two or three years) without varying from the scope of the subject invention. As such, if the record date of the particular financial document is older than one year, then the particular financial document is maintained in the off-site storage system. If the record date of the particular financial document is earlier than or equal to one year, then the particular financial document is maintained in the on-site storage system. As discussed above, the document having record dates equal to the one year may be stored in the off-site or on-site storage systems.

Once the financial document is maintained in the appropriate storage system, the bank is capable of receiving a request for the financial document from the client. In reality, the

client is requesting an image of the stored financial document. As appreciated, clients request the image for various reasons. As discussed above, requests are typically made for replacing lost or stolen financial documents, for tax purposes, for proof of financial transactions, for legal disputes, and other similar matters. Ultimately, the bank retrieves the image, reproduces the image, and distributes the reproduced image to the requesting client of the bank.

Referring now to Figure 1, the method for banks to obtain electronically-stored financial documents is discussed in detail. Initially, the requesting client requests a particular financial document, such as a paid check. The client is typically a customer of the bank or other financial institution. The client's request is inputted into a computer terminal 11 at the financial institution. The computer terminal 11 will be discussed in more detail hereinbelow.

From the computer terminal 11, the request is fed into a mainframe computer 12 at the bank. In the preferred embodiment of the subject invention, if the client requests a financial document having a record date earlier than or equal to one year before the current date, then the request, and other requests like it, are processed at the bank in the on-site storage system. That is, the requests are grouped together and downloaded to a downloading terminal 14 at the bank. The downloading may occur at particular intervals such as at the end of each day, every three hours, etc. The sequence number of each check requested is then determined. A document terminal 16 subsequently creates or reproduces the document, i.e., a photocopy of the check. The photocopy is then distributed to the client via facsimile, mail, or hand delivery.

It is known in the art that the majority of requests for financial documents are requests for documents which were created in the most recent year. That is, if the pre-selected date is one year before the current date, as in the preferred embodiment, then the majority of requests are seeking financial documents having a record date earlier than or equal to the pre-selected date. The remaining document requests relate to financial documents that are older than one year. Since, as described in the Background of the Invention, retrieval of financial documents that are older than one year is particularly expensive, the preferred embodiment of the subject invention outsources all of the document requests which relate to documents having a record date later than one year before the current date. As appreciated, the particular time frame which is outsourced is not a critical feature of the subject invention and may be adjusted to meet the needs of any particular financial institution. In fact, all of the document requests, including the most recent, may be outsourced using the outsourcing procedure of the subject invention.

In the preferred embodiment, if the client requests a financial document having a record date later than one year before the current date, then the request, and others like it, are grouped together and downloaded from the mainframe computer 12 to an outsourced downloading terminal 18. As above, the downloading may be at particular intervals as needed. The sequence number is determined by a sequencing terminal 20. The sequence number is then sent back to the outsourced downloading terminal 18. An outsourced document terminal 22 then creates or reproduces the desired document which is then distributed to either the client or the bank. As appreciated, two document retrieval operations, one for the bank to

retrieve financial documents having record dates earlier than or equal to one year before the current date, and another to retrieve outsourced financial documents having record dates later than one year before the current date, preferably operate simultaneously. It is to be understood that the computer terminals and the accompanying PC bases are illustrated highly schematically in Figure 1 and are not intended to be limiting in any manner. For instance, the schematic illustration of the outsourced document terminal 22 need not include a computer terminal and an accompanying PC base. Instead, the outsourced document terminal 22 is preferably some sort of printing device.

Referring to Figures 2 through 4, the method for banks to obtain electronically-stored financial documents is described in even greater detail. The request is first generated by the client. The request is then processed by the bank. The processing, retrieval and reproduction of the requested financial document is typically controlled by one interlinked computer software program. One such computer software program is a software program called Antinori Software Incorporated or ASI which is sold under the name of *INNOVASION*™ by Carreker-Antinori of Dallas, Texas. However, other frequently used software programs include *PEGA*™ and *Sterling*™. Any of these computer software systems can provide the necessary means for implementing the discussed procedures.

The processing of the request is completed by a customer service tracking system and the computer terminal 11. The customer service tracking system assists the financial institution in receiving the request. More specifically, the customer service tracking system gives branches, customer service, and other bank departments the capability to enter, log, track,

route and monitor the status of all requests for financial documents. The customer service tracking system also provides the capability to enter, log, track, route and monitor the status of customer complaints and other customer service related items.

A bank employee, such as a bank teller first determines a status of the requested document. More specifically, the employee compares the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. If the specific document parameter is a particular numerical sequence and the predetermined parameter is a predetermined numerical value, then the employee compares the particular numerical sequence of the financial document to the predetermined numerical value to determine if the particular numerical sequence is greater than, less than, or equal to the predetermined numerical value. Further, if as in the preferred embodiment, the particular numerical sequence is a record date of the financial document, and the predetermined numerical value is a pre-selected date, then the employee compares the record date of the financial document to the pre-selected date to determined if the record date is later than, earlier than, or equal to the pre-selected date.

The customer service tracking system enables a bank employee, such as a bank teller, to submit the request. More specifically, the employee utilizes the computer terminal 11 located at the bank and connected to both the off-site and on-site storage systems to access one of the storage systems in response to the comparison of the specific document parameter of the requested financial document to the predetermined parameter. For instance, when the

particular numerical sequence of the financial document is greater than the predetermined numerical value, the employee preferably utilizes the computer terminal 11 to access the off-site storage system, and when the particular numerical sequence of the financial document is less than or equal to the predetermined numerical value, the employee preferably utilizes the computer terminal 11 to access the on-site storage system. As discussed above, the documents have a numerical sequence equal to the predetermined numerical value may be stored in either the off-site or on-site storage systems.

After the computer terminal 11 is utilized to access the desired storage system, the employee manually inputs identification data of the requested financial document into the computer terminal 11. More specifically, when the particular numerical sequence of the financial document is less than or equal to the predetermined numerical value, the employee inputs identification data into a primary interface and selects the requested document. Also, the primary interface preferably provides an option for the employee to select among several different output formats. The primary interface is inter-linked with the on-site storage system. In the preferred embodiment of the subject invention, the primary interface appears as follows and includes the identification data detailed below:

Account Number:		Prod Type:
Account Name:		Customer Code:
Address:		
City:	State:	Zip Code:
Home Phone: ( )		Work Phone: ( )
Fax: ( )		
Service Code:		

For Items Posted Within A Year

Copy of Statement Only	Savings Items
Copy of Check/Deposit Ticket	Misc (G/L, Loans, Teller, Etc)
Check(s)/Deposit(s)<30 Items	Cash Letter Reconstruction
Statements and<30 Items	Lockbox
Statements and>30 Items	Legal Statement Only
Deposit Reconstruction	Legal Statement and Items

Regardless of Posting Date

Missing Transactions	Returned Items
Online (Backdated/Unposted)	Encoding Error/Wrong Account

EXIT FUNCTION

Alternatively, when the particular numerical sequence of the financial document is greater than the predetermined numerical value, the employee selects an exit function at the primary interface. The exit function distinguishes that the request is to be sent to an outsourcing third party entity. Upon selection of the exit function at the primary interface, a secondary interface, inter-linked with the exit function, is initiated. The secondary interface is inter-linked with the off-site storage system. The employee inputs identification data into the secondary interface and selects the requested document. Also, the secondary interface

preferably provides an option for the employee to select among several different output formats. Preferably, routing, or service codes will be generated automatically upon the initiation of the secondary interface and the inputting of the identification data into the secondary interface. The routing codes enable the bank to recognize that the request is being sent to the outsourced third party entity. Furthermore, the routing codes are configured to automatically forward the inputted identification data to the off-site storage system. The inputted identification data and the routing codes are forwarded into the mainframe computer 12 introduced above for temporary storage before transfer to the off-site storage system. This temporary storage also serves to defend against unexpected power outages, computer malfunctions, and the like. In the preferred embodiment of the subject invention, the secondary interface appears as follows and includes the identification data detailed below:

Account Number:		Prod Type:
Account Name: Address:		Customer Code:
City:	State:	Zip Code:
Home Phone: ( ) Fax: ( ) Service Code:		Work Phone: ( )

For Items Posted Prior to a Year

Copy of Statement Only	Savings Items
Copy of Check/Deposit Ticket	Misc (G/L, Loans, Teller, Etc)
Check(s)/Deposit(s)<30 Items	Cash Letter Reconstruction
Statements and<30 Items	Lockbox
Statements and>30 Items	Legal Statement Only
Deposit Reconstruction	Legal Statement and Items

Once the bank employee has inputted the necessary identification data into either the primary or secondary interface, then retrieval of the financial document can continue. Specifically, the requested financial document is retrieved as defined by the inputted identification data. Two separate document retrieval procedures are discussed hereinbelow. One document retrieval procedure is for the financial documents having a record date earlier than or equal to the pre-selected date—one year before the current date in this example. The other document retrieval procedure is for the financial documents having a record date later than the pre-selected date. As discussed above, the one year timing selected for the pre-selected date is simply shown as an example and any suitable time frame may be utilized. In fact, even all

financial document retrievals may be outsourced to the third party entity. As also discussed above, the two separate document retrieval procedures will typically operate simultaneously.

With reference to the subject example, if the record date of the financial document is earlier than or equal to one year before the current date, the remaining steps occur at the bank. As discussed above, these steps are known as the back office production of the bank. The request is first categorized by a research automation system. The research automation system automates the entire workflow of a bank's research and photocopy departments by sending requests to the appropriate sequence for processing. The downloading terminal 14 serves to perform the research automation system's tasks.

Photocopy requests are routed to an image control system, statement requests are sent to a document retrieval system, and requests for financial adjustments are routed to an adjustment system. The document terminal 16 serves to perform these tasks. In the illustrated embodiment of the subject invention, the sample document request is for a paid check. Hence, the categorized sequence will be the image control system which handles photocopy requests.

Referring now to Figure 3, after the request is categorized, the request is verified for completeness and accuracy. If the request is not complete then additional data is retrieved. The additional data is retrieved by using a sequence number retrieval system and/or an all items research system. Once the request is complete and accurate, then the image reference number can be determined. That is, once the request is complete and accurate, then the requested financial document can be electronically located in the on-site storage system. The reference number may be a routing, sequence, or any other type of indicator. The reference number is

determined by the image control system. The image control system is an image retrieval and routing management system which works in conjunction with Kodak's *IMAGELINK*™ Digital Workstations (IDW). Specifically, the image control system first connects to a network node. The network node is any type of storage device as is known in the art. Preferably a Kodak network node is used. The network node drives the IDW to find the location of the image by using the reference number. Specifically, the employee is prompted to verify that the correct media is loaded in the IDW such that the IDW can locate the image. The reference number for the document is known and the document image is now verified and located.

The requested image can now be retrieved and reproduced. In other words a copy of the digitized document (the check) is created. The copy may be created by manually pulling the microfilm, microfiche, or the like and photocopying the document. The copy may also be made by printing the document from a digitized record. The photocopy of the check is then distributed to the requesting client or other end user of the financial institution. Other end users of the financial institution include, but are not limited to, other financial institutions and federal and state governments. Additional information such as a photocopy report, a statement of charges, a research report and/or a daily status report may also be produced for the requesting client, the other end user, and/or the financial institution. The document retrieval system incorporated at the bank and the method for obtaining electronically-stored financial documents from the on-site storage system is now completed.

Continuing with the subject example, if the record date of the financial document is later than one year before the current date, the automated retrieval of the financial document is

outsourced to the third party entity. To begin, a separate file is automatically generated at the bank by the input of the identification data into the secondary interface. Referring specifically to Figure 4, the routing codes direct the request created on the separate file to be routed separately to the outsourced third party entity. In the preferred embodiment of the subject invention, additional user ID's are created to allow only selected users into the secondary interface. The identification data stored in the separate file and the routing codes are downloaded to the off-site storage system for retrieval of the requested financial documents by the outsourced downloading terminal 18. Preferably, the identification data and routing codes are grouped into batches of common requests for optimum retrieval of the requested financial document by the outsourced third party entity at the off-site storage system. The downloading step may occur at any suitable predetermined interval. Preferably, the downloading will occur three times a day. The downloaded documents are known in the industry as a basket of requests.

The subject method further includes the step of creating a back-up file of the downloaded identification data and routing codes in the off-site storage system. The back-up file acts as an emergency information source in case the mainframe computer 12 at the financial institution has a catastrophic failure. In addition, the outsourced third party entity is in direct connection with the mainframe computer 12 of the bank wherein the outsourced third party entity may produce a backup directory of each database file. This database backup is an additional safe guard for the financial institution.

The downloaded identification data and routing codes are then categorized for processing in the off-site storage system. The research automation system categorizes this

information in a like fashion as discussed above. In fact, the outsourced third party entity uses the same computer software package as the financial institution such that the flow of information is optimum and not interrupted. As discussed above, the subject example request is for a paid check. Hence, the request will be categorized into the image control system and a sequence number will be determined by the sequencing terminal 20. Also, a status to update the progress of the requested financial document is provided to the financial institution.

After the request is categorized, the request, specifically the inputted identification data, is verified for completeness and accuracy. If the request is not complete or accurate, then additional data is retrieved. In a similar fashion as above, the additional data is retrieved by using the sequence number retrieval system and/or the all items research system. As appreciated, the outsourced third party entity may retrieve this information from the mainframe computer 12, via its direct line, or from its own backup database files. Once the request is complete and accurate, the image reference number can be determined. Again, as above, the reference number is determined by the image control system.

The requested image is then retrieved. More specifically, the requested financial document is electronically located in the off-site storage system. Additionally, the requested financial document is also reproduced after the document is electronically located in the off-site storage system by the outsourced document terminal 22. In other words, a copy of the digitized document (the check) is created. A status file is then created for the completed transaction. Also, a status of the request is sent to the financial institution wherein the institution may update their records. The status updates, as well as the information

connections, create a two way information exchange between the outsourced third party entity and the bank.

The photocopy of the check is then distributed or digitally transferred to the requesting client, the financial institution, or other end users of the financial institution. In the preferred embodiment of the subject invention, the photocopy of the request is distributed to the requesting client, etc. based on the routing codes. That is, in addition to directing the request to be separately routed to the outsourced third party entity, the routing codes also indicate an appropriate distribution for the request client or other end user. The request is now completed.

A special circumstance occurs when the record date of one portion of the client's request is earlier than or equal to one year before the current date, and when the record date of another portion of the client's request is later than one year before the current date. These types of requests are known in the industry as spanned requests. One solution is to incorporate an additional interface utilized when the employee of the bank is utilizing the computer terminal 11 and comparing the specific document parameter of the requested financial document to the predetermined parameter to determine if the specific document parameter is greater than, less than, or equal to the predetermined parameter. If the request is a spanned request, then the request will be split into two separate requests which can be handled simultaneously. A special notation would be put onto the requests such that they may be put back together before distributing the documents to the client or other end user. Another solution simply notifies the inputting employee that two requests should be entered separately. A third solution sends the

request to the back office production at the bank wherein the back office employees notify the outsourced third party entity by a separate request to retrieve the requested financial documents.

The invention has been described in an illustrative manner, and it is to be understood that the terminology which has been used is intended to be in the nature of words of description rather than of limitation. Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood that within the scope of the appended claims, wherein reference numerals are merely for convenience and are not to be in any way limiting, the invention may be practiced otherwise than as specifically described.

PTO/SB/14 (11-08)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Applicant Information:

Applicant 1 Remove

Applicant Authority ◉ Inventor ○ Legal Representative under 35 U.S.C. 117 ○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
	Michael	D.	Schulze	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Troy	State/Province	MI	Country of Residence i	US

Citizenship under 37 CFR 1.41(b) i: US

Mailing Address of Applicant:

Address 1	1607 Kirts		
Address 2	Apartment 103		
City	Troy	State/Province	MI
Postal Code	48084	Country i	US

Applicant 2 Remove

Applicant Authority ◉ Inventor ○ Legal Representative under 35 U.S.C. 117 ○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
	Richard	J.	Gagnon	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Grosse Pointe Farms	State/Province	MI	Country of Residence i	US

Citizenship under 37 CFR 1.41(b) i: US

Mailing Address of Applicant:

Address 1	69 Touraine Road		
Address 2			
City	Grosse Pointe Farms	State/Province	MI
Postal Code	48236	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☒ **An Address is being provided for the correspondence Information of this application.**

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Name 1	Michael	**Name 2**	Schulze
Address 1	1607 Kirts Blvd		
Address 2	Apt. #103		
City	Troy	**State/Province**	Mi
Country [i]	US	**Postal Code**	48084
Phone Number	586-850-8143	**Fax Number**	
Email Address	michaelschulze@hotmail.com	Add Email	Remove Email

Application Information:

Title of the Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM		
Attorney Docket Number		**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)	2162	**Sub Class (if any)**	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	4	**Suggested Figure for Publication (if any)**	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S. C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	000113243		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending	Remove

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13840892	Continuation of	13272936	2013-03-15
Prior Application Status	Abandoned		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
3272936	Continuation of	12902973	2010-10-12
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12902973	Continuation of	12489087	2009-06-22	7836067	2010-11-16
Prior Application Status	Patented				Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12489087	Continuation of	11202790	2005-08-12	7552118	2009-06-23
Prior Application Status	Patented				Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11202790	Continuation of	10104541	2002-03-22	6963866	2005-11-08
Prior Application Status	Patented				Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
10104541	Continuation of	09548490	2000-04-13	6446072	2002-09-03
Prior Application Status	Expired				Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
09548490	Continuation of	60129021	1999-04-13

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove

Application Number	Country [i]	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
			◯ Yes ◯ No

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

Assignee 1 Remove

If the Assignee is an Organization check here. ☒

PTO/SB/14 (11-08)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	
	Application Number	
Title of Invention	REMOTE DOCUMENT RETRIEVAL AND STORAGE SYSTEM	

Organization Name	Mirror Imaging L.L.C.		
Mailing Address Information:			
Address 1	27500 Donald Court		
Address 2			
City	Warren	**State/Province**	MI
Country [i] US		Postal Code	48092
Phone Number		Fax Number	
Email Address			
Additional Assignee Data may be generated within this form by selecting the **Add** button.		Add	

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.					
Signature	/Michael D. Schulze/			Date (YYYY-MM-DD)	2015-09-18
First Name	Michael	Last Name	Schulze	Registration Number	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

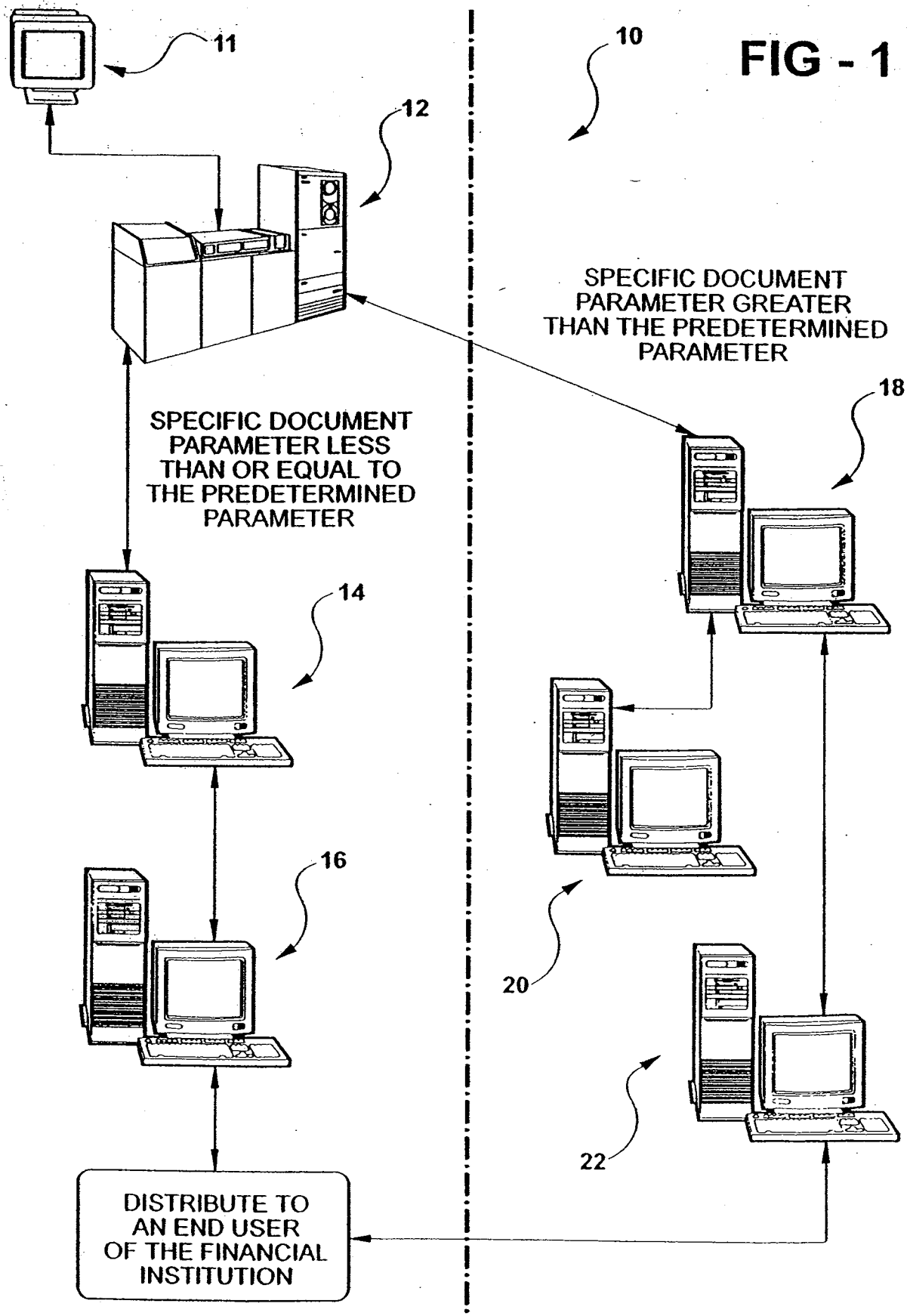

11
10
12
SPECIFIC DOCUMENT PARAMETER GREATER THAN THE PREDETERMINED PARAMETER
18
SPECIFIC DOCUMENT PARAMETER LESS THAN OR EQUAL TO THE PREDETERMINED PARAMETER
14
16
20
22
DISTRIBUTE TO AN END USER OF THE FINANCIAL INSTITUTION
ON SITE
OFF-SITE

FIG - 1

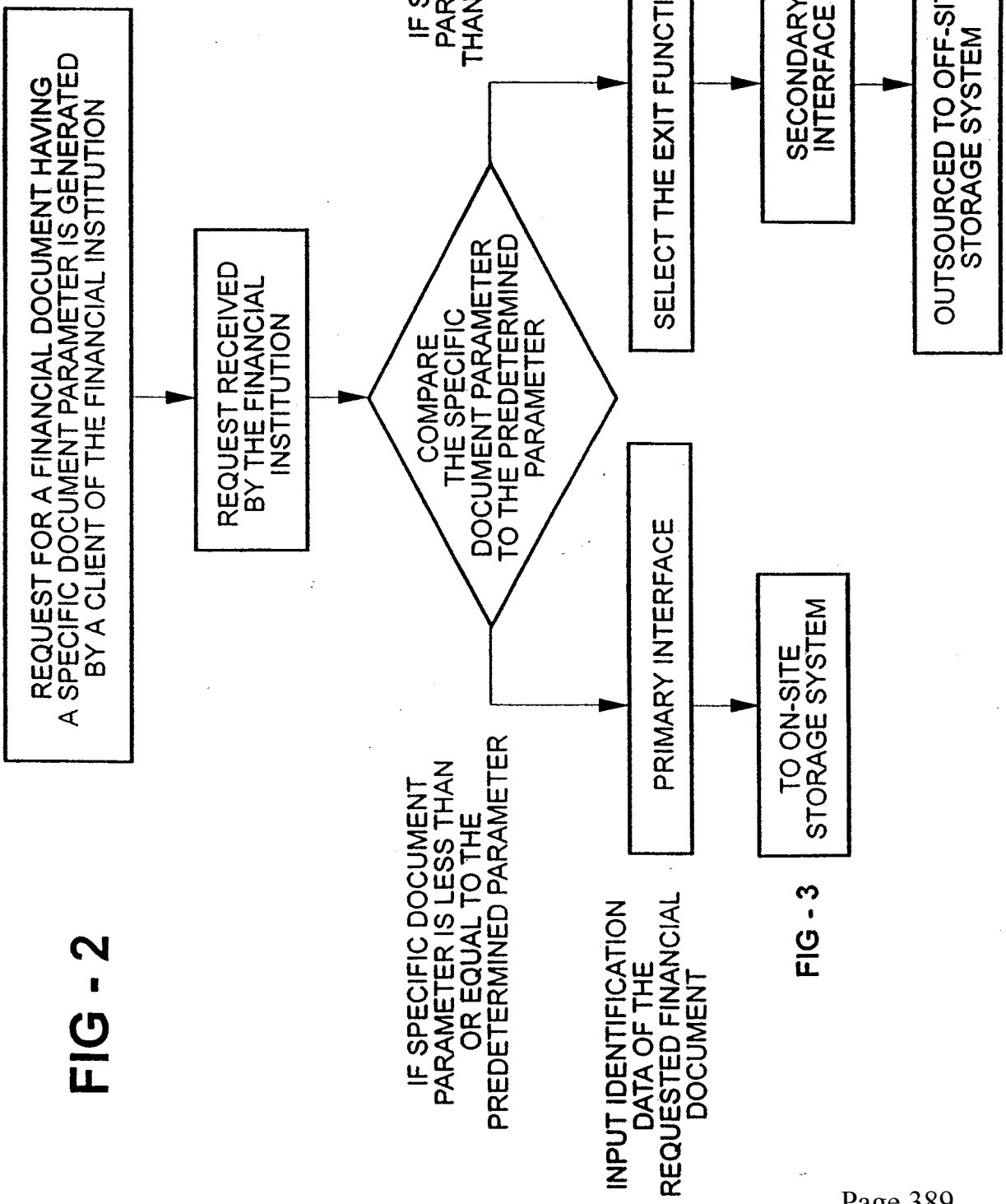


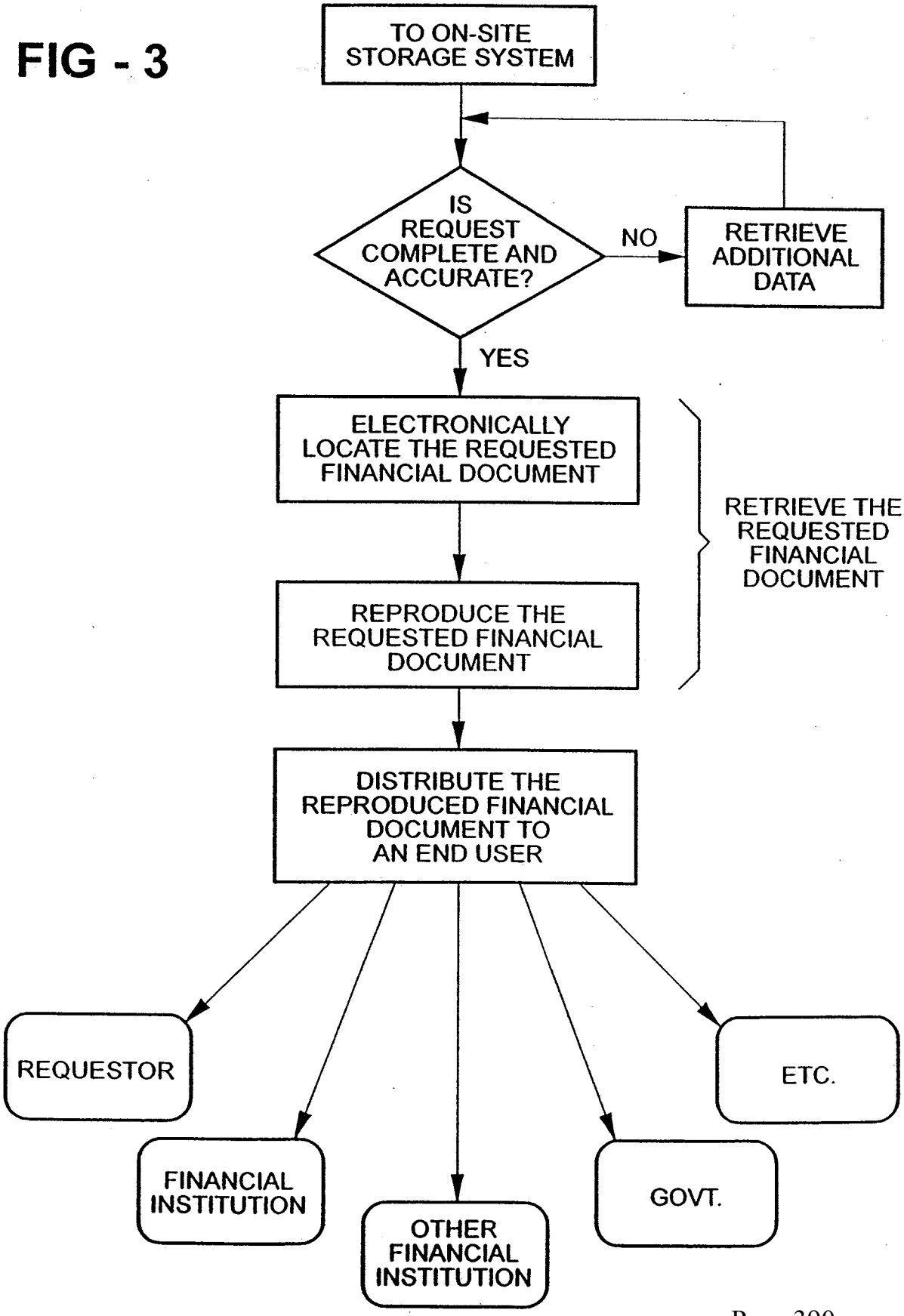
FIG - 2

FIG - 3

FIG - 4

(ON-SITE STORAGE SYSTEM)

FIG - 3



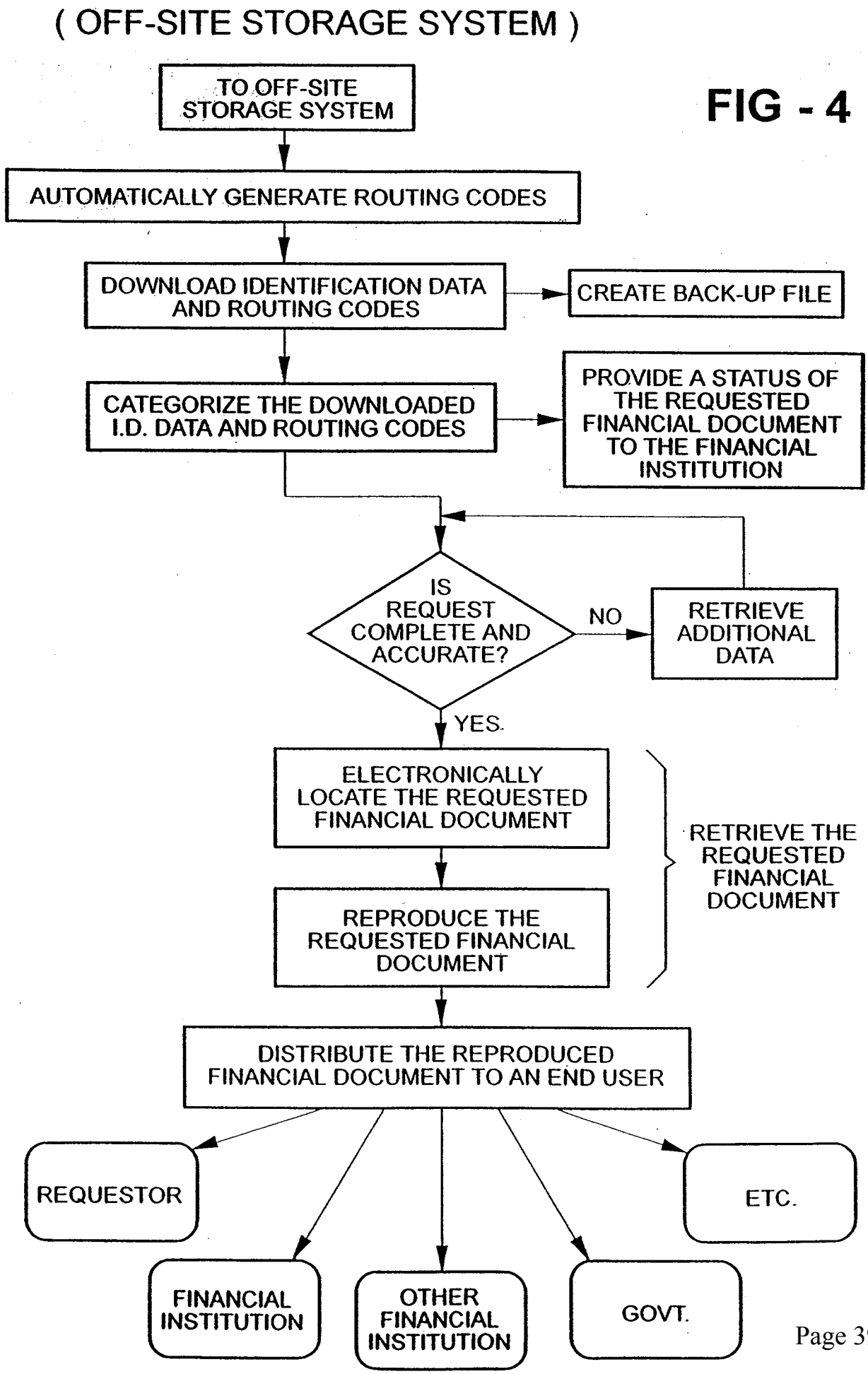

(OFF-SITE STORAGE SYSTEM)
TO OFF-SITE STORAGE SYSTEM
AUTOMATICALLY GENERATE ROUTING CODES
DOWNLOAD IDENTIFICATION DATA AND ROUTING CODES
CREATE BACK-UP FILE
CATEGORIZE THE DOWNLOADED I.D. DATA AND ROUTING CODES
PROVIDE A STATUS OF THE REQUESTED FINANCIAL DOCUMENT TO THE FINANCIAL INSTITUTION
IS REQUEST COMPLETE AND ACCURATE?
NO
RETRIEVE ADDITIONAL DATA
YES.
ELECTRONICALLY LOCATE THE REQUESTED FINANCIAL DOCUMENT
REPRODUCE THE REQUESTED FINANCIAL DOCUMENT
RETRIEVE THE REQUESTED FINANCIAL DOCUMENT
DISTRIBUTE THE REPRODUCED FINANCIAL DOCUMENT TO AN END USER
REQUESTOR
FINANCIAL INSTITUTION
OTHER FINANCIAL INSTITUTION
GOVT.
ETC.

FIG - 4