

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ESSELTE CORPORATION
Petitioner,

v.

DYMO
Patent Owner.

Case No. 2015-_____
Patent 7,990,567

**DECLARATION OF STEPHEN GRAY IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT 7,990,567**

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I, Stephen Gray, do hereby declare:

1. I am making this declaration at the request of Esselte Corporation, Esselte AB, and Esselte Leitz GMBH & Co. KG (collectively "Esselte") in the matter of the *Inter Partes* Review of U.S. Patent No. 7,990,567 ("the '567 Patent").
2. I am being compensated for my work in this matter at my standard hourly rate of \$405 for consulting services. I am being reimbursed at cost for any expenses. My compensation in no way depends upon the outcome of this proceeding.

I. PROFESSIONAL BACKGROUND

3. I am an independent consultant. All of my opinions stated in this report are based on my own personal knowledge and professional judgment. In forming my opinions, I have relied on my knowledge and experience in designing, developing, and deploying distributed client/server systems, graphical user interfaces, website platforms, e-commerce systems, and digital image processing systems, and on the documents and information referenced in this report. I am over 18 years of age and, if I am called upon to do so, I am competent to testify as to the matters set forth herein. I have attached as Appendix 1 a copy of my current curriculum vitae, which details my education and experience, and a list of all other cases in which, during

the previous four years, I testified as an expert at trial or by deposition. The following thus provides an overview of some of my experience that is relevant to the matters set forth in this report.

4. Since the mid-1970s, I have designed, developed, and deployed computing systems and products that operate in server, client, and graphical environments. As such, I have acquired expertise and am an expert in the areas of distributed computing architecture and design, graphical user interfaces, operating systems, distributed data management, local area and wide area networks, and various programming languages used in the development of those systems and products. I have been employed by or retained as a consultant, including acting as a litigation consultant, for numerous companies such as Burroughs, FileNet, Fujitsu, Marriott Corporation, MCI, Northern Telecom, Olivetti, TRW, and Xerox, as well as other companies.
5. I have several relevant professional experiences that demonstrate my expertise in the field of distributed data management. In late-2001 to mid-2002, as Chief Technology Officer for Networld Exchange Inc., I was responsible for the design, development and deployment of a suite of products that delivered eCommerce functions. These functions were provided over the Internet and included product catalog information display,

purchase and/or purchase order creation, order delivery to fulfillment

systems and order status reporting. The products that I had responsibility for performed numerous operations, including data synchronization, on data distributed among geographically dispersed computing entities.

6. In the mid-1990s I was a consultant for Xerox. One of my assignments there was to develop strategies for data management among network attached office products. For example, one of the distributed data management strategies that I delivered provided end user visibility into printer queues supporting distributed network printers. Another distributed data management strategy that I delivered provided network operations distributed job management control.
7. As my curriculum vitae shows, much of my career has been spent as a software development professional. As a software development professional, I have had numerous occasions to write, modify, analyze, and otherwise review bodies of source code. I have analyzed source code written in several variants of C, SQL, COBOL, PHP, RPG, variants of Basic, Java, Perl, several Assembler languages, and others. For example, as an individual contributor at Xerox during the mid-1980s to 1990, I evaluated the quality of source code from third party software providers for possible inclusion in the Xerox product line. Also, as another example, I evaluated

the source code of several application software packages for completeness and maintainability for possible inclusion into the NTN product line in 2000-2001. During my early career, I spent time maintaining source code written by others. In each of these assignments, I analyzed the source code to identify the data structures, logical flow, algorithms and other aspects.

8. In addition, on several occasions, I have served as an expert witness where source code analysis was required to render an opinion. These matters include Autobytel v. Dealix; NetRatings v. Coremetrics, et al.; Ampex v. Kodak, et al.; AB Cellular v. City of Los Angeles; Oracle v. Mangosoft; Harrah's Casino v. Station's Casino; Autobytel v. Dealix; MediaTek v. Sanyo; MathWorks v. Comsol; Apple v. Samsung and other matters still pending.
9. I have developed and presented numerous public and in-house courses in computer system technology, including those relating to distributed computing applications for IBM MVS, UNIX, Linux, IBM OS/2, Microsoft Windows, and related networking technologies.

II. BACKGROUND OF THE TECHNOLOGY

10. Label printing is a particular application of computer printing. Computer printing generally is the process of rendering computer data onto a permanent, human readable medium such as paper. The computer printing

process includes converting the computer data into a form that the printer can use to mark the medium. Many different techniques are employed to create the printed output but typically, printers put marks on the medium in the form of dots that represent the characters and images of the computer data.

11. At a high level, the computer printing process begins with the identification by a source computer of the data to be printed. Next, special software in the source computer, commonly referred to as a driver, creates an electronic representation of the data to be printed that is formatted in a print control language suitable for the target printer. The print control language formatted data may be sent to the printer directly as in the case of a printer locally attached to the source computer or over a local or wide area network. Upon receipt of the print control language formatted data, the target printer converts the print control formatted data into a form that allows for the printing mechanism to put the marks on the medium.
12. A label printer is a computer printer that is designed to print on special material, e.g., adhesive labels. The applications for label printers include common object marking, medical laboratory specimen marking and prescription labels. Label printer devices may be configured with a

keyboard and display for stand-alone use or may be connected to external source computers such as a PC over a wide range of connectivity interfaces.

13. The software used in the processes associated with printing has been the subject of numerous patents. Specifically, several patents discussed herein disclose the alleged invention of the '567 Patent. For example, U.S. Patent No. 6,089,765 filed in the 1997-1998 timeframe, discloses a system for re-printing data that was previously printed. For another example, U.S. Patent No. 5,816,717 filed in 1994 disclosed another method for re-printing labels that were previously printed. Similarly, U.S. Patent No. 5,025,397 filed in 1991 disclosed a system and method for selectively re-printing data previously stored in a print job retention system. These and other patents related to the print process are discussed later in this declaration.

III. MATERIALS RELIED UPON

14. In forming my opinions, I have considered, a) the following documents and things; and b) any other references referred to or cited in this declaration.

Particularly, this report is based on my review of the '567 Patent.:

- i. U.S Patent No. 7,990,567 (Ex. 1001)
- ii. U.S Patent No. 7,990,567 File History (Ex. 1007)
- iii. U.S. Patent No. 6,089,765 to Mori ("Mori") (Ex. 1003)
- iv. U.S. Patent No. 5,025,397 to Suzuki ("Suzuki") (Ex. 1004)

v. U.S. Patent No. 5,816,717 to Beadman (“Beadman”) (Ex. 1005)

vi. U.S. Patent No. 5,483,623 to Nagashima (“Nagashima”) (Ex. 1006)

15. An additional basis for my opinion is my own experience and expertise as an engineer acquired, for example, while I was employed at Xerox Corporation where my job responsibilities included definition, architecture, design, development, test, product transfer and sustaining engineering of products for electronic page printers.

IV. SUMMARY OF CONCLUSIONS

16. As described in detail below, it is my opinion that claims 8-10 of the '567 Patent are unpatentable because they are rendered obvious by several prior art references discussed below.

V. RELEVANT LEGAL STANDARDS

17. I have been asked to provide my opinion as to whether claims 8-10 of the '567 Patent would have been obvious to a person of ordinary skill in the art at the time of the alleged invention in view of the prior art.

18. I am an engineer by training and profession. The opinions I am expressing in this declaration involve the application of my engineering knowledge and experience to the evaluation of certain prior art with respect to the '567 Patent. My knowledge of applicable patent law is no different than that of

any lay person. Therefore, I have requested the attorneys who represent Esselte, to provide me with guidance as to the applicable patent law in this matter. The paragraphs below express my understanding of how I must apply current principles related to patent validity in my analysis.

19. It is my understanding that in determining whether a patent claim is obvious in view of the prior art, the Patent Office must construe the claim by giving the claim its broadest reasonable interpretation consistent with the specification. For the purposes of this review, I have analyzed each claim term in accordance with its plain and ordinary meaning under the required broadest reasonable interpretation.
20. It is my understanding that a claim is anticipated under 35 U.S.C. § 102 if each and every element and limitation of the claim is found either expressly or inherently in a single prior art reference. It is my understanding that a claim is unpatentable under 35 U.S.C. § 103 if the claimed subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time of the invention. I also understand that an obviousness analysis takes into account the scope and content of the prior art, the differences between the claimed subject matter and the prior art, and the level of ordinary skill in the art at the time of the invention.

21. In determining the scope and content of the prior art, it is my understanding that a reference is considered appropriate prior art if it falls within the field of the inventor's endeavor. In addition, a reference is prior art if it is reasonably pertinent to the particular problem with which the inventor was involved. A reference is reasonably pertinent if it logically would have commended itself to an inventor's attention in considering the inventor's problem. If a reference relates to the same problem as the claimed invention, it supports the use of the reference as prior art in an obviousness analysis.
22. To assess the differences between prior art and the claimed subject matter, it is my understanding that 35 U.S.C. § 103 requires the claimed invention to be considered as a whole. This "as a whole" assessment requires showing that one of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would have selected the elements from the prior art and combined them in the claimed manner.
23. It is my further understanding that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include: combining prior art elements according to known methods to yield

predictable results; simple substitution of one known element for another to obtain predictable results; a predictable use of prior art elements according to their established functions; applying a known technique to a known device (method or product) ready for improvement to yield predictable results; choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

24. Lastly, I understand that an obviousness analysis must consider whether there are additional factors that would indicate that the invention was non-obvious. These factors include: (i) long-felt need; (ii) unexpected results; (iii) skepticism of the invention; (iv) teaching away from the invention; (v) commercial success; (vi) praise by others for the invention; and (vii) copying by other companies.

25. In the present case, I am unaware of any evidence that would suggest that claims 8-10 of the '567 Patent would have been non-obvious.

VI. PERSON OF ORDINARY SKILL IN THE ART

26. It is my understanding that when interpreting the claims of the '567 Patent, I must do so based on the perspective of one of ordinary skill in the art at the

relevant priority date. It is my understanding that the appropriate priority date for claims 8-10 of the '567 Patent is May 2003.

27. In addition, I understand that the question of whether the claimed invention would have been obvious is analyzed from the perspective of the person having ordinary skill in the art at the time of the invention.
28. I understand that determining the level of ordinary skill in the art involves an analysis of several factors, including: (1) the types of problems encountered in the art; (2) the prior art solutions to those problems; (3) the rapidity with which innovations are made; (4) the sophistication of the technology; (5) the educational level of active workers in the field; and (6) the educational level of the inventors. I also understand that these factors are not exhaustive, and are merely a useful guide to determining the level of ordinary skill in the art.
29. Based on my review of the specification of the '567 Patent, it is my opinion that one of ordinary skill in the art would be a person with at least a Bachelor of Science degree (or the equivalent) in a relevant scientific or engineering field, such as computer engineering, computer science, or electronics engineering or the equivalent knowledge gained through experience; and having at least one year of experience related to printing systems.

30. I am well acquainted with knowledge of one of ordinary skill as of the time of filing of the applications leading to the '567 Patent (2003 timeframe). By that time, I had worked in industry for several years in the field of software and system engineering and areas related to computer printing.

VII. SUMMARY OF THE '567 PATENT

31. The '567 Patent is titled "LABEL PRINTER" and was filed in October 7, 2009. It was issued on August 2, 2011. The named inventors of the '567 Patent are Jos Vleurinck, Dirke Winne and Edward Philip Duffy.
32. At a high level, the '567 Patent describes a label printer that prints an image on an image receiving medium. The label printer is capable of storing and reprinting a previously printed image. The label printer receives the image to be printed. ['567 Patent (Ex. 1001) at 3:49-58; 7:46-56] It prints the image and also stores the last N labels which are printed. ['567 Patent (Ex. 1001) at 10:51-11:19] A user is provided the ability to use a 'RECALL' function key on the printing device to recall labels which the user has stored. ['567 Patent (Ex. 1001) at 11:51-58] The user can then select a previously printed label for editing or printing. ['567 Patent (Ex. 1001) at 11:66-12:10]

33. The specification discloses that the printing system stores a number of previously printed labels and provides a mechanism for the user to select one of the previously stored labels for editing and/or re-printing:

The tape printer is arranged to store the last N labels which are printed. N can have any suitable value and may for example be 5, 10, 15 or 20. [’567 Patent (Ex. 1001) at 10:52-53]

[...]

the user is able to select one of the previously printed labels for editing or printing.

[’567 Patent (Ex. 1001) at 11:67-12:1]

34. One of the problems purportedly addressed by the ’567 Patent is related to efficient use of previous print data for the purposes of re-printing:

there is provided a label printer for printing an image on an image receiving medium comprising input means for inputting said image to be printed; printing means for printing said image on the image receiving medium; memory means for storing a plurality of images; and control means for controlling said label printer, wherein said control means is arranged to control the memory means to store an image in said memory means each time an image is printed and said input means comprises means for recalling one of said stored images.

[’567 Patent at 3:49-58, emphasis added]

35. The problem of reprinting a previously printed image was well-known in the field of printing apparatuses when the ’567 Patent was filed (in the 2003

time frame). As a result, there were several printing apparatuses that provided mechanisms to overcome this problem, including the printing apparatuses disclosed in the references discussed below. In fact, those skilled in the art recognized that printing apparatus could receive image data, print it, and store it to enable future re-printings.

VIII. PRIOR ART

36. A brief summary of each of the invalidating prior art references follows.

A. U.S. Patent No. 6,089,765

37. U.S Patent No. 6,089,765 to Mori (Ex. 1003) is titled “PRINT SYSTEM AND PRINTER” and was filed on September 30, 1998. It issued on July 18, 2000. The named inventor is Hiromi Mori.

38. Mori disclosed a printing system in which authorized print data transferred to a printer is stored and managed in a print data storage device for re-printing.

A printing system in which print data created by an application program and transferred to a printer is stored and managed in a print data storage device, providing that the print data is authorized for reprinting. A printer monitor is provided to constantly monitor the printer for a request to retransmit data that has already been printed. When such a retransmission request from the printer is detected, the print data requested for

retransmission is specified in the print data storage device and is transmitted to the printer for reprinting.

[Mori (Ex. 1003) at Abstract]

39. Mori disclosed a system where the user requests a print and the printer receives print data printing it at a printer. [Mori (Ex. 1003) at 2:56-63] The printer is configured to store the print data for a variable number of pages. [Mori (Ex. 1003) at 4:66-67] For example, the printer is able to store print data for the last page of the latest-performed job as well as pages of jobs printed prior to the latest-performed job. [Mori (Ex. 1003) at 3:37-43]
40. It would have been obvious to a person of ordinary skill in the art to modify the printing process of Mori to store the print data every time a page is printed, not only when the print data is intended for reprinting. That is, it would have been obvious to remove the functionality to allow the user to opt out of reprinting print data. The ability to opt out is an improvement that does not need to be included in a printing apparatus. For example, if the printer was intended to be used in an environment where it would not be printing sensitive data, then this feature could be removed.
41. Mori further disclosed a mechanism for managing the page storage. To store the newest data in the storage device, the oldest print data is deleted from the storage device. In other words, the oldest stored print data is written over by the newest. [Mori (Ex. 1003) at 5:1-3] Mori provides for

the user to select print data from the previously stored print data for re-printing:

The printer 10 is configured to be capable of displaying data of the printer job management table T2 on the LCD 18, enabling the user to easily search all the sets of reprintable print data and to select one set of print data desired for reprinting. When the user selects the job name of a job for reprinting, the printer 10 sends, to the computer 20, a command that includes the selected job name and that requests the computer 20 to retransmit to the printer 10 print data corresponding to the selected job name. The printer monitor 43 in the computer 20 detects the command (request for retransmission) and executes a process to transmit the requested print data to the printer 10. [Mori (Ex. 1003) at 5:39-50]

B. U.S. Patent No. 5,025,397

42. U.S. Patent No. 5,025,397 to Suzuki (Ex. 1004) is titled "LABEL PRINTER." It was filed on August 21, 1989 and issued on June 18, 1991.

The named inventor of Suzuki is Michio Suzuki.

43. Suzuki disclosed a label printing system where previously printed items of image data have been stored in the memory of the printer. If detected, the image data items are automatically retrieved for re-print:

In the label printer, the frame memory stores items of image data derived from different printing data input by the input

section, and the control circuit checks whether or not image data corresponding to the input printing data is stored in the frame memory, and transfer the image data stored in the frame memory to the printing section when it is detected that the image data is stored in the frame memory.

[Suzuki (Ex. 1004) at Abstract]

44. The label printer disclosed in Suzuki processes input data based on the content and formatting data to produce print ready image data which is printed on label paper. [Suzuki (Ex. 1004) at 4:54-60] The label printer disclosed in Suzuki *stores the image data for every page that is printed.*

[Suzuki (Ex. 1004) at 5:15-21]

45. The label printer of Suzuki is configured to store the processed image data for a predetermined number of labels. [Suzuki (Ex. 1004) at 5:24-31] For example, a frame memory in the label printer of Suzuki is capable of storing image data for a predetermined number of labels. [Suzuki (Ex. 1004) at 3:31-36; 3:41-46; 5:24-28] Suzuki provided an example of such a frame memory that is divided into six memory areas, 9A1-9A6, where each memory area stores image data for one label. [Suzuki (Ex. 1004) at 3:31-36] Thus, in my opinion, Suzuki stores image data for 'n' labels, where the value of 'n' may be 6.

46. The label printer also determines whether the input data has previously been stored. If it is determined that the input has been previously stored, the image data content of the memory is transferred to the printing section, allowing re-printing of previously stored data:

With the label printer of the above construction, if printing data including label-number data specifying the number of labels to be issued is supplied from the external host computer, for example, it is first checked whether the printing data is already stored in the data memory 5B or not. If it is detected that the printing data is already stored therein, it is determined that the label printing operation was previously effected based on the same printing data as the input printing data. Then, image data corresponding to the input printing data is read out from the frame memory 9 and is used for the label printing operation.

[Suzuki (Ex. 1004) at 5:3-14]

C. U.S. Patent No. 5,816,717

47. U.S. Patent No. 5,816,717 to Beadman (Ex. 1005) is titled “LABEL PRINTING APPARATUS WITH CHARACTER STRING MATCHING.”

It was filed on February 10, 1997 and issued on October 6, 1998. The named inventors are Michael Andrew Beadman and Paul Robert Bridle.

48. Beadman disclosed a label printing system that displays label data from previously stored label data that matches character data input by the user:

“A method of recalling stored labels is disclosed in which target data is

provided by a user so that only labels having label data matching the target data are displayed.” [Beadman (Ex. 1005) at Abstract]

49. Beadman disclosed a label printing system that provides for composition and display of labels using conventional keyboard character and function keys. [Beadman (Ex. 1005) at 5:5-9] After composition of the label, the label printing system stores the label data and related attribute data in RAM. [Beadman (Ex. 1005) at 5:25-34] Although Beadman discussed saving of the label data when a save button is depressed, it would have been obvious to a person of ordinary skill in the art to auto-save a label whenever it is printed. That is, one of ordinary skill in the art would appreciate that the label printing system of Beadman could be modified to automatically save label data upon printing it.
50. Beadman also provided for the input of character strings which are then compared to label data in the memory of the label printer. If there is a match between the input data and the stored label data the label content may be retrieved from memory by the label printer [Beadman (Ex. 1005) at 5:35-45, Fig. 3] and edited and/or printed using the label printer. [Beadman (Ex. 1005) at 6:23-30]

D. U.S. Patent No. 5,483,623

51. U.S. Patent No. 5,483,623 to Nagashima (Ex. 1006) is titled “PRINTING APPARATUS.” It was filed on February 24, 1995 and issued on January 9, 1996. The named inventor is Nao Nagashima.

52. Nagashima disclosed a printing apparatus that stores and retrieves print image data such as “dot data,” i.e., bit maps, generated from conventional print description language encoded printing information. This dot data can be used in subsequent printing operations:

A printing apparatus is disclosed which converts printing information, such as page description language, into dot data, and has an image memory 16 which stores the dot data for the purpose of reusing the dot data for printing an image or overlaying another image.

[Nagashima (Ex. 1006) at Abstract]

53. In a conventional manner, the printing apparatus of Nagashima receives print description language representations of print output. The page description representations are converted to “dot data” and are stored in an image memory. [Nagashima (Ex. 1006) at 2:9-11] The image memory stores the “dot data” and is configured in the printing apparatus to store multiple pages that have previously been printed. [Nagashima (Ex. 1006) at 2:55-61]

54. The printing apparatus of Nagashima discussed an enhancement to existing printing apparatus of that time, such that the data for a page is stored in memory as long as the page is not classified as secret. [Nagashima (Ex. 1006) at 2:41-43] Such designation of a document as “secret” is an added feature for non-secure environments. One of ordinary skill in the art would appreciate that the feature of designating documents as “secret” was not required for secure environments. Thus, if the printer was intended to be used in an environment where it would not be printing sensitive data, then this feature could be removed and the printing apparatus of Nagashima would store data for every page that has previously been printed.

55. The printing apparatus was designed to instruct the reusing of the stored printer information from the image memory, allowing re-printing of the stored printer information:

The image memory can store a plurality of pages or a plurality of documents of dot data, which have previously been printed, so desired dot data stored in the image memory can be reused later for reprinting an image, for example. Moreover, the dot data stored in the image memory may be reused by operating the control panel of the page printer, without instructions from the host computer, so that the dot data can easily be reused, while the host computer is available for other tasks.

[Nagashima (Ex. 1006) at 5:6-14]

IX. CLAIMS 8-10 OF THE '567 PATENT ARE INVALID

56. For the reasons set forth below, it is my opinion that claims 8-10 of the '567

Patent are invalid in view of the prior art.

A. Claims 8-10 Of The '567 Patent Would Have Been Obvious To Someone Having Ordinary Skill In The Field In View Of Mori And Suzuki

57. In my opinion, claims 8-10 of the '567 Patent would have been obvious to a person of ordinary skill in the art in view of Mori and Suzuki.

58. It would have been obvious to one of ordinary skill in the art to combine Mori and Suzuki. This is in part due to Mori and Suzuki being in the same field of endeavor and intended to accomplish the same or similar functions and goals and the well-developed nature of the field of art by 2003 as described above. Specifically, both Mori and Suzuki disclosed methods for storing and re-using images from previous label print activities. Thus, the level of skill in the art, the predictable nature of the underlying technology, and other factors employed in an obviousness evaluation are set forth below.

59. Moreover, both Mori and Suzuki disclosed methods for the re-use of images.

1. Claim 8 Preamble

8. A method for printing an image on an image receiving medium comprising the steps of:

60. To the extent that the preamble of claim 8 is limiting, in my opinion both Mori and Suzuki disclosed the preamble of claim 8 because Mori and Suzuki disclosed a label printer with an input capability, memory and a printing capability.

61. Mori disclosed a print system that receives print data, processes it and transmits data to the printer for output. Specifically, Mori disclosed:

the present invention provides a print system for performing a printing operation, the print system comprising: a printer including: reception means for receiving print data; print performing means for performing print process with using the print data; and print data retransmission request means for requesting retransmission of the print data desired to be reprinted after the print performing means has printed the print data; and a computer including: transmission means for transmitting the print data to the printer so that the printer will print the print data.

[Mori (Ex. 1003) at 1:57-67]

62. Similarly, Suzuki disclosed a label printer with an input section, memory and a printing capability:

[a] label printer compris[ing] an input section for inputting printing data, a frame memory for storing image data derived from the printing data, a printing section for printing an image corresponding to the image data on label paper, and a control circuit for creating the image data based on the printing data,

storing the image data into the frame memory, and transferring the image data stored in the frame memory to the printing section.

[Suzuki (Ex. 1004) at Abstract]

2. Claim 8 First Limitation

inputting the image to be printed;

63. In my opinion, both Mori and Suzuki disclosed the first limitation of claim 8 because both references teach receiving inputted print data that is used for printing labels.

64. Mori disclosed print process that is initiated with an input process that “is started when the user executes or inputs a print process execute command via the input portion 26 to print image data created using one application program 41.” [Mori (Ex. 1003) at 6:10-13, Fig. 3]

65. A computer transmits print data to the printer over a network. [Mori (Ex. 1003) at 3:60-4:3] The computer stores and manages the data created by an application program and transfers it to the printer when it is requested.

[Mori (Ex. 1003) at 4:4-14]

66. Suzuki disclosed “a label printer comprising an input section for inputting printing data.” [Suzuki (Ex. 1004) at Abstract]

67. The label printer in Suzuki also receives printing data and then converts it to an image to be printed in a dot matrix format. [Suzuki (Ex. 1004) at 1:10-21]

3. Claim 8 Second Limitation

printing the image on the image receiving medium;

68. In my opinion, Mori disclosed “a print mechanism 16 for printing on a recording medium according to the transmitted print data” [Mori (Ex. 1003) at 3:26-27, Fig. 1], which meets the second limitation of claim 8.

69. Likewise, Suzuki disclosed “a printing section for printing an image corresponding to the image data on label paper” [Suzuki (Ex. 1004) at Abstract, Fig. 3] which meets the second limitation of claim 8.

4. Claim 8 Third Limitation

storing a plurality of images, such that each time an image is printed said image is stored; and

70. In my opinion, Mori disclosed the third limitation of claim 8 because it is configured with a storage device that stores images that have been printed.

71. The printer in Mori stores the image data corresponding to the images that it prints. For example, the printer in Mori can store the image data of the last page of the last performed job. It can also store image data for pages of multiple jobs, as long as the stored data does not exceed a predetermined maximum. In my opinion, the printer of Mori discloses the third limitation

of claim 8 because every time that it prints a page, the printer stores the image data for that page in memory.

72. Moreover, as I discussed above in paragraph 40, it would have been obvious to a person of ordinary skill in the art to modify the printing process of Mori to *store the print data every time a page is printed, not only when the print data is intended for reprinting*. That is, it would have been obvious to remove the functionality to allow the user to opt out of reprinting print data. The ability to opt out is an improvement that does not need to be included in a printing apparatus. For example, if the printer was intended to be used in an environment where it would not be printing sensitive data, then this feature could be removed

73. Mori disclosed a storage capability that uses the RAM and/or hard disk to store one or more print images after they are printed up to a predetermined limit for the printer:

the printer 10 is of a type that can store, in the RAM 13, the last page of print data (job) printed last onto a predetermined type of sheet. The printer 10 may store the last page of the last performed job in a hard disk drive, not shown, connected to the printer 10. [...] Alternatively, the printer 10 can be configured to store print data for a plurality of pages in the RAM 13 or the hard disk (not shown). In this case, the printer 10 can maintain print data not only for the last page of the latest-performed job

but also for pages of jobs printed prior to the latest-performed job if the total number of pages of those jobs does not exceed a maximum page number predetermined for the printer 10.

[Mori (Ex. 1003) at 3:30-43, Fig. 2]

74. Mori disclosed a method for managing the limited memory for the print data image storage. The Mori system uses an image data replacement strategy of deleting the oldest image data to allow room for new image data:

As described above, the print data storage device 44 is capable of storing as many as 'n' sets of print data. Hence, in order to store the (n+1)th print data in the storage device 44, the oldest print data is deleted from the storage device 44.

[Mori (Ex. 1003) at 4:26-29, Fig. 2]

75. In my opinion, the printer of Suzuki disclosed the third limitation of claim 8 because each time that it prints a page, the printer stores the image data in dot matrix form for that page in the frame memory.

76. Suzuki disclosed a memory scheme for storage of image data:

The frame memory selection circuit 10 is connected to a frame memory 9 which stores a plurality of items of image data each representing character, numeral or bar code in the dot matrix form and serves to access the frame memory 9.

[Suzuki (Ex. 1004) at 3:10-14]

5. Claim 8 Fourth Limitation

recalling one of said stored images, wherein the method further comprises one of editing and reprinting said recalled stored image.

77. In my opinion, the printer of Mori disclosed the fourth limitation of claim 8 because the images stored after printing can be recalled for re-printing. For instance, Mori disclosed that a previously stored image could be recalled from either the computer or the printer.

78. Mori disclosed components that allow a user to recall stored images for reprinting:

a control unit 17 for enabling the user to input commands such as a reprint command [and] liquid crystal display 18 (hereinafter referred to as a LCD 18) for displaying a list of reprintable print data in the printer job management table T2.
[Mori (Ex. 1003) at 3:22-26, Fig. 3]

79. Mori also disclosed a mechanism for receiving a request to have previously store image print data re-transmitted for re-printing;

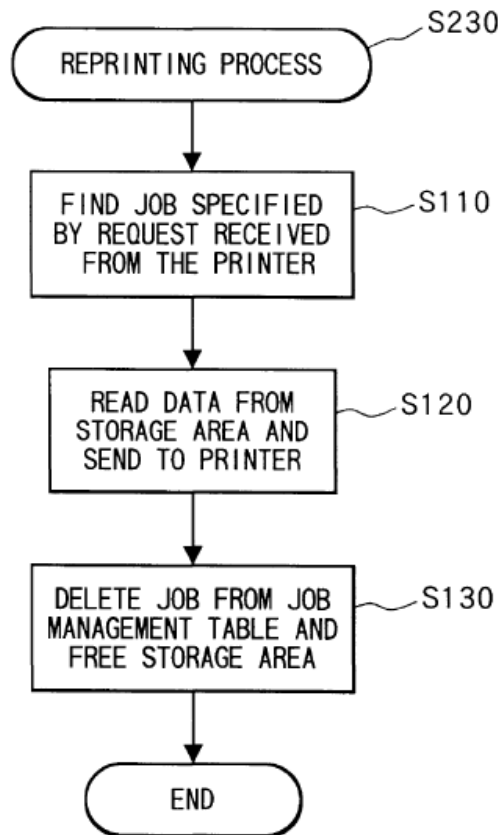
[w]hen the printer monitor 43 receives a retransmission request from the computer 20, the requested print data is selected from the print data stored in the print data storage device 44 and is resent to the printer 10 for reprinting...Upon receiving a retransmission request from the printer 10 (yes in S220), the CPU 21 first identifies in SUO a job specified in the request transmitted from the printer 10...Next, in S120, the CPU 21

retrieves the specified print data from the print data storage device 44. The CPU 21 transmits the print data to the printer 10 [...].

[Mori (Ex. 1003) at 4:11-14]

80. Fig. 6 of Mori also illustrates the re-printing process:

FIG. 6



81. In my opinion, the printer of Suzuki also disclosed the fourth limitation of claim 8 because the images stored after printing can be recalled for re-printing in the label printing operation.

82. The label printer disclosed in Suzuki made a determination of whether the previously stored image data could be used in the current printing operation. If it was, Suzuki applied the stored image data to the new image data for the label printing operation:

If it is detected that the printing data is already stored therein, [and] determined that the label printing operation was previously effected based on the same printing data as the input printing data. Then, image data corresponding to the input printing data [was] read out from the frame memory 9 and [was] used for the label printing operation.”

[Suzuki (Ex. 1004) at 5:8-14]

6. Claim 9

9. A method as claimed in claim 8, comprising storing a maximum of N previously printed labels.

83. In my opinion, the printer of Mori disclosed claim 9 because the print data storage device is configured to store up to a specified number (‘n’) of previously printed labels.

84. Mori disclosed a method for managing the limited memory for the print data image storage. The Mori system uses an image data replacement strategy of deleting the oldest image data to allow room for new image data:

As described above, the print data storage device 44 is capable of storing as many as ‘n’ sets of print data. Hence, in order to

store the (n+1)th print data in the storage device 44, the oldest print data is deleted from the storage device 44.

[Mori (Ex. 1003) at 4:26-29 (emphasis added), Fig. 2]

85. In my opinion, the printer of Suzuki also disclosed claim 9 because the frame memory in the label printer is configured with ‘n’ memory areas to store previously printed labels. Suzuki illustrated this using an example of a frame memory with six memory areas. In Suzuki’s example, ‘n’ is equal to six (6).

86. Suzuki disclosed a finite memory scheme for storage of image data:

As shown in FIG. 4, the frame memory 9 is divided into six memory areas 9A-1 to 9A-6 each used for storing image data for one label.

[Suzuki (Ex. 1004) at 3:31-36]

7. Claim 10

10. A method as claimed in claim 9, wherein when the number of labels stored is greater than N, the oldest label is deleted.

87. In my opinion, the printer of Mori disclosed claim 10 because the oldest print data (label) is deleted from the storage device when memory is required to store the “(n+1)th” set of print data.

88. Mori disclosed a method for managing the limited memory for the print data image storage. The Mori system used an image data replacement strategy of deleting the oldest image data to allow room for new image data:

As described above, the print data storage device 44 is capable of storing as many as 'n' sets of print data. Hence, in order to store the (n+1)th print data in the storage device 44, the oldest print data is deleted from the storage device 44.

[Mori (Ex. 1003) at 4:26-29 (emphasis added), Fig. 2]

B. Claims 8-10 Of The '567 Patent Would Have Been Obvious To Someone Having Ordinary Skill In The Field In View Of Beadman And Mori

89. In my opinion, claims 8-10 of the '567 Patent would have been obvious to a person of ordinary skill in the art in view of Beadman and Mori.
90. It would have been obvious to one of ordinary skill in the art to combine Beadman and Mori. This is in part due to Beadman and Mori being in the same field of endeavor and intended to accomplish the same or similar functions and goals and the well-developed nature of the field of art by 2003 as described above. Specifically, both Beadman and Mori disclosed methods for storing and re-using images from previous label print activities. Thus, the level of skill in the art, the predictable nature of the underlying technology, and other factors employed in an obviousness evaluation are set forth below.

1. Claim 8 Preamble

8. A method for printing an image on an image receiving medium comprising the steps of:

91. To the extent that the preamble of claim 8 is limiting, in my opinion both Beadman and Mori disclosed the preamble of claim 8 because Beadman and Mori disclosed a label printer with an input capability, memory and a printing capability.

92. Beadman disclosed a “label printing apparatus” for printing an image on a label:

input means for selecting characters for composing a label to be printed;

display means for displaying the characters selected at the input means, the input means and display means cooperating to enable a label to be composed by a user;

printing means for printing the composed label; and

storage means for storing the composed label as label data

defining the label, wherein a plurality of composed labels can be stored in said storage means; and

recall means operable to recall said stored labels in response to target data provided by a user at the input means,

the recall means being operable to provide for display only labels in said stored plurality of labels Which contain label data matching said target data.

[Beadman (Ex. 1005) at 2:1-14]

93. Mori similarly disclosed a print system that receives print data, processes it and transmits data to the printer for output:

the present invention provides a print system for performing a printing operation, the print system comprising: a printer including: reception means for receiving print data; print performing means for performing print process with using the print data; and print data retransmission request means for requesting retransmission of the print data desired to be reprinted after the print performing means has printed the print data; and a computer including: transmission means for transmitting the print data to the printer so that the printer will print the print data.

[Mori (Ex. 1003) at 1:57-67]

2. Claim 8 First Limitation

inputting the image to be printed;

94. In my opinion, the printer of Beadman disclosed the first limitation of claim 1 because it is configured with a keyboard (with character and function keys) for inputting the data for composing a label.

95. Beadman disclosed a conventional keyboard for inputting the print data:

“input means for selecting characters for composing a label to be printed.”

[Beadman (Ex. 1005) at 2:1-2]

96. In my opinion, the printer of Mori disclosed the first limitation of claim 1 because it is capable of receiving the image to be printed when the user executes or inputs a print process execute command.

97. Mori disclosed print process that is initiated with an input process that “is started when the user executes or inputs a print process execute command via the input portion 26 to print image data created using one application program 41.” [Mori (Ex. 1003) at 6:10-13, Fig. 3]

3. Claim 8 Second Limitation

printing the image on the image receiving medium;

98. In my opinion, the printer of Beadman disclosed the first limitation of claim 1 because Beadman disclosed a printer for printing the image on the medium:

[T]he platen is rotated to cause image receiving tape to be driven past the print head and the print head is controlled to print an image onto the image receiving tape by thermal transfer of ink from the ribbon 112.

[Beadman (Ex. 1005) at 3:43-47]

99. In my opinion, the printer of Mori disclosed “a print mechanism 16 for printing on a recording medium according to the transmitted print data” as required by the second limitation of claim 8. [Mori (Ex. 1003) at 3:26-27, Fig. 1]

4. Claim 8 Third Limitation

storing a plurality of images, such that each time an image is printed said image is stored; and

100. In my opinion, the printer of Beadman disclosed the third limitation of claim

8 because the composed label data defining the label is stored in the storage means.

101. As I discussed above in paragraph 49, although Beadman discussed saving

of the label data when a save button is depressed, it would have been

obvious to a person of ordinary skill in the art to auto-save a label whenever

it is printed. That is, one of ordinary skill in the art would appreciate that

the label printing system of Beadman could be modified to automatically

save label data upon printing it.

102. Beadman disclosed memory for storing the composed label data for a one or

more labels: “storage means for storing the composed label as label data

defining the label, wherein a plurality of composed labels can be stored in

said storage means.” [Beadman (Ex. 1005) at 2:7-9]

103. In my opinion, the printer of Mori also disclosed the third limitation of

claim 8 because every time that it prints a page, the printer stores the image

data for that page in memory. One of ordinary skill in the art would have

been motivated to combine the teachings of Beadman and Mori such that

the label printing apparatus of Beadman stored the label each time it was

printed.

104. Mori disclosed a storage capability that uses the RAM and/or hard disk to store one or more print images after they are printed up to a predetermined limit for the printer:

the printer 10 is of a type that can store, in the RAM 13, the last page of print data (job) printed last onto a predetermined type of sheet. The printer 10 may store the last page of the last performed job in a hard disk drive, not shown, connected to the printer 10. [...] Alternatively, the printer 10 can be configured to store print data for a plurality of pages in the RAM 13 or the hard disk (not shown). In this case, the printer 10 can maintain print data not only for the last page of the latest-performed job but also for pages of jobs printed prior to the latest-performed job if the total number of pages of those jobs does not exceed a maximum page number predetermined for the printer 10.

[Mori (Ex. 1003) at 3:30-43, Fig. 2]

105. Mori disclosed a method for managing the limited memory for the print data image storage. The Mori system uses an image data replacement strategy of deleting the oldest image data to allow room for new image data:

As described above, the print data storage device 44 is capable of storing as many as 'n' sets of print data. Hence, in order to store the (n+1)th print data in the storage device 44, the oldest print data is deleted from the storage device 44.

[Mori (Ex. 1003) at 4:26-29, Fig. 2]

5. Claim 8 Fourth Limitation

recalling one of said stored images, wherein the method further comprises one of editing and reprinting said recalled stored image.

106. In my opinion, the printer of Beadman disclosed the fourth limitation of claim 8 because the printer can recall the pre-composed label data for re-printing and label can be edited and/or printed using the printing apparatus.

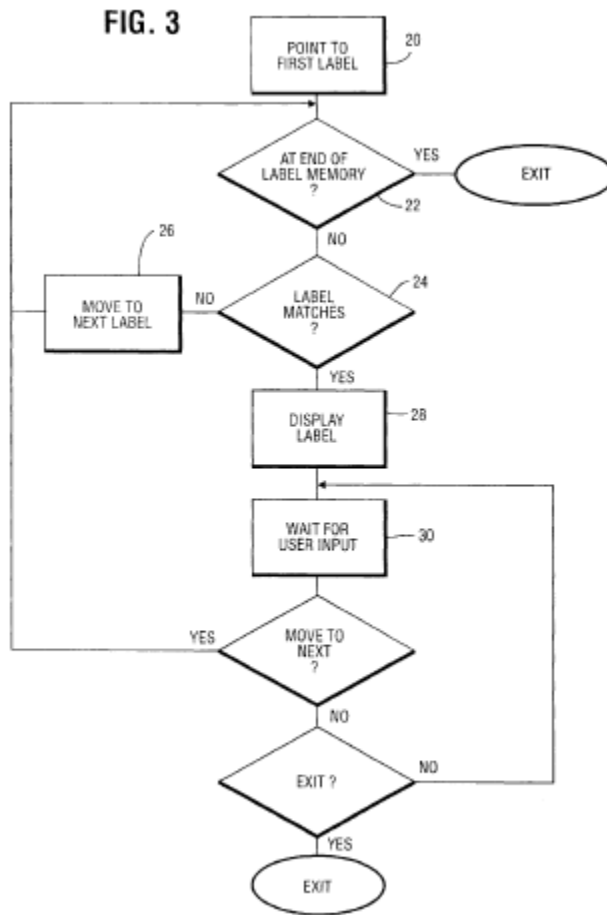
107. In Beadman, the composed label data is stored in a way that allowed a user to recall the pre-composed label data for re-printing:

It is desirable in printing devices of this type to enable a user to compose a label and then to store that label for subsequent printing. This is particularly useful where a user is likely to need to produce the same label again at a later time. Rather than again compose the label, it can be recalled from a store of precomposed labels.

[Beadman (Ex. 1005) at 1:55-60]

108. Beadman illustrated the method for reprinting a label using, for example,

Fig. 3 shown below:



109. Beadman disclosed functions that allow a user to edit (and/or print) a recalled label using the printing apparatus:

Once the required label has been located by this procedure and has been displayed on the screen, the user presses a save key, for example the “return” key of the device. This causes the sequence of bytes representing the label to be copied into the RAM 14 of the microprocessor. Once this has been done the label can be edited and/or printed using the printing apparatus in the normal way. It is possible to use the label recall function to add to an existing label which is being composed. In that event, during composition of the label a cursor key controls

movement of a cursor on the display to indicate to a user his current location. If the label recall function is operated with the cursor set at a particular location, the label which is recalled will be inserted into the label being formulated. This makes it possible to insert labels into other labels without the need to reformulate a label which has already been stored.

[Beadman (Ex. 1005) at 6:24-38]

110. In my opinion, the printer of Mori also disclosed the fourth limitation of claim 8 because the images stored after printing can be recalled for re-printing. For instance, Mori disclosed that a previously stored image could be recalled from either the computer or the printer.

111. Mori disclosed components that allow a user to recall stored images for reprinting:

a control unit 17 for enabling the user to input commands such as a reprint command [and] liquid crystal display 18 (hereinafter referred to as a LCD 18) for displaying a list of re-printable print data in the printer job management table T2.

[Mori (Ex. 1003) at 3:22-26, Fig. 3]

112. Mori also disclosed a mechanism for receiving a request to have previously store image print data re-transmitted for re-printing;

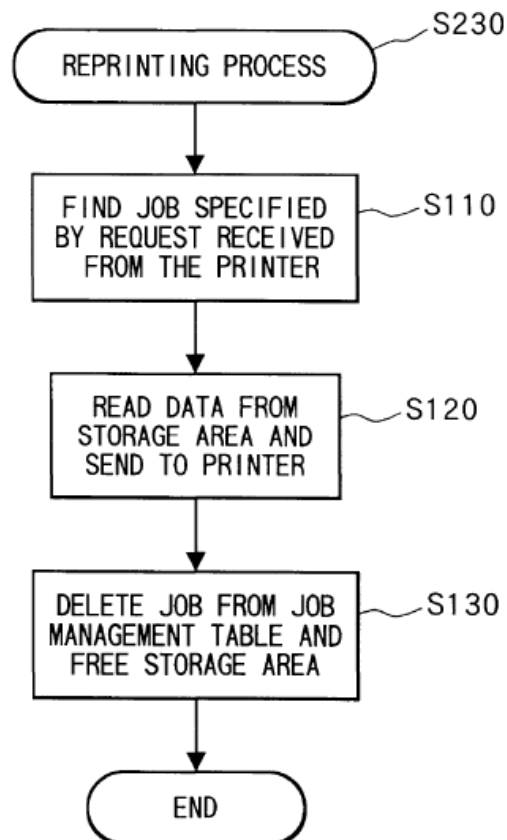
[w]hen the printer monitor 43 receives a retransmission request from the computer 20, the requested print data is selected from the print data stored in the print data storage device 44 and is

resent to the printer 10 for reprinting...Upon receiving a retransmission request from the printer 10 (yes in S220), the CPU 21 first identifies in SUO a job specified in the request transmitted from the printer 10...Next, in S120, the CPU 21 retrieves the specified print data from the print data storage device 44. The CPU 21 transmits the print data to the printer 10 [...].

[Mori (Ex. 1003) at 4:11-14]

113. Fig. 6 of Mori also illustrates the re-printing process:

FIG. 6



6. Claim 9

9. A method as claimed in claim 8, comprising storing a maximum of N previously printed labels.

114. In my opinion, the printer of Mori disclosed claim 9 because the print data storage device is configured to store up to a specified number ('n') of previously printed labels.

115. Mori disclosed a method for managing the limited memory for the print data image storage. The Mori system uses an image data replacement strategy of deleting the oldest image data to allow room for new image data:

As described above, *the print data storage device 44 is capable of storing as many as 'n' sets of print data*. Hence, in order to store the (n+1)th print data in the storage device 44, the oldest print data is deleted from the storage device 44.

[Mori (Ex. 1003) at 4:26-29 (emphasis added), Fig. 2]

7. Claim 10

10. A method as claimed in claim 9, wherein when the number of labels stored is greater than N, the oldest label is deleted..

116. In my opinion, the printer of Mori disclosed claim 10 because the oldest print data (label) is deleted from the storage device when memory is required to store the "(n+1)th" set of print data.

117. Mori disclosed a method for managing the limited memory for the print data image storage. The Mori system uses an image data replacement strategy of deleting the oldest image data to allow room for new image data:

As described above, the print data storage device 44 is capable of storing as many as 'n' sets of print data. Hence, in order to store the (n+1)th print data in the storage device 44, the oldest print data is deleted from the storage device 44.

[Mori (Ex. 1003) at 4:26-29 (emphasis added), Fig. 2]

C. Claims 8-10 Of The '567 Patent Would Have Been Obvious To Someone Having Ordinary Skill In The Field In View Of Suzuki And Nagashima

118. In my opinion, claims 8-10 of the '567 Patent would have been obvious to a person of ordinary skill in the art in view of Suzuki and Nagashima.

119. It would have been obvious to one of ordinary skill in the art to combine Suzuki and Nagashima. This is in part due to Suzuki and Nagashima being in the same field of endeavor and intended to accomplish the same or similar functions and goals and the well-developed nature of the field of art by 2009 as described above. Specifically, both Suzuki and Nagashima had the common objective of reducing the preparation time for printing and thus disclosed methods for storing and re-using images from previous label print activities. [Suzuki (Ex. 1004) at 1:61-63; Nagashima (Ex. 1006) at 1:18-31] Thus, the level of skill in the art, the predictable nature of the underlying technology, and other factors employed in an obviousness evaluation are set forth below.

1. Claim 8 Preamble

8. A method for printing an image on an image receiving medium comprising the steps of:

120. To the extent that the preamble of claim 8 is limiting, in my opinion Suzuki disclosed the preamble of claim 8 because Suzuki discloses a label printer with an input section, memory and a printing capability:

[a] label printer compris[ing] an input section for inputting printing data, a frame memory for storing image data derived from the printing data, a printing section for printing an image corresponding to the image data on label paper, and a control circuit for creating the image data based on the printing data, storing the image data into the frame memory, and transferring the image data stored in the frame memory to the printing section.

[Suzuki (Ex. 1004) at Abstract]

121. To the extent that the preamble of claim 8 is limiting, in my opinion Nagashima also disclosed the preamble of claim 8 because Nagashima discloses a printing apparatus that stored page description language representations of print output into “dot data” or image bitmaps for re-printing:

A printing apparatus is disclosed which converts printing information, such as page description language, into dot data, and has an image memory 16 which stores the dot data for the

purpose of reusing the dot data for printing an image or
overlaying another image.

[Nagashima (Ex. 1006) at Abstract]

2. Claim 8 First Limitation

inputting the image to be printed;

122. In my opinion, Suzuki disclosed the first limitation of claim 8 because

Suzuki provided “a label printer [] comprising an input section for inputting
printing data” [Suzuki (Ex. 1004) at Abstract, 1:65-66, 3:62-65, Fig. 6]
which meets the second limitation of claim 8.

123. In my opinion Nagashima also disclosed the first limitation of claim 8

because Nagashima disclosed two input interfaces used for inputting the
image to be printed. The first is an interface with the host computer that
“receives printing information from the host computer 10, consisting of
characters and figures defined in a page description language (PDL).”

[Nagashima (Ex. 1006) at 1:66-2:2] The second is a conventional keyboard
with control keys: “The control panel 1 has a display portion and input keys.
Display data and key data are transmitted between the control panel 1 and
the CPU 11 via a control interface 14.” [Nagashima (Ex. 1006) at 2:31-33,
Fig. 1]

3. Claim 8 Second Limitation

printing the image on the image receiving medium;

124. In my opinion Suzuki disclosed the second limitation of claim 8 because

Suzuki disclosed “a printing section for printing an image corresponding to the image data on label paper” [Suzuki (Ex. 1004) at Abstract, 1:65-2:14, 3:18-20, 3:62-65, 4:54-60, Figs. 3 and 6] which meets the second limitation of claim 8.

125. Likewise, in my opinion, Nagashima disclosed a laser beam printer that

prints an image on a recording medium, which meets the second limitation of claim 8.

126. Nagashima disclosed a laser beam printer (LBP) that that prints images on

paper or other suitable medium:

The LBP 18 performs sequential operations, such as paper feed and image form etc, in accordance with instructions from the CPU 11. In addition, the LBP 18 prints an image on a recording medium on the basis of the dot data read out from the image memory 16.

[Nagashima at 2:26-30, Fig. 1]

4. Claim 8 Third Limitation

storing a plurality of images, such that each time an image is printed said image is stored; and
--

127. In my opinion, the printer of Suzuki disclosed the third limitation of claim 8

because each time that it prints a page, the printer stores the image data in dot matrix form for that page in the frame memory.

128. Suzuki disclosed a memory scheme for storage of image data:

The frame memory selection circuit 10 is connected to a frame memory 9 which stores a plurality of items of image data each representing character, numeral or bar code in the dot matrix form and serves to access the frame memory 9.

[Suzuki (Ex. 1004) at 3:10-14, 1:67-68, 2:15-17, 4:26-38]

129. In my opinion, the printer of Nagashima also disclosed the third limitation of claim 8 because it stores the dot data (plurality of pages) to be supplied to the LBP.

130. As I discussed above in paragraph 54, the printing apparatus of Nagashima discusses an enhancement to existing printing apparatus of that time, such that the data for a page is stored in memory as long as the page is not classified as secret. [Nagashima (Ex. 1006) at 2:41-43] Such designation of a document as “secret” is an added feature for non-secure environments. One of ordinary skill in the art would appreciate that the feature of designating documents as “secret” was not required for secure environments. Thus, if the printer was intended to be used in an environment where it would not be printing sensitive data, then this feature could be removed and the printing apparatus of Nagashima would store data for every page that has previously been printed.

131. Nagashima disclosed image memory for storing the “dot data” produced during the printing operation: “The image memory 16 stores the dot data to be supplied to the LBP 18 and has sufficient capacity to store a plurality of pages or a plurality of documents of dot data.” [Nagashima (Ex. 1006) at 2:14-17, Fig. 1]

5. Claim 8 Fourth Limitation

recalling one of said stored images, wherein the method further comprises one of editing and reprinting said recalled stored image.

132. In my opinion, the printer of Suzuki disclosed the fourth limitation of claim 8 because the images stored after printing can be recalled for re-printing.

133. The label printer disclosed in Suzuki makes a determination of whether the previously stored image data could be used in the current printing operation. If it was, Suzuki applies the stored image data to the new image data for the label printing operation:

If it is detected that the printing data is already stored therein, [and] determined that the label printing operation was previously effected based on the same printing data as the input printing data. Then, image data corresponding to the input printing data [was] read out from the frame memory 9 and [was] used for the label printing operation.”
[Suzuki (Ex. 1004) at 5:8-14]

134. In my opinion, the printer of Nagashima disclosed the fourth limitation of claim 8 because the images stored after printing can be re-called for re-printing.

135. Nagashima also disclosed recalling image data, i.e., “dot data,” for re-printing with or without host control:

The image memory can store a plurality of pages or a plurality of documents of dot data, which have previously been printed, so desired dot data stored in the image memory can be reused later for reprinting an image, for example. Moreover, the dot data stored in the image memory may be reused by operating the control panel of the page printer, without instructions from the host computer, so that the dot data can easily be reused, while the host computer is available for other tasks.

[Nagashima (Ex. 1006) at 5:6-15]

6. Claim 9

9. A method as claimed in claim 8, comprising storing a maximum of N previously printed labels.

136. In my opinion, the printer of Suzuki disclosed claim 9 because the frame memory in the label printer is configured with ‘n’ memory areas to store previously printed labels. Suzuki illustrated this using an example of a frame memory with six memory areas. In Suzuki’s example, ‘n’ is equal to six (6).

137. Suzuki discloses a finite memory scheme for storage of image data:

As shown in FIG. 4, the frame memory 9 is divided into six memory areas 9A-1 to 9A-6 each used for storing image data for one label.

[Suzuki (Ex. 1004) at 3:31-36]

7. Claim 10

10. A method as claimed in claim 9, wherein when the number of labels stored is greater than N, the oldest label is deleted.

138. In my opinion Nagashima disclosed claim 10 because Nagashima erased old dot data from the image memory to make room for new dot data.

139. Nagashima disclosed a memory replacement strategy that discards the oldest “dot data” and replaces it with new “dot data”:

When the image memory 16 does not have memory area to store further dot data, the CPU 11 erases old dot data from the image memory 16 and registers a new identification (S5).

[Nagashima (Ex. 1004) at 3:64-67, Fig. 4]

X. CONCLUSION

140. For the foregoing reasons, it is my opinion that claims 8-10 of the '567

Patent are unpatentable as obvious in view of the prior art references

discussed above and the knowledge of one of ordinary skill in the art at the

time of the invention.

141. I reserve the right to supplement my opinions in the future to respond to any

arguments or positions the patent owner may raise, taking account of new

information as it becomes available to me.

142. I declare under penalty of perjury under the laws of the United States of

America that the foregoing is true and correct.

Executed on: February 19, 2015

By:

A handwritten signature in blue ink, reading "Stephen Gray", is written over a horizontal line.

APPENDIX 1

Stephen Gray

Expertise

- Distributed Computing Architecture
- Internet/Web/e-Commerce
- Web Services Protocols/SOA
- Client/Server Technology
- Electronic Presentation Technology
- Programming Languages
- Image and Document Processing
- Relational Database Design
- Network Architecture
- Software Quality
- Software and Systems Development, Integration and Management

Professional Summary

Mr. Gray has over 30 years of experience in the computer and communications industries. His background includes systems and software architecture, design and development as well as senior management positions in development, marketing, and general management.

Employment History

From: 1984 **Gray & Yorg, LLC**
To: Present San Diego, CA
Position: *Principal*

Mr. Gray is an expert in modern computing platform architecture, design, implementation and integration, including relational database design in networking environments. In providing consulting services, he has successfully completed the following projects:

- Performed patent portfolio analysis for large corporations
- Developed policies and procedures for a “clean” software development environment. Monitored activities to ensure conformance.
- CSO for a Business Process Management software start up. The firm develops Web Services/SOA based BPM creation, orchestration, management and optimization solutions.
- CTO for an e-Commerce Internet start up. The firm developed a product that specializes in procurement for public agencies.
- Interim CEO for a broadband Competitive Local Exchange Carrier (CLEC). Helped negotiate the successful sale of the CLEC.
- CTO for an Internet-based secure content distribution startup. The firm developed comprehensive Digital Rights Management (DRM) solutions for the control and promotion of content on the Internet.

- Architected several e-Commerce applications for legacy interoperability
- Participated in the architecture definition and design of a highly scalable, high performance device controller for multifunction document processing products
- Performed a detailed analysis of the competitive environment for retail point-of-sale hardware and software systems. Analysis included technology, marketing, compensation and back office interface issues
- Provided system design, product selection and project management for a turnkey software/hardware system for residential refuse hauling and toxic waste disposal company. System involved multiple hardware and software vendors around the IBM AS400 central processing system
- Led the design of a high performance, LAN-based image capture and statement printing subsystem using IBM system components using DBII relational database and SQL language for TRW
- Led the design of an image assisted, remittance processing system using IBM system components and Sybase relational database in a client/server architecture for TRW. Additionally, designed an object-oriented front end to the database so that the UNIX platform could execute Sybase applications
- Engaged to perform a technology audit for the United States Department of Agriculture using ORACLE database products, which resulted in a major overhaul of the database management implementation for their application
- Collaborated with FileNet to develop an IBM-to-UNIX interconnection strategy for their optical disk-based document imaging and filing system
- Defined high speed interconnection and relational database methods using SQL language for Marriott Corporation to handle large transaction volumes in a hotel reservations system
- Collaborated with Xerox in mid 1990s development of an electronic printing system front end supporting a wide range of advanced printing services, including resolution enhancement technology
- Advised Northern Telecom on the performance of IBM's Net View product
- Authored two technical seminars: SNA Technology Update, OS/2 and SAA, Introduction to Client/Server Technology with special emphasis on relational database management. Published articles in trade journals such as Interface Age, CASE World and Info World

From: 2001 **Networld Exchange Incorporated**
To: 2002 Bonsall, CA
Position: *Chief Technical Officer*
Networld Exchange, Inc. (NEI) provides Fortune 2000 companies private trading exchange (PTX) solutions that automate their B2B commerce activities. NEI is a restart. NEI is funded by institutional investors in New York and Florida. Mr. Gray was recruited in 4Q01 by the investors as part of the new management team.

From: 2000 **NTN Communications**
To: 2001 Carlsbad, CA
Position: *Chief Technical Officer*
NTN Communications, Inc. (AMEX: NTN) is the parent corporation of two operating divisions: Buzztime Entertainment, Inc. and the NTN Network®. Mr. Gray serves as CTO for the parent corporation and each of its operating divisions.
Buzztime Entertainment, Inc. develops and distributes sports and trivia games to a variety of interactive platforms including interactive television, the Internet, PDS and mobile phones.
The NTN Network, NTN's hospitality business, operates two interactive television (ITV) networks that broadcast games to millions of consumers each month at 3500 restaurants, sports bars and taverns in North America.
Mr. Gray is responsible for all of the technical aspects of the corporations as well as forward looking programs and business opportunities.

From: 1987 **Simpact Associates**
To: 1988
Position: *Director, Product Marketing*
Directed the full life cycle of definition, delivery, marketing and enhancement of four sets of IBM connectivity products, including:

- SNA protocol support hardware and software for DEC VAX systems
- An IBM PC-based gateway product that supports SNA and other industry-standard communications architectures
- A Netware-based Token Ring Network adapter board and software for DEC VAX systems
- A hardware/software product that receives financial market feeds and reformats the information for presentation to programs running a VAX via a proprietary applications programming interface (API)

From: 1982 **Xerox Corporation**
To: 1987
Position: *General Manager, Host Software Products*
1985-87 As the founder and leader of the product delivery organization of a Xerox independent business unit, Mr. Gray managed 21 employees and 33 contract professionals. He directed the definition, architecture, design, development, test, product transfer and sustaining engineering of six products for electronic page printers connected to IBM mainframes, DEC VAX and IBM PC's.

1982-85 Manager, Foreign System Interconnect. Managed four professionals who defined and developed the technical interconnect strategy for electric page printers to wide-and local-area networks. Mr. Gray's group delivered host software, network and printer engineering services. He invented a new printer interconnection technique, developed interfaces to Ethernet local area network, and designed connections to IBM mainframes using SNA and the System/370 channel.

From: 1979 **Computer Communications, Inc.**
To: 1982
Position: *Manager, Communication Controller Software Development*
As leader of the architecture, design, development, and testing of an SNA communications controller, Mr. Gray managed 24 professionals. His group successfully designed, developed and deployed the controller's operating software, diagnostics, host-based compilers, and system support software. Before that, he was the product manager for front-end processors and remote concentrators. Also, he engineered an X.25 multi-channel controller.

From: 1977 **Olivetti Corporation**
To: 1979
Position: *Regional Support Manager*
Started as a district manager and later became a regional software support manager for a series of mini- and microcomputer business systems. Applications included general business and on-line front-office banking.

From: 1973 **Burroughs Corporation**
To: 1977
Position: *Systems Programmer, Systems Analyst*
Specializing in data communications software and held several design and product implementation positions in the mid range and small system development groups.

Additional Professional Experience:

- Designed and implemented numerous relational database management systems using Sybase, Informix, Microsoft Access, DB2.
- Knowledgeable in C, C++, SQL, COBOL, RPG, Basic, Java, various Assembler languages, HTML, XML.
- Designed IBM SNA Distribution Services compatible electronic mail interface product. The product interfaced to MCI mail services.
- Designed peer-to-peer printing network product for MCI
- Designed image-processing system for TRW on contract with the Internal Revenue Service. Participated in the implementation of a prototype of the system.
- Designed image based item processing system for TRW and IBM Participated in the implementation of a prototype of the system.
- Defined IBM interoperability strategy for FileNet products.
- Defined distributed network printing product for Xerox.
- Defined and managed several networking products for Simpack Associates. Used the System Strategies Inc. Express SNA package.
- Defined, designed and implemented several interoperability interfaces to Xerox Electronic Printers.
- Defined, designed and implemented telecommunications control devices for Computer Communication Incorporated.
- Developed and presented numerous public and in-house courses in IBM, Unix, Internet and related networking technologies.
- Member of UCSD Connect “Most Innovative Product Award” Selection Committee (2002, 2003, 2004).
- Member of Association of Computing Machinery and Institute of Electronic and Electrical Engineers

Litigation Support Experience

(Note: Those entries marked with * indicate testimony by trial, hearing or deposition in the last 5 years. The retaining party is underlined.)

Date:	2014	Greenberg Traurig, LLP PersonalWeb Technologies, LLC; et al v. <u>Microsoft Corporation</u> Patent Infringement – distributed processing Active
Date:	2013	Finnegan, Henderson, Farabow, Garrett & Dunner, LLP CheckFree Corp., et al. v. <u>Metavante Corp, et al.</u> Patent Infringement – distributed processing Active

Date:	2013*	Perkins Coie LLP Enfish, LLC v. <u>Microsoft Corp., et al.</u> Patent Infringement – data management Active
Date:	2013	Klarquist Sparkman, LLP Optimize Technology Solutions, LLC v. <u>Staples, Inc., et al.</u> Patent Infringement – targeted advertising Active
Date:	2013*	Shibolleth, LLP <u>TJAT</u> v. Amdocs Copyright and Trade Secret Infringement – mobile telephony Inactive
Date:	2013	Mayer Brown, LLP B.E. Technology v <u>Google</u> Patent Infringement – targeted advertising Active
Date:	2013	Ostrow Kaufman Geotag, Inc. v. <u>Burberry Ltd.</u> Patent Infringement – search engine technology Active
Date:	2013	Locke Lord LLP Geotag, Inc. v. <u>Rolex Watch USA</u> Patent Infringement – search engine technology Active
Date:	2013	Fish & Richardson Ingeniador v. <u>Adobe Systems Inc.</u> Patent Infringement – data management Active
Date:	2013*	Ostrow Kaufman <u>ComScore</u> v. Moat Patent infringement – website monitoring Active
Date:	2013	Silicon Edge Law Group <u>Alacritech</u> v. Hewlett-Packard Patent interference – network performance Active

Date:	2013	Park, Vaughan, Fleming & Dowler Wisconsin Technology Venture Group v. <u>FatWallet</u> Patent infringement – distributed processing Active
Date:	2013	Jones Day Hartford v. <u>Progressive</u> Patent infringement – distributed processing Active
Date:	2013	Norton Rose Fulbright BNP v. <u>United Health et al</u> Patent infringement – distributed processing Active
Date:	2012	Merchant & Gould Phoenix Licensing v. <u>First Premier et al</u> Patent infringement – distributed processing Active
Date:	2012	Haltom Doan eLynxx v. <u>InnerWorkings</u> Patent infringement – distributed processing Active
Date:	2012	Jackson Walker Global Sessions v <u>Travelocity et al</u> Patent infringement – distributed processing Inactive
Date:	2012*	Cooper & Dunham DDR Holdings v. <u>Hotels.com, et al (National Leisure Group)</u> Patent infringement – travel web site Inactive
Date:	2012	Fish & Richardson Summit 6 v. <u>RIM</u> Patent infringement – media handling Inactive
Date:	2012*	Quinn Emanuel Apple v. <u>Samsung</u> Patent infringement – user interface operations Inactive

Date:	2012*	Morrison & Foerster Augme v. <u>Yahoo!</u> Patent infringement – distributed processing Inactive
Date:	2012	Wilson Sonsini Goodrich & Rosati Home Bondholders v. <u>Salesforce.com</u> Patent infringement – distributed processing Inactive
Date:	2011*	Jackson Walker <u>Transunion</u> v. Experian Patent infringement – distributed processing Active
Date:	2011	Vinson & Elkins <u>Ariba</u> v. Rearden Contract Dispute Inactive
Date:	2011*	Quinn Emanuel <u>Catalina Marketing</u> v. Coupons Inc. Contract Dispute Inactive
Date:	2011	Alston & Bird <u>Openwave</u> v. Apple, et al Patent infringement – distributed processing Inactive
Date:	2011*	DLA Piper <u>Motorola</u> v. Tivo Patent infringement – audio/video processing Active
Date:	2010*	Law Office of Christian E. Mammen, Lieff Cabraser Heimann and Bernstein, LLP and Tousley Brain Stephens, LLP <u>Deep9</u> v. Barnes & Noble Patent infringement – distributed processing Inactive
Date:	2010*	McDermott Will & Emery, Alston & Bird Bedrock v. <u>Soft Layer, et al (Yahoo!, AOL, MySpace)</u> Patent infringement – distributed processing Inactive

Date:	2010	Quinn Emanuel <u>Soverain</u> v. J.C. Penney, et al Patent infringement – distributed processing Inactive
Date:	2009*	Jones Day Oracle v. <u>SAP</u> Copyright infringement – enterprise software Inactive
Date:	2009*	Foley & Lardner DataTreasury v. <u>US Bank</u> Patent infringement – distributed processing Inactive
Date:	2009*	Gibson, Dunn & Crutcher IPI v. <u>Red Hat, Novell</u> Patent infringement – distributed file systems Inactive
Date:	2009*	Jackson and Walker ICR v. <u>Harpo</u> Patent infringement – e-Commerce Inactive
Date:	2009	Cooley Godward Leader v. <u>Facebook</u> Patent infringement – distributed file systems Inactive
Date:	2009*	Jones Day SuperSpeed v. <u>IBM</u> Patent infringement – distributed file systems Inactive
Date:	2008	Baker & Botts Fotomedia v. <u>Yahoo!</u> Patent infringement – file sharing Inactive

Date:	2008*	PaulHastings Datascape v. <u>Kyocera, et al</u> Patent infringement – Internet protocols on cell phones Active
Date:	2008	Hogan & Hartson <u>ODS</u> v. Magna Entertainment Patent infringement – E-Commerce Inactive
Date:	2008*	Winston & Strawn <u>CNET</u> v. Etilize Patent infringement – E-Commerce Inactive
Date:	2008*	Weil, Gotshal & Manges i4i v. <u>Microsoft</u> Patent infringement – Data formatting, representation Inactive
Date:	2008*	Jones Day <u>MathWorks</u> v. COMSOL Patent infringement - interoperability, Copyright Inactive
Date:	2008	Townsend, Townsend & Crew Anthurium v. <u>Spheris</u> Patent infringement – Distributed Processing Inactive
Date:	2008	Jones Day <u>Soverain</u> v. CDW, et al Patent infringement – e-commerce Inactive
Date:	2008	Paul Hastings Sify v. <u>Yahoo!</u> Trade secrets Inactive
Date:	2007	Finnegan Henderson Cisco v. <u>Telcordia</u> Patent infringement – system monitoring Inactive

Date:	2007	Brown Raysman WebSide Story v. <u>NetRatings</u> Patent infringement – web monitoring Inactive
Date:	2007	Paul Hastings <u>MediaTek</u> v. Sanyo Patent infringement – data compression Inactive
Date:	2007	Sutherland <u>FedEx</u> v. U.S. Tax Credit Active
Date:	2006	Jones Day <u>IBM</u> v. Amazon Patent infringement – Electronic commerce Inactive
Date:	2006	Brown Raysman <u>NetRatings</u> v. SageMetrics Patent infringement – web monitoring Inactive
Date:	2006	Young Conaway Stargatt & Taylor Sungard v. <u>PHI</u> Breach of contract Inactive
Date:	2006	Paul Hastings <u>Autobytel</u> v. Dealix Patent Infringement – Electronic commerce Inactive
Date:	2005	Brown Raysman <u>NetRatings</u> v. Coremetrics, et al Patent Infringement – Electronic commerce Inactive
Date:	2005	Kim & Wilcox HealthFirst v. <u>HealthTrio</u> Contract Dispute – Electronic information portals Inactive

Date:	2005	Ropes & Gray (Fish & Neave) <u>Ampex</u> v. Kodak, et al Patent Infringement – Image transformation Inactive
Date:	2005	Sedgwick Detert Moran & Arnold LLP <u>Waltrip Associates</u> v. Kevin Kimberlin & Spencer Trask Ventures Contract Dispute - Theft of trade secret, EDI and ecommerce Inactive
Date:	2005	Orrick, Herrington & Sutcliffe LLP <u>Metilinx</u> v. Hewlett-Packard Contract Dispute - Large scale software deployment, QA, system management Inactive
Date:	2005	Morrison & Foerster <u>BEA</u> v. SoftwareAG Patent Infringement - Web Services, Software development tools, OOP Inactive
Date:	2005	Jones Day Orion v. <u>American Honda</u> Patent Infringement – Electronic Catalogs and Brochures Inactive
Date:	2004	Keker & Van Nest AB Cellular v. <u>City of Los Angeles</u> Contract Dispute – Tax Authority, Source Code Analysis Inactive
Date:	2004	Silicon Edge Law Group Oracle v. <u>Mangosoft</u> Patent Infringement – Web System Personalization Inactive
Date:	2003	Smith Katzenstein & Furlow LLP S. Rakoff et al v. <u>Dot Com Group, A. Nash et al</u> Contract Dispute – Web Analytics Inactive

Date:	2003	Jones Day Hill v. <u>IBM</u> Patent Infringement – Electronic Catalog, data management Inactive
Date:	2003	Fish & Richardson Mirror Imaging LLC v. <u>Affiliated Computer Services</u> Patent Infringement – Electronic Document Storage Inactive
Date:	2003	Jones Day VPS LLC v. <u>Eastman Kodak Co. and Ofoto</u> Patent Infringement – Digital Media distribution Inactive
Date:	2002	Step toe and Johnson Steven Heard & Dean Messier v. <u>California Institute of Technology & Jet Propulsion Laboratory</u> Patent Infringement - Digital Images Upload/Storage Inactive
Date:	2002	Fish & Neave LLP <u>Harr ah's C asino</u> v. Station's Casino Patent Infringement – Player loyalty system in a network Inactive
Date:	2002	Preston Gates and Ellis LLP <u>Eyefinity, Inc.</u> vs. Entigo, Inc. Contract Dispute - Faulty software development Inactive
Date:	1998	Robman & Seeley Ametron-American Electronic Supply v. <u>Entin, et al</u> Theft of Trade Secrets - Recovery of Data and Evaluation Inactive
Date:	1998	Kronish Lieb Weiner & Hellman GTE v. <u>Videotron</u> Contract Dispute - Analysis of UNIX-based system Inactive

Date:	1998	Kudo & Daniels <u>Total Recovery Services</u> v. Microage Contract Dispute - Faulty Product, evaluation of product. Inactive
Date:	1996	Baker & Botts <u>BMC Software</u> v. Peregrine Systems, Inc. Theft of Trade Secrets - DB2 enhancement software. Inactive
Date:	1995	Pacific Bell Inside Counsel David McGoveran v. <u>Pacific Telesis Group and Pacific Bell</u> Damages trial in Theft of Trade Secret Litigation - assess market potential and value of SQL software. Inactive
Date:	1994	Cooley Godward Castro Huddleson & Tatum ADV Freeman v. <u>Boole & Babbage</u> Contract Dispute - Assessment of software quality, expert witness on product marketing and software quality. Inactive
Date:	1984	O'Melveny & Myers <u>IBM</u> v. NCR Comten Copyright Infringement - Code comparison and product analysis and design of alternative technologies. Inactive

Education

<u>Year</u>	<u>College/University</u>	<u>Degree</u>
1973	California Polytechnic University	BS, Economics