

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC, LG ELECTRONICS INC., and
LG ELECTRONICS U.S.A., INC.,
Petitioners,

v.

BOCCONE, LLC,
Patent Owner.

Case No. TBD
Patent No. 10,027,726

DECLARATION OF MATTHEW A. TURK, PH.D.

Google Exhibit 1003 Google v. Boccone
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I, Matthew A. Turk, declare:

1. I have been retained by Wolf, Greenfield & Sacks, P.C., counsel for Google LLC (“Google”), LG Electronics Inc., and LG Electronics U.S.A., Inc. (“Petitioners”) to assess claims 1-30 of U.S. Patent No. 10,027,726 (“the ’726 patent”). I am being compensated for my time at a rate of \$ 420.00 per hour, plus actual expenses. My compensation is not dependent in any way upon any outcome of Petitioners’ Petition for *Inter Partes* Review of the ’726 patent (“the Petition”).

I. PERSONAL AND PROFESSIONAL BACKGROUND

2. I have more than 30 years of experience in the fields of computer science and computer engineering. In 1982, I received a Bachelor of Science (“B.S.”) in Electrical Engineering, *magna cum laude*, from Virginia Polytechnic Institute and State University. In 1984, I received a Master of Science (“M.S.”) in Electrical and Computer Engineering from Carnegie Mellon University. In 1991, I obtained a Doctor of Philosophy (“Ph.D.”) from the Media Laboratory, Vision and Modeling Group at the Massachusetts Institute of Technology.

3. I am currently president of the Toyota Technological Institute at Chicago (“TTIC”) and a Professor Emeritus at the University of California, Santa Barbara (“UCSB”). Prior to joining TTIC in 2019, I was a full professor at UCSB, serving as Department Chair of the Department of Computer Science, from 2017 to

2019, with a secondary appointment in Media Arts and Technology, where I served as Chair from 2005 to 2010.

4. I have extensive experience with face and object recognition. My Ph.D. dissertation was entitled *Interactive-Time Vision: Face Recognition as a Visual Behavior*, which introduced “Eigenfaces”—an appearance-based approach to face and object recognition—and showed how this approach could be used to track and recognize people as they enter a room and to represent, detect, and recognize other object properties such as facial expression. Papers on this work received an “Outstanding Paper” award (1991) and a “Most Influential Paper of the Decade” award (2000).

5. I also have extensive experience with user interfaces, multimodal systems, and human-computer interaction, having helped found the Vision Technology Research Group at Microsoft Research (in 1999-2000) and having authored numerous papers regarding computer vision and perceptual user interfaces.

6. Additionally, I have extensive experience studying, working with, and implementing systems in which data is transferred between devices over a network—including three years as Senior Engineer at Martin Marietta Denver Aerospace working on autonomous vehicles, and two years as co-founder and CEO of a startup company commercializing remote telecollaboration software. I

have worked specifically with systems in which face data was transferred over a network between devices.

7. Over the course of my career, I have received several best paper awards in the areas of face / object recognition, human-computer interactions, and mobile environment applications (involving data exchange over networks)—and have been general or program chair of several major conferences, including the Conference on Computer Vision and Pattern Recognition (CVPR), IEEE Winter Conference on Applications of Computer Vision (WACV), ACM Multimedia, IEEE Face and Gesture Recognition, and International Conference on Multimodal Interaction (ICMI). I was the recipient of the 2011-2012 Fulbright-Nokia Distinguished Chair in Information and Communications Technologies, and I have been elected a Fellow of the IEEE (Institute of Electrical and Electronics Engineers) and a Fellow of the IAPR (International Association for Pattern Recognition) for career contributions to computer vision, perceptual interfaces, and vision based interaction.

8. A detailed record of my professional qualifications, including a list of patents and academic and professional publications, is set forth in my curriculum vitae, submitted as Exhibit 1004 to this proceeding.

II. MATERIALS REVIEWED AND CONSIDERED

9. My findings, as explained below, are based on my years of education, research, experience, and background in face recognition, software engineering, data exchange, and user interface design, and my investigation and study of relevant materials for this declaration. In forming my opinions, I have studied and considered the materials identified in the list below.

Exhibit	Description
1001	U.S. Patent No. 10,027,726 (“the ’726 patent”)
1002	File History for U.S. Patent No. 10,027,726 (“the ’726 FH”)
1005	U.S. Publication No. 2011/0148857 (“Krupka”)
1006	U.S. Patent No. 7,783,085 (“Perlmutter”)
1007	U.S. Patent No. 8,798,401 (“Johnson”)
1008	U.S. Patent App. No. 14/582,946 (“’946 Application”)
1009	Boccone’s First Set of Infringement Contentions
1010	U.S. Patent No. 8,341,219 (“Young”)
1011	U.S. Patent No. 7,809,722 (“Gokturk”)
1012	U.S. Patent No. 9,256,620 (“Amaker”)
1013	U.S. Patent No. 9,928,407 (“Ganong”)
1014	Girgenshohn et al. (2003) “Simplifying the management of large photo collections,” Proc. INTERACT 2003, pp. 196-203.
1015	Concise Oxford English Dictionary (12 th Ed. 2011) (“Concise Oxford”)
1016	Newton’s Telecom Dictionary (18th Ed. 2002) (“Newton’s Telecom”)

III. MY UNDERSTANDING OF PATENT LAW

10. In developing my opinions, I discussed various relevant legal principles with Petitioner’s attorneys. Although I do not purport to have had prior knowledge of such principles, I understood them when they were explained to me and relied upon such legal principles, as explained to me, when forming the opinions set forth below. My understanding in this respect is as follows:

11. I understand that “*inter partes* review” (IPR) is a proceeding before the United States Patent & Trademark Office (“Patent Office”) for evaluating the patentability of an issued patent claim based on prior art patents and printed publications.

12. I understand that in IPR proceedings claims in a patent are given their plain and ordinary meaning consistent with the patent specification and prosecution history. If the specification provides a special definition for a claim term, that definition controls—even if it may be different from the meaning the term generally has in the field of the invention.

13. I understand that in this proceeding, Petitioners have the burden of proving that the challenged claims of the ’726 patent are unpatentable by a preponderance of the evidence. I understand that “preponderance of the evidence” means that a fact or conclusion is more likely true than not true.

14. I understand that for an invention claimed in a patent to be patentable, it must be, among other things, new (novel) and not obvious from the prior art to a person of ordinary skill in the art (“POSA”) at the time the invention was made.

15. I understand the information that is used to evaluate whether a claimed invention is patentable is generally referred to as “prior art” and includes patents and printed publications (*e.g.*, books, journal publications, articles on websites, product manuals, etc.).

16. I understand that there are two ways in which prior art may render a patent claim unpatentable. First, I understand that prior art may “anticipate” the claim. Second, I understand the prior art may have made the claim “obvious” to a POSA at the time the invention was made. My understanding of the two legal standards is set forth below.

A. Anticipation

17. I understand that the following standards govern the determination of whether a patent claim is “anticipated” by the prior art.

18. I understand that, for a patent claim to be “anticipated” by the prior art, each and every limitation of the claim must be found, expressly, implicitly or inherently, in a single prior art reference.

19. I understand that a claim limitation is implicit in a prior art reference if a person of ordinary skill understood the reference to disclose the limitation based on inferences that a person of ordinary skill would reasonably be expected to draw from the express teachings in the reference when read in light of the person of ordinary skill’s knowledge and experience.

20. I understand that a claim limitation is inherent in a prior art reference if that limitation is necessarily present when practicing the teachings of the reference, regardless of whether a person of ordinary skill recognized the presence of that limitation in the prior art.

B. Obviousness

21. I understand that the following standards govern the determination of whether a patent claim is rendered “obvious” by the prior art.

22. I understand that a patent claim may be unpatentable if it is obvious in view of a single prior art reference or a combination of prior art references.

23. I understand that a patent claim is obvious if the differences between the subject matter of the claim and the prior art are such that the subject matter as a whole would have been obvious to a person of ordinary skill in the relevant field at the time the invention was made. Specifically, I understand that the obviousness question involves a consideration of:

- the scope and content of the prior art;
- the differences between the prior art and the claims at issue;
- the knowledge of a person of ordinary skill in the pertinent art; and
- if present, objective factors indicating obviousness or non-obviousness, sometimes referred to as “secondary considerations.”

24. I understand that in order for a claimed invention to be considered obvious, a person of ordinary skill in the art must have had a reason for combining teachings from multiple prior art references (or for altering a single prior art reference, in the case of single-reference obviousness) in the fashion proposed.

25. I further understand that in determining whether a prior art reference would have been combined with other prior art or with other information within the knowledge of POSA, the following are examples of approaches and rationales that may be considered:

- combining prior art elements according to known methods to yield predictable results;
- simple substitution of one known element for another to obtain predictable results;
- use of a known technique to improve similar devices in the same way;
- applying a known technique to a known device ready for improvement to yield predictable results;
- applying a technique or approach that would have been “obvious to try,” *i.e.*, choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success.
- known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art;
- 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. I understand that this teaching, suggestion or motivation may come from prior art reference or from the knowledge or common sense of one of ordinary skill in the art.

26. I understand that for a single reference or a combination of references to render the claimed invention obvious, a POSA must have been able to arrive at the claims by altering or combining the applied references.

IV. PERSON OF ORDINARY SKILL IN THE ART

27. I am informed that prior art references should be understood from the perspective of a POSA to which the patent is related, based on the understanding of that person at the time of the patent's priority date. I understand that a POSA is presumed to be aware of all pertinent prior art and the conventional wisdom in the art, and is a person of ordinary creativity. I have applied this standard throughout my declaration.

28. I have been asked to provide my opinion as to the level of ordinary skill in the art in the field of the technology described in '726 patent in the November 2012 time frame. I use the November 2012 time frame because the '726 patent claims priority to several provisional applications, of which the earliest was filed on November 21, 2012.

29. As discussed further below in § V.A, the '726 patent relates to sharing “media” and “metadata” between devices. Ex. 1001, 1:65-67. Based on my review of the '726 patent, it is my opinion that a POSA in 2012 would have had at least a B.S. in Computer Science, Computer Engineering, or the equivalent, and two years of experience designing GUIs for software applications, including applications that utilized face recognition technology. This person would have understood generally-applicable principles of software engineering and data exchange and been capable of understanding and implementing the teachings of the prior art discussed herein.

30. My opinions set forth herein are from the perspective of a POSA, as set forth above. Whenever I offer an opinion below about the knowledge of a POSA, the manner in which a POSA would have understood the claims of the '726 patent, the manner in which a POSA would have understood the prior art, or what a POSA would have been led to do based on the prior art, I am referencing this timeframe (*i.e.*, November 2012). When I offer an opinion or explanation below about the teachings of the prior art and/or the claims of the '726 patent, I am explaining how the issue would have been viewed by a POSA in the November 2012 timeframe, even if I do not say so specifically in each case.

V. THE '726 PATENT

A. Discussion of the Disclosed Technology

31. The '726 patent describes techniques for sharing media objects (e.g., “images” or “videos”) and associated metadata. Ex. 1001, 1:65-67; 6:8-11.

32. The patent refers to individual pieces of “media” as “media objects,” which “may include a picture or video.” *Id.*, 6:8-11 (“The *media object* may include any type of media and/or portion of media. For example, in various embodiments, the media object may include one or more *images*, videos, applications, audio, text, binary information, and/or data.”).

33. “Metadata” is any “information” or “data associated with [a] media object.” *Id.*, 6:12-26 (“Additionally, the metadata may include *any data* associated with the media object... *and/or various other information*”).

34. When a media object is an image or video, associated metadata may include “a result of a facial recognition learning process,” including “facial data” such as “identified faces and data describing faces,” and is referred to as “facial recognition metadata,” (*see e.g.*, 12:4-67; 38:23-42) “facial recognition training data,” (*see e.g.*, 42:18-29), or “face recognition information” (*see e.g.*, 72:5-17; 2:20-40). This “face recognition information” may include any feature of a face. *Id.*, 6:64-7:31; 12:59-13:7; 20:15-27.

35. For example, “metadata may include particular facets of facial recognition training data,” including “data associated with a Face Mesh, a geometry of data points, proportions of data points, color of a face and/or hair and/or eyes, skin features, and/or other identifying features, etc. In various embodiments, the data points may include at least one of a location of each eye, a nose location, a mouth location, and/or eye brow locations, etc.” *Id.*, 12:59-67. “[A]ny feature of a face may be utilized to form a relative, absolute, average, and/or best mesh that represents a face of a particular user.” *Id.*, 13:1-7.

36. The patent notably does not describe a specific (or novel) “facial recognition learning process.” Instead, the patent describes basic ways to use the information yielded from a conventional “facial recognition learning process.”

37. For example, the patent explains that this information can be used by a device to find and display images including the face. *Id.*, 10:57-63 (“If a request to view a media object is received, or a media object is received for viewing, current metadata is applied to identify at least one person associated with the media object, or a look-up of the identification of the at least one person is performed. See operation 404. In one embodiment, the identification of the at least one person may already be determined based on the current metadata.”).

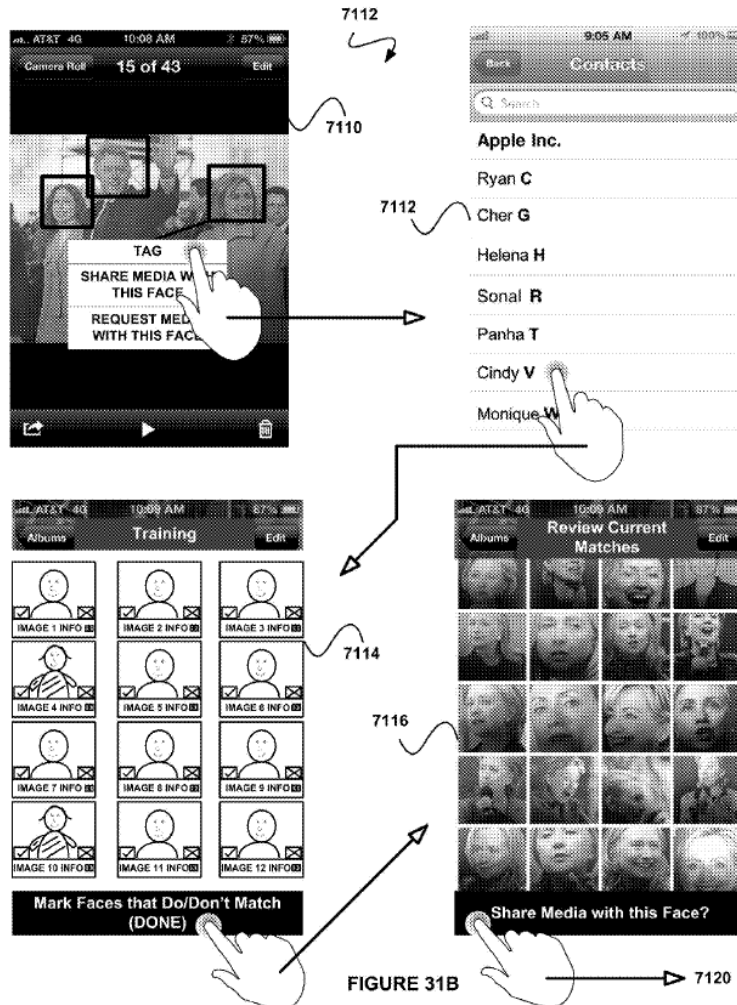
38. This information can also be updated based on user feedback. *Id.*, 10:64-11:6 (“Further, the media object that was requested or received is presented

to a user with the identification of the at least one person, and the user is prompted for a confirmation and/or an identification if one or more people were not identified. See operation 406. It is then determined whether a confirmation and/or an identification is received. See decision 408. In one embodiment, an identification correction may be received. For example, in one embodiment, a person associated with the media object may be identified incorrectly and the user may provide a correct identification.”).

39. This information can also be shared with other devices. *Id.*, 7:39-50 (“Further, in one embodiment, the metadata may be shared directly between a first device of the first user and a second device of the second user. ... In another embodiment, the metadata may be shared between a first device of the first user and a second device of the second user via a service with at least one server.”). This allows those other devices to find, display, and share images including the same face. *Id.*, 9:17-19 (“Once the metadata is shared, in one embodiment, the metadata may be utilized by the user with whom the metadata was shared.”), 12:4-13 (“In one embodiment, once identified via the facial recognition algorithm, each face in an image may be identified and that identifier of the face may be associated with the media, and may be stored in conjunction with the media (or stored in the media, etc.). In various embodiments, the metadata may be associated with the media, and/or associated with an identifier that is included in/with the media, etc.

In this way, in one embodiment, the redundant work of identifying or training facial recognition metadata may be reduced by sharing training data with other users.”)

40. FIG. 31A-N “show a variety of user interfaces for sharing media objects” (39:40-41) that are images accessible by a user’s smartphone. For example, FIG. 31B (reproduced below) provides an interface 7112 by which a user can select a face of interest and find photos that match the selected face. *Id.* The top left screen shot of FIG. 31B shows that a user has selected the face of Hillary Clinton and chosen the “tag” option from options menu 7110.



41. Selecting the tag option opens a contact interface 7113 (misabeled as 7112) that allows the user to associate the selected face with one of the user's contacts. Ex. 1001, 41:63-42:18. After tagging the selected face, a training interface 7114 may be displayed by which "multiple facets of metadata, including facial recognition training data may be provided." *Id.*, 42:18-22.

42. The bottom left display in FIG. 31B shows a training interface 7114 that presents "one or more photos associated with the selected contact" that the user can confirm were correctly identified. *Id.*, 42:30-42. After the user is done

confirming matches, a review current matches interface 7116 is displayed showing confirmed photos and providing an option to share photos with the selected face.

Id., 43:6-15.

43. According to other aspects, a user may choose a share media option to share photos of a selected face, an example of which is illustrated in FIG. 31C reproduced below.

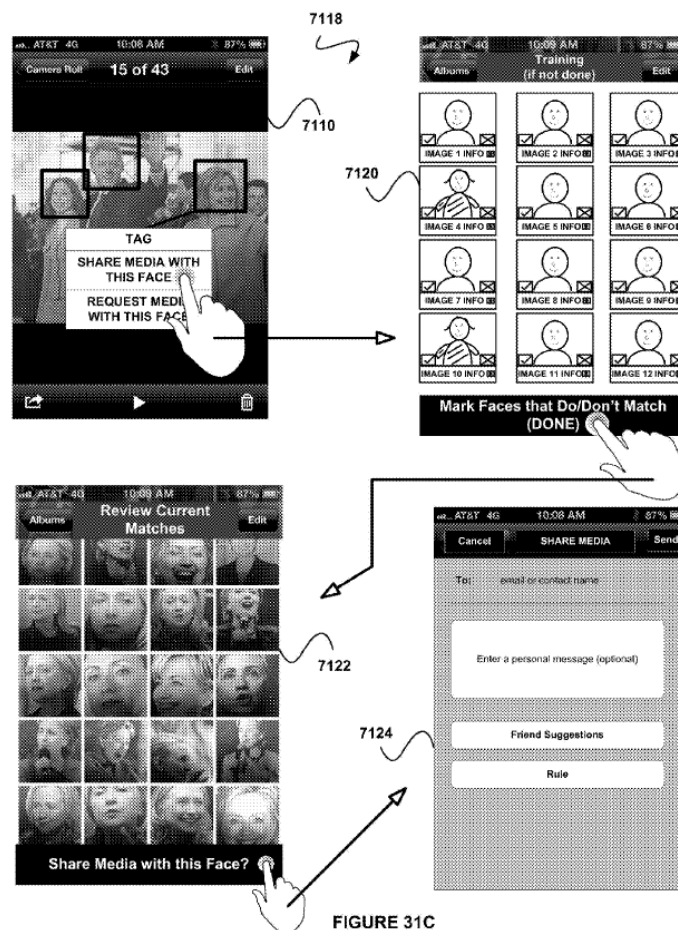


FIGURE 31C

44. The top left screen shot in FIG. 31C shows a user selecting the “share media with this face” option in connection with a selected face. This selection opens training interface 7120 so the user can confirm correctly identified faces that

are then displayed in interface 7122, along with a “Share Media with this Face?” option. Ex. 1001, 43:37-46, 43:60-45:5. In this embodiment, training is described as being optional depending on whether the user has already confirmed/declined relevant photos associated with the selected face, or whether the user has access to training performed by another user. *Id.* at 43:47-59.

B. Discussion of the Claims

1. Claim 1

45. The ‘726 patent includes claims 1-30, of which claims 1, 23 and 27 are independent and substantively recite the same subject matter. Independent claim 1 is exemplary and recites a “device” comprising:

[1A] a screen;

[1B] an input mechanism;

[1C] at least one non-transitory memory storing instructions; and

[1D] one or more processors in communication with the screen, the input mechanism, and the at least one non-transitory memory, wherein the one or more processors execute the instructions to cause the device to:

[1E] display, utilizing the screen of the device, a plurality of indicia each including at least a portion of an image including a face;

[1F] receive, utilizing the input mechanism of the device, a user input in connection with at least one of the indicia including at least a portion of a first image including a first face;

[1G] after receiving the user input in connection with the at least one indicia, display, utilizing the screen of the device, a first set of images each including the first face that has been recognized in at least one of a plurality of images accessible via the device;

[1H] display, utilizing the screen of the device, at least one option for sharing images, where the sharing is performed utilizing face recognition information that is based on third party input of a third party that is provided

by the third party into at least one other device in association with at least one face, the face recognition information being utilized in connection with the at least one option for sharing images based on a relation between a user of the device and the third party associated with the third party input, such that the face recognition information is only utilized in connection with the at least one option for sharing images if the relation exists between the user of the device and the third party associated with the third party input;

[1i] in connection with the at least one option for sharing images, display, utilizing the screen of the device, a second set of images each including the at least one face that has been recognized in at least one of the plurality of images accessible via the device utilizing the face recognition information that is based on the third party input of the third party that is provided by the third party into the at least one other device in association with the at least one face;

[1J] receive, utilizing the input mechanism of the device, a user input in connection with at least one of the second set of images; and

[1K] after receiving the user input in connection with at least one of the second set of images, cause one or more of the second set of images to be shared.

46. While excessively wordy and repetitive, the limitations fall into four basic categories:

- generic computer system limitations ([1A]-[1D]);
- limitations reciting steps for displaying a first set of images recognized as depicting a first face selected by a user ([1E]-[1G]);
- limitations reciting steps for displaying a second set of images recognized as depicting at least one face associated with facial recognition information from a third party with which the user has a relation ([1H]-[1I]), and sharing one or more of those images ([1J]-[1K]).

47. These recited features were known in the art.

48. Limitations [1A]-[1D] recite conventional computer components for executing software and facilitating user interaction with a device, and limitations [1E]-[1G] recite the well-known technique of leveraging face recognition technology to find and display photos depicting a particular face selected by the user. *See e.g.*, Krupka (Ex. 1005), [0001]-[0002], [0040]-[0041], [0050]; Perlmutter (Ex. 1006), 30:40-32:47, FIGS. 13-16, 19; Amaker (Ex. 1012), 9:38-10-19; Gokturk (Ex.1011), 19:1-27; Johnson (Ex. 1007), 3:17-27. The Patent Office also determined these limitations were known. Ex. 1002, 242-243.

49. Limitations [1H]-[1K], which the Patent Office found were not explicitly disclosed in the prior art, also recite known techniques of using face recognition information (*e.g.*, a face model) ***received*** from another user to find and share corresponding photos in one's photo collection (*see e.g.*, Krupka, [0054]-[0058], [0064], [0088]-[0091]; Gokturk, 48:52-64; Johnson, 3:27-46, etc.). None of these references were before the Patent Office during prosecution.

50. Independent claim 23 recites an “apparatus” instead of a “device,” but otherwise recites substantially the same limitations reproduced above. Independent claim 27 recites a method in which an apparatus communicates with a server to perform these same limitations. The challenged dependent claims recite various known user interface functionality for providing routine and conventional options for displaying and sharing images.

a. Limitations [1E]-[1G] and Limitations [1H-1K] Recite Independent Acts Performable on Different Faces to Obtain Different Sets of Images

51. Claim 1 recites a device with conventional computer components executing software that accomplishes two largely independent tasks: (1) display a first set of images recognized as containing a first face selected by the user, and (2) display and share a second set of images recognized as containing a second face using “face recognition information” received from a third party device.

52. Limitations [1E]-[1G] recite a user selecting “*a first face*” from one or more images depicting faces ([1E] and [1F]) and displaying “*a first set of images each including the first face*” ([1G]). Limitations [1H]-[1K] are directed to utilizing “*face recognition information*” received from a different user that is associated with “*at least one face*,” and displaying “*a second set of images each including the at least one face*.”

53. Limitation [1H] introduces the “*at least one face*” and specifies that it is associated with “*third party input*” provided by a different user into a different device (“*third party input of a third party that is provided by the third party into at least one other device at least one other device*”). None of limitations [1H]-[1K] refer to the “*first face*” and none of limitations [1E]-[1G] refer to the “*at least one face*.” Thus, claim 1 does not require any relationship between the these faces. Similarly, claim 1 does not require any relationship between the “*first set of*

images recited in limitation [1G] and the “*second set of images*” recited in limitation [1I], other than that both sets of images are recognized in “*the plurality of images accessible via the device.*”

54. Independent claim 23 and 27 recite these same limitations and should be interpreted in the same way. The dependent claims also confirm this interpretation.

b. Dependent Claims Confirm that the “First Face” and the “At Least Face” Can Be Different Faces

55. Claim 22, which depends from claim 1, recites merely that “*the at least one face is **capable** of including the first face,*” making clear that there is no requirement that there be any relationship. Ex. 1001, 74:65. Because claim 22 does not require the at least one face to include the first face—but merely requires that this circumstance not be precluded—claim 1 also does not have any such requirement. Because claim 1 is broader, claim 1 in fact has no requirement that the claimed “*at least one face*” even be capable of including the “*first face.*”

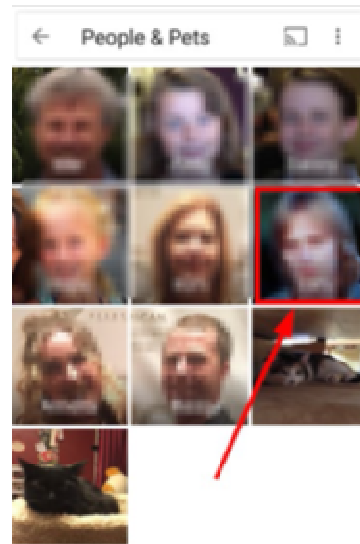
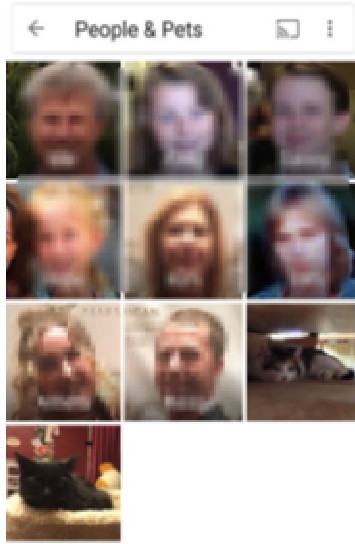
56. Even if claim 22 were interpreted as being limited to the at least one face including the first face (which it explicitly does not), broader claim 1 would not have this requirement.

c. Dependent Claim 22 Establishes that the “First Set of Images” and the “Second Set of Images” Can Be “Mutually Exclusive”

57. Claim 22 recites that “*the first set of images and the second set of images are mutually exclusive.*” Ex. 1001, 74:65; 75:41-42. Claim 1 therefore at least covers circumstances in which the first set of images are entirely different than the second set of images as affirmatively recited in claim 22. Claim 22 also recites that the “first set of images and the second set of images overlap.” Together these limitations confirm that the first set and second set of images need not, but can, include one or more of the same images.

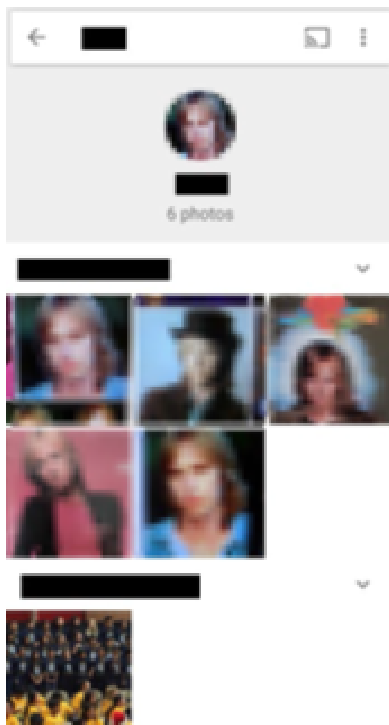
d. Patent Owner’s Infringement Contentions Rely on Different Faces and Display Different First and Second Sets of Images for Limitations [1E]-[1G] and [1H]-[1K].

58. In its infringement contentions, Boccone presents screen shots, reproduced below, from a “People & Pets” album as allegedly reading on limitations [1E] and [1F]. Ex. 1009, Pages 3-7.

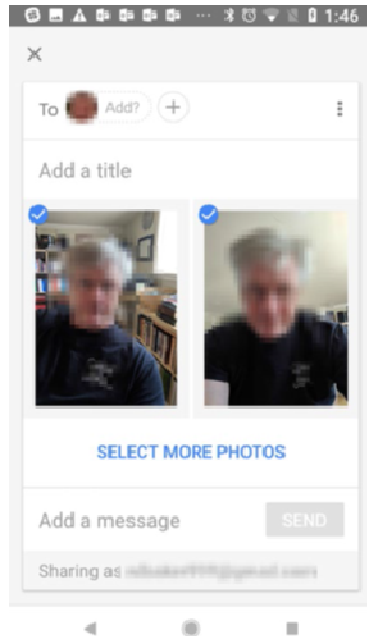


59. The set of thumbnails displayed in the screen shot on the left is alleged to read on limitation [1E] (“display...a plurality of indicia each including a portion of an image include a face”), and the screen shot on the right annotated with a red box and arrow that purports to show a user selecting one of the thumbnails is alleged to read on limitation [1F] (“receive...user input in connection with...a first image including *a first face*”). Ex. 1009, Pages 3-7.

60. The screen shot from page 6 of Boccone’s infringement contentions reproduced below is alleged to read on limitation [1G] (“display...a first set of images each including *the first face*”).



61. For limitations [1H]-[1K], the face of an altogether different person is alleged to read on the “*at least one face*” recited in limitation [1H] and [1i], as shown by the screen shot on page 11 of the Boccone’s infringement contentions, reproduced below, alleged as reading on limitation [1i] (“display...a second set of images each including the at least one face”).



62. Though the infringement contentions do not explain or demonstrate how each limitation is purportedly met, the one thing that is clear from the contentions is that the images alleged as meeting “*a first set of images each including the first face*” and the images alleged as meeting “*a second set of images each including the at least one face*” are different images portraying different faces.

63. While the faces are blurred in the screen shots above, the “*first face*” selected by the user is recognizable as deceased musician Tom Petty,¹ while the face alleged to meet the “*at least one face*” is decidedly not.

¹ An internet search for images of Tom Petty produces the same images:

64. Accordingly, Boccone’s infringement contentions point to different sets of actions as allegedly reading on limitations [1E]-[1G] and [1H]-[1K], including different faces for the “*first face*” and the “*at least one face*” and different images for the “*first set of images*” and the “*second set of images*,” recited in claims 1, 23 and 27.

65. Other than the requirement that these two sets of image are recognized from the same “*plurality of images accessible via the device*,” the independent claims do not require any further relationship between the first and second sets of images, and dependent claim 22 confirms that the first and second set of images can be entirely different.

C. Prosecution History

66. The ’726 patent does not purport to have invented a new process for creating “facial recognition information” or using that information to find, display, and share images containing a face in a new way. This is unsurprising because “facial recognition information” was commonly employed in conventional digital photo systems to assist users with finding, displaying and sharing photos of people of interest.



67. The Patent Office thus correctly found claim limitations concerning the use of facial recognition information to find, display, and share images well-known before the '726 patent was filed. Ex. 1002, 242. *See also* ¶ 36 above. The Patent Office, however, was mistaken when it found claim limitations related to *receiving* facial recognition information from others inventive. *Id.* *See also* ¶ 37 above.

68. For example, Krupka (Ex. 1005), which was not cited during prosecution, discloses methods for sharing “face recognition information”—called “face models” in Krupka—between users to find and share photos of any person for which a face model has been shared. Krupka, [0064]. Krupka’s “face models” are used and shared in the same way that “face recognition information” is used and shared in the '726 patent. Multiple other references discussed herein disclose this same sharing feature. *E.g.*, Gokturk, 48:52-64; Johnson, 3:33-34; 14:24-15-47; Ganong, 12:48-13:7. None of these references was cited during original prosecution.

VI. CLAIMS 1-30 ARE UNPATENTABLE IN LIGHT OF THE PRIOR ART IDENTIFIED IN THE PETITION

69. I have been asked to provide my opinion concerning whether claims 1-30 of the '726 patent would have been anticipated by or obvious to a POSA in light of the prior art references identified in the Petition. For the reasons explained

below, it is my opinion that each of claims 1-30 is anticipated and/or would have been obvious to a POSA.

A. Claims 1-4 and 6-30 Would Have Been Obvious Over Krupka

1. Krupka (Ex. 1005)

70. Krupka, titled “Finding and Sharing of Digital Images Based on Shared Face Models,” published on June 23, 2011. I am informed and understand that based on its publication date, Krupka is prior art under 35 U.S.C. § 102(b). Based upon my review of the file history for the ’726 patent, I understand that Krupka was not considered during prosecution.

71. The “Background” section of Krupka describes the challenge of identifying photos of oneself, friends and family in large collections of digital photos and discusses the known technique of using face recognition to facilitate finding and sharing of such digital images in a user’s photo albums. Krupka at [0001]-[0002]. Specifically, Krupka discloses that face recognition may be used to assist in the otherwise “daunting task” of locating images of interest among a large volume of digital images stored in a user’s albums. *Id.*

72. As an example, a user may browse through his/her digital photo albums to identify and tag photos that picture the user or that picture the user’s family and friends. *Id.* at [0002]. The tagged photos are used to build face models corresponding to the faces of the people depicted in the photos that can be used to

identify further images depicting the people for which face models have been built. *Id.* at [0002] (“For example, the PICASA™ software application, which is published by Google, Inc. of Mountain View, Calif., allows a user to browse through his/her photos and tag his/her face when it appears in such photos. The tagged photos are then used to build a face model that is used by the face recognition functionality to identify other photos of the user in the user’s album. The PICASA™ software application also allows a user to tag faces of others (e.g., the faces of friends and family members) to build face models for locating pictures of others in the user’s albums.”).

73. Krupka discloses a “face model building module” (Krupka, [0040]) that “presents a graphical user interface (GUI) to a display of the user’s device that allows a user to perform the above described method of tagging faces of interest to build corresponding face models that can be used to find and share photos of those faces, as discussed in further detail below. Krupka, [0040]-[0041], [0050], [0058]-[0060].

74. Krupka further discloses utilizing created face models to identify photos that reside in photo albums belonging to others. While Krupka recognizes that software applications such as PICASA™ could be used by others in the same manner discussed above, for a given user to obtain relevant photos from a friend’s photo albums, for example, the friend must also go through the process of tagging

photos and building face models to identify the relevant photos to share with the given user. Krupka, [0003]-[0004]. Additionally, if a given user is particularly interested in photos of him or herself, even if a friend does build a face model of the user, the number of photos depicting the user on which the friend can build the face model may be relatively small, resulting in a inferior face model that is prone to misidentification. *Id.*

75. To address this difficulty in “finding and sharing digital images of a user and his/her family member that are located in albums belonging to others,” Krupka discloses techniques for sharing face models that users build from digital photos that reside in their collection of albums. Krupka, [0005]-[0006]. In particular, Krupka discloses techniques for allowing a user to build and share a face model with contacts (e.g., friends and family) so that photos of the user can be found in the photo albums belonging to the contacts with whom the user shares his/her face model. Krupka, [0005]-[0007].

76. In this manner, a library of face models can be built and shared among a group of users, allowing photos depicting any of the users and residing in any collection of images residing in albums associated with the group of users to be identified and shared. Krupka, [0068]-[0070]. As additional users are invited to share face models and images, connections may be established between users that have a relationship with each other and between users that may not know each

other, providing an expansive social network among which images can be identified and shared. *Id.*

77. Krupka first describes this technique in the context of a first user and a second user whose respective computers are connected via a network. FIG. 1, reproduced below, illustrates a circumstance in which a first user computer 102 has an image finding/sharing module 110 installed thereon while a second user computer 104 does not. Each computer includes an e-mail module that allows email communication between the computer via network 106 and also includes a collection of images that the respective computer has access to. Krupka, FIG. 1, [0030]-[0032].

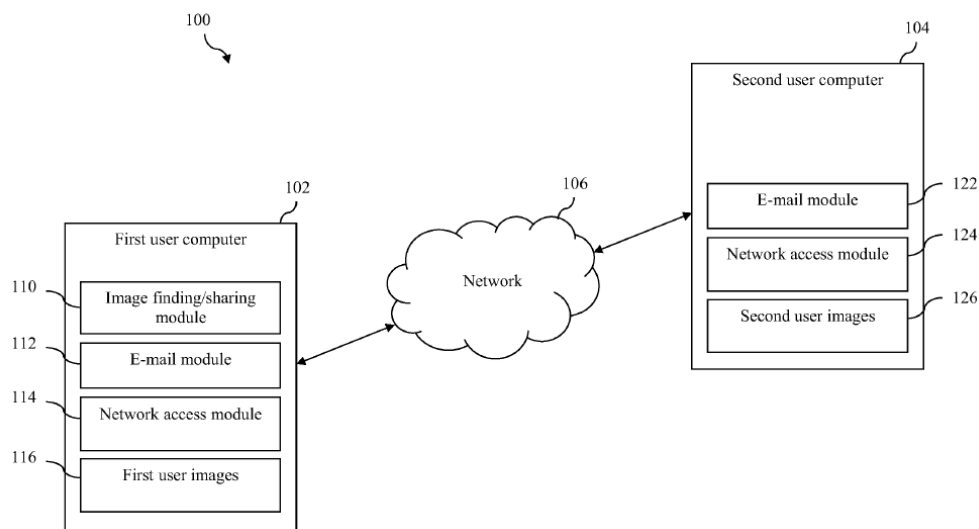


FIG. 1

78. FIG. 2, reproduced below, illustrates an exemplary components of an image finding/sharing module that can be used to build face models from images

residing in a user's collection of images and share the images that are identified in the user's photo collection along with the face model(s) that a user creates.

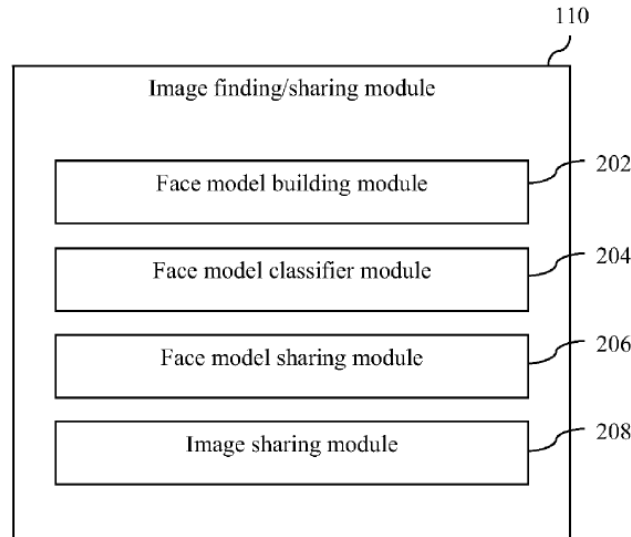


FIG. 2

79. FIGS. 8-13 depict “example graphical user interfaces (GUIs) that may be used to implement a method for finding and sharing digital images of a user from among collections of digital images owned or maintained by other users.” Krupka, [0073]. The exemplary GUIs may be presented by a photo management application of which image finding/sharing module is a part. *Id.*, [0074]. Krupka gives the example in which image finding/sharing module is a part or plug-in-module of a photo management application such as WINDOWS LIVE™ PHOTOGALLERY. *Id.*

Using the face model building module 202 of image finding/sharing module 110, Krupka discloses that a first user may create a face model by selecting and tagging images among first user images 116 that depict the face of the first user. Krupka, [0040]-[0041]. By “tagging” a person’s face in a photo to build a corresponding “face model” (*i.e.*, “a set of features that are representative of a face of a particular person,” (Krupka, [0039]-[0041])), the resulting face model can be used to find, display, and share photos of that person. Krupka, [0001]-[0002], [0040]-[0041], [0050], [0058].

80. To assist in building face models, Krupka discloses “a face model building module” (Krupka, [0040]) that “presents a graphical user interface (GUI) to a display” (*id.*) so that a user can tag faces of interest to create a corresponding face model. Krupka, [0040]-[0041]. Krupka’s GUI displays “portions of digital images” (e.g., thumbnails) that “appear to represent human faces” so the user can “select those portions that represent his/her face” (Krupka, [0041]) or “tag the face of others” (Krupka, [0002]) to build a corresponding face model. This face model can be used to find photos accessible by the user’s device. Krupka, [0050].

81. FIG. 8, reproduced below, illustrates an example of a GUI that presents a “My album” window to the user displaying a portion of images 804 that are owned or managed by the user of computer 102. Krupka, [0074].

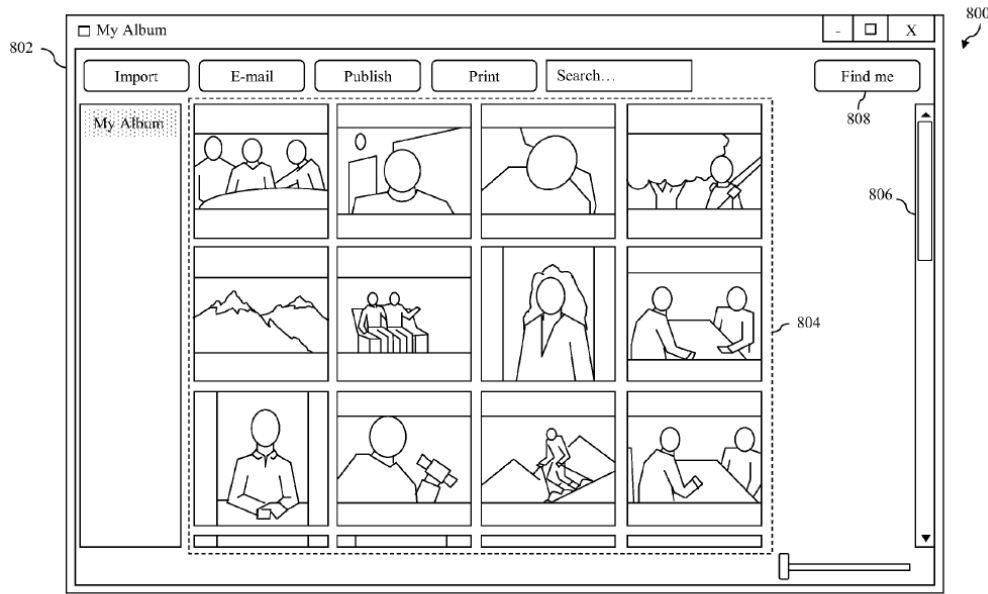


FIG. 8

82. To assist in face model building, Krupka discloses that the face model building module 202 of image finding/sharing model 110 may analyze the first user's photo collection and present to the first user digital images (or portions thereof) that the computer identifies as representing human faces. Krupka, [0041]. The user then can select the portions of the digital images that represent his/her face to identify a set of images that depict the first user. *Id.*

83. Specifically, using the face model building module 202 of image finding/sharing module 110, Krupka discloses that a first user may create a face model by selecting and tagging images among first user images 116 that depict the face of the first user. Krupka, [0040]-[0041]. By "tagging" a person's face in a photo to build a corresponding "face model" (*i.e.*, "a set of features that are representative of a face of a particular person," (Krupka, [0039]-[0041])), the

resulting face model can be used to find, display, and share photos of that person. Krupka, [0001]-[0002], [0040]-[0041], [0050], [0058].

84. To assist in building face models, Krupka discloses “a face model building module” (Krupka, [0040]) that “presents a graphical user interface (GUI) to a display” (*id.*) so that a user can tag faces of interest to create a corresponding face model. Krupka, [0040]-[0041]. Krupka’s GUI displays “portions of digital images” (e.g., thumbnails) that “appear to represent human faces” so the user can “select those portions that represent his/her face” (Krupka, [0041]) or “tag the face of others” (Krupka, [0002]) to build a corresponding face model. This face model can be used to find photos accessible by the user’s device. Krupka, [0050].

85. Krupka also discloses an alternative method of obtaining a set of images that depict the user’s face using a video capture device, such as a Web camera, coupled to or integrated with the first user computer. Krupka, [0042]. In particular, the video capture process provides another way in which multiple images depicting the first user can be obtained as illustrated in FIG. 4 and described in the accompanying text in paragraphs [0043]-[0044].

86. To ensure an accurate face model is produced, Krupka describes building a preliminary face model and applying the preliminary face model to the user’s photo collection to find a preliminary set of images that also picture the first user. Krupka, [0045]-[0046]. The preliminary set of images found by the

computer is displayed to the user via a GUI to allow the user to confirm images that in fact depict the first user and indicate whether any of the identified images do not. Krupka, [0045]-[0047]. An example GUI for implementing this process is illustrated in FIG. 10 reproduced below.

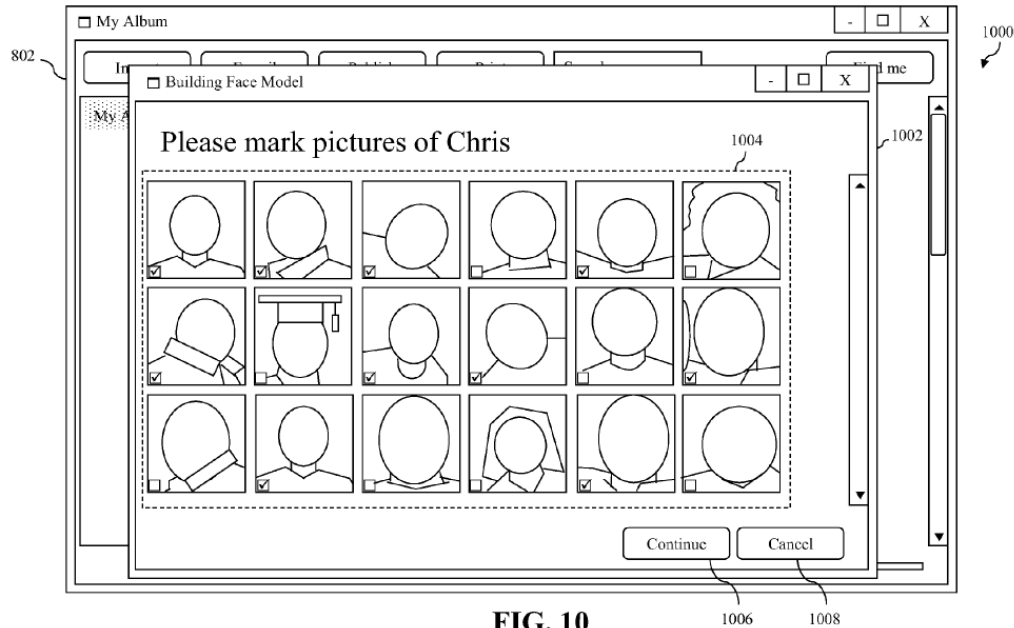


FIG. 10

87. As shown in FIG. 10, a “Building a Face Model” GUI is presented that displays a preliminary set of images identified in the user’s photo album along with corresponding check boxes that allow the user to select images that depict the user and discard any “false positives” identified by the preliminary face model. Krupka, [0046], [0047], [0080]. The face model building module 202 may then refine the face model based on the feedback from the user to improve the face model. *Id.*, [0048], [0081].

88. Krupka notes that the video capture approach is advantageous in that it can leverage images from both the video capture and the user's photo collection. Krupka, [0049]. However, a POSA would have understood that the video capture technique requires video capture capability and limits building face models of users that are present in the view of the video capture equipment. Using the face model building GUI described in [0040]-[0041], a face model can be made of any face that appears in one or more photos in the user's photo album.

89. Once a face model is built using either technique, the face model classifier module 204 of image finding/sharing module can use the face model to find digital images of that face in the user's photo collection. Krupka, [0050]. Krupka further discloses that the image finding/sharing module can share the face model with other users to facilitate finding images of the user in photo collections belonging to others. Krupka, [0050], [0073], [0083].

90. Krupka illustrates an example of a GUI that may be presented to the user after a face model has been built to allow sharing of the face model with the user's contact, as shown in FIG. 11 reproduced below. Specifically, a "Choose Contacts" window 1102 can be opened on top of the "My Album" window of the photo management application listing contacts for the user that, for example, were identified from an address book, contacts from a social networking application, instant messaging application or the like. Krupka, [0083].

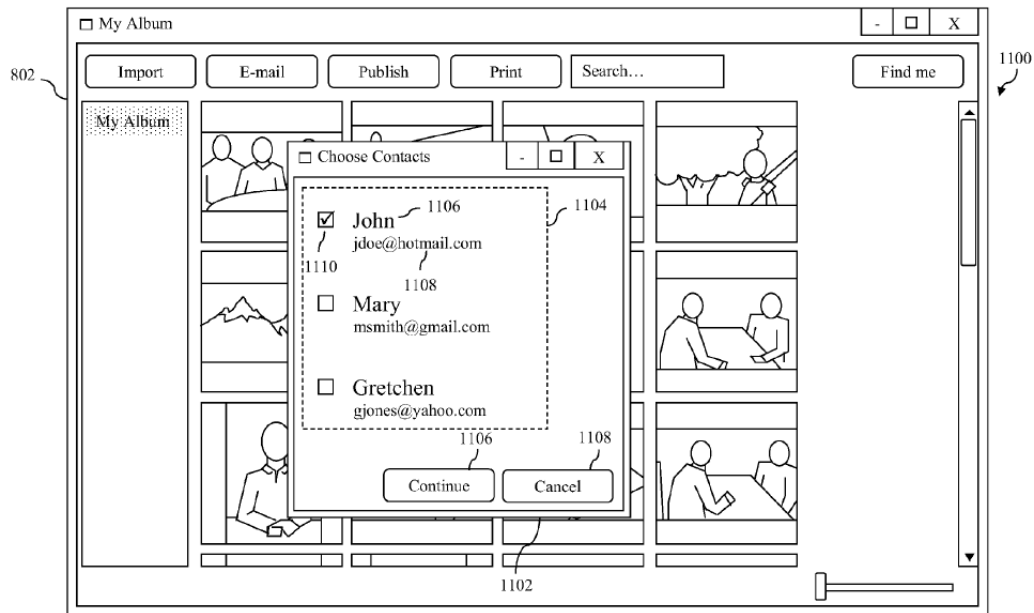


FIG. 11

91. In the example illustrated in FIG. 11, the user checks a checkbox associated with contact “John” with whom the user would like to exchange photos. After the user has selected the contacts with whom the user would like to exchange photos and share a face model, the face model sharing module can automatically generate an e-mail and populate it with the e-mail addresses associated with the selected contacts, as shown by GUI 1200 illustrated in FIG. 12 reproduced below.

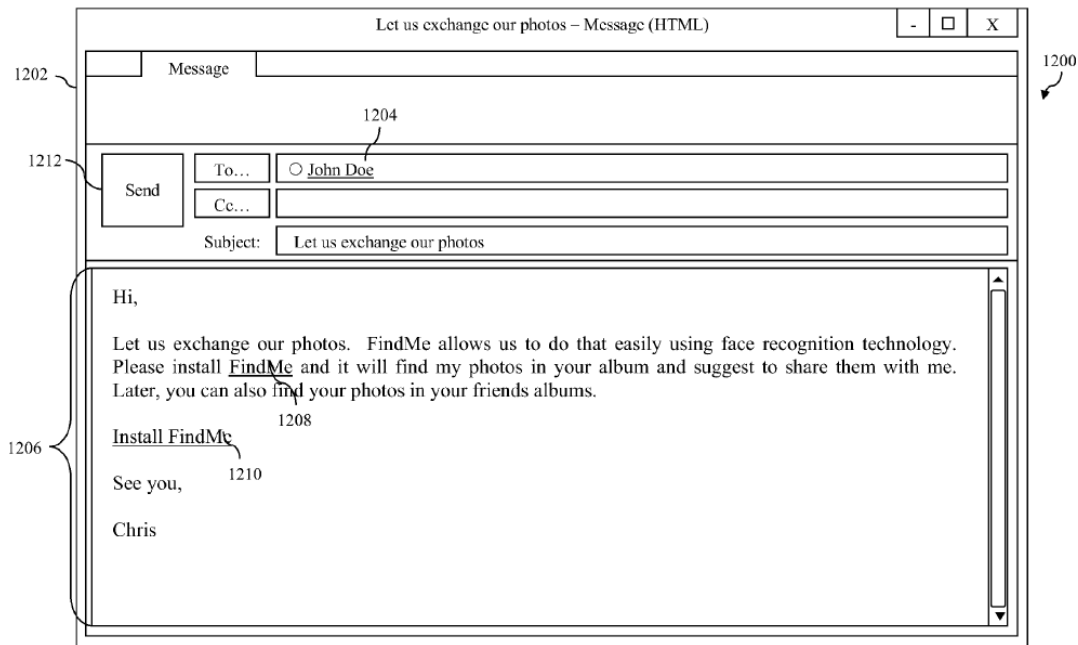


FIG. 12

92. The automatically generated e-mail is provided via an e-mail application window that has been populated with the email addresses selected by the user from his/her contact list. Krupka, [0085]. Since the user selected a single contact, John, the e-mail is populated with John's email address. The e-mail message is also populated with a subject line "Let us exchange our photos" and provides instructions and links so that the recipient can download the image finding/sharing module to enable photo sharing "using face recognition technology." *Id.*

93. Once the software is downloaded, a user can access the shared face model to find photos depicting that person without having to build their own face model of that person. Krupka, [0063]. The image finding/sharing module may

include a search tool (*see e.g.*, the search tool provided on the GUI in FIGS. 8-13) that enables a user to search for digital images of multiple different users (e.g., multiple friends and/or family members) for which a face model has been received. *Id.*, [0064]. For example, the search tool may provide an entry box in which a user can type a user name, or the search tool may provide a menu of user names from which the user can choose, causing the search tool to execute a search for photos of the selected person in the user's photo collection. *Id.*

94. FIG. 13, reproduced below, illustrates an example of a GUI 1300 that displays images that are found in a user's photo collection using a face model received from another user. Krupka, [0089]. In the example illustrated, the "Pictures Found" window displays the found images and provides the user with options for sharing one or more of the images that are found. *Id.*, [0090].

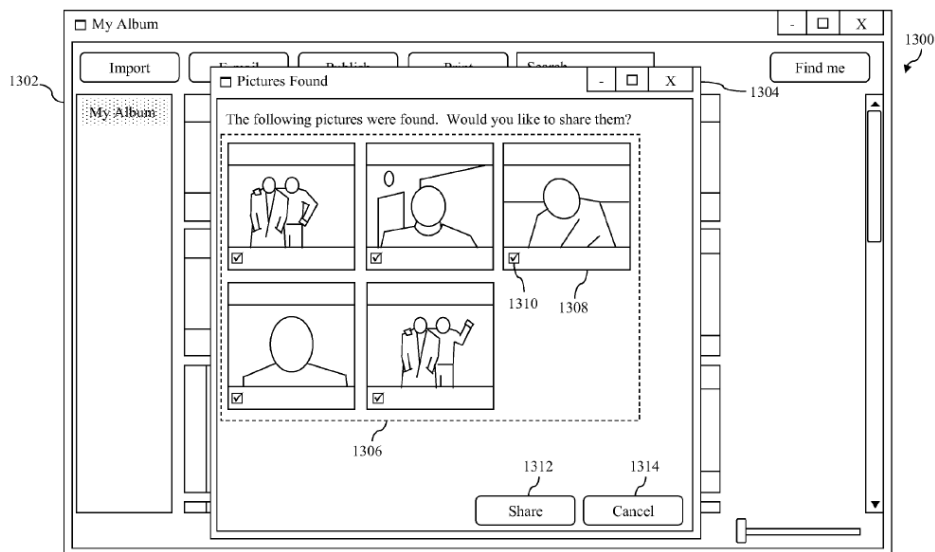


FIG. 13

95. Specifically, each of the images that are found using the shared face model is displayed along with a corresponding check box that allows the user to select or deselect desired images. Krupka, [0090]. The “Pictures Found” window also includes share button 1312 that, when activated, shares the selected images and a cancel button 1314 that, when activated, disables the “Pictures Found” window and aborts the sharing process. *Id.*

a. Krupka Discloses Finding and Displaying Images Using Facial Recognition

96. As the Examiner found, finding and displaying images using facial recognition technology—subject matter recited in limitations [1E]-[1G] of claim 1—was known. Ex. 1002, 242. Krupka confirms the Examiner’s finding as it discloses these conventional techniques. Krupka, [0001]-[0002], [0040]-[0041], [0050].

97. As Krupka explains, the “daunting task” of manually browsing through a user’s photo collection to find all of the photos of specific people was addressed using “face recognition functionality to assist the user in finding photos of himself/herself” and/or for “locating pictures of others in the user’s albums.” Krupka, [0001]-[0002]. Specifically, the software allowed a user to “tag his/her face” or “tag faces of others” (Krupka, [0002]) to build corresponding face models that can be used for identifying “other photos of the user” or “locating pictures of others in the user’s albums” (*id.*).

98. By “tagging” a person’s face in a photo to build a corresponding “face model” (*i.e.*, “a set of features that are representative of a face of a particular person,” Krupka, [0039]-[0041]), the resulting face model can be used to find, display, and share photos of that person. Krupka, [0037], [0050], [0058].

99. To assist in building face models, Krupka discloses “a face model building module” (Krupka, [0040]) that “presents a graphical user interface (GUI) to a display” (Krupka, [0040]-[0041]) so that a user can tag faces of interest to create a corresponding face model. Krupka’s GUI displays “portions of digital images” (e.g., thumbnails) that “appear to represent human faces” so the user can “select those portions that represent his/her face.” (Krupka, [0041]). The resulting face model can be used to find photos accessible by the user’s device. Krupka, [0050].

100. Thus, Krupka’s discloses the known technique of selecting a face of interest in one or more photos to build a face model, using the face model to identify additional photos from a user photo collection that depict the face of interest. Krupka, [0001]-[0002], [0040]-[0041], [0050]. This is the subject matter recited by limitations [1E]-[1G] of claim 1 and corresponding limitations in independent claims 23 and 27.

101. In the specific example described using Krupka’s face model building GUI to build a face model and find images using that face model (Krupka, [0040]-

[0041], [0050]), Krupka describes a user tagging his/her face from the faces displayed, but a POSA would have understood that a user can tag any face from those displayed by the GUI to build a face model of any face of interest as Krupka discloses that it was known to do. Krupka, [0001]-[0002]. For example, Krupka's face model building GUI (Krupka, [0040]-[0041]) would be used in the "face building process" (Krupka, [0040]) to "tag faces of others" (Krupka, [0002]) to build corresponding face models for "locating pictures of others in the user's albums" (Krupka, [0002]), as described in the Background.

102. Specifically, a POSA would have understood that a user can choose to tag and select any face of interest from the digital images of human faces that Krupka's face model building GUI displays and it would have been obvious to do so to not only find and share "photos of the user in the user's albums" (Krupka, [0002]), but also to find and share "pictures of others in the user's albums" (Krupka, [0002]). There is no difference from the point of view of the software.

103. To the extent that the image finding/sharing software described in the Detailed Description (which includes the face model building module, face model classifier module, image sharing module, etc.) is not explicitly disclosed as being used to build face models of people other than the user, it would have been obvious to a POSA to use these techniques to build face models of others to facilitate finding and sharing of photos depicting people of interest to the user, precisely as

Krupka explains that it was known to do in the Background. Krupka, [0001]-[0002], [0005]-[0006] (“Systems and methods are described herein for finding and sharing digital images of a *user and his/her family members*...that are located in collections of digital images belonging to others.”). Emphasis added.

104. Krupka’s face model building GUI is like other known interfaces that display images from a photo collection so that a user can select a face for which the user would like to build a face model to find other photos of that person. *See e.g.,* Perlmutter (Ex. 1006), FIG. 13 (illustrating a GUI displaying photos from the user’s album from which a user has selected a photo depicting a face of interest).

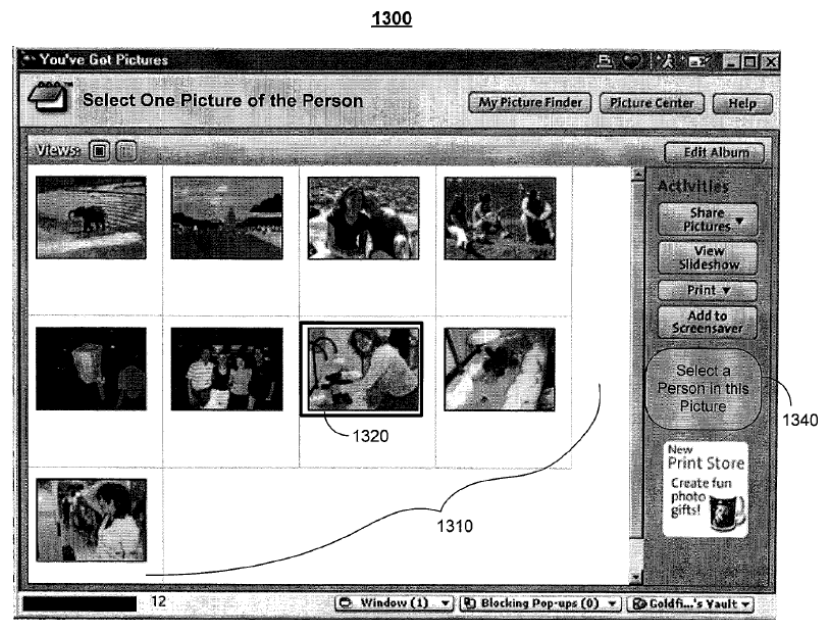


Fig. 13

b. Krupka Discloses Finding and Sharing Photos Using Shared Face Models Received From Others

105. As stated by the title “Finding and Sharing of Digital Images Based on Shared Face Models,” Krupka discloses the technique of using face models, built and shared by others, to find, display and allow a user to selectively share images of corresponding faces. Krupka, [0005]-[0007], [0064].

106. Krupka discloses receiving face models created by others to find and share corresponding photos from the user’s photo collection. Krupka, [0005]-[0007], [0064]-[0069], [0088]-[0091]. Face model sharing makes more efficient the process of a user obtaining photos residing in albums belonging to others. Krupka, [0002]-[0007]. Rather than requiring a second user to build a separate face model of a first user to find photos of that first user accessible to the second user’s device, the second user can simply use the face model of the first user that the first user has shared. Krupka, [0005]-[0007], [0051]-[0058], [0088]-[0091]. Face model sharing makes more efficient the process of a user obtaining photos residing in albums belonging to others. Krupka, [0002]-[0007].

107. Thus, the technique of sharing/receiving “face recognition information” between devices such that one device could use “face recognition information” generated on another device was also known as Krupka confirms. This is the subject matter recited by limitations [1H]-[1K] in claim 1 and corresponding limitations in independent claims 23 and 27.

108. More specifically, to address the difficulty in “finding and sharing digital images of a user and his/her family members that are located in albums belonging to others” (Krupka, [0005]), Krupka discloses techniques for sharing face models between users so that such photos residing in collections belonging to others can be found and shared without requiring each user to build their own corresponding face models. Krupka, [0005]-[0007], [0051]-[0058], [0088]-[0091].

109. Using Krupka’s face model sharing techniques, users can find and share photos in one’s own photo collection using face models that the user created, as was conventionally done, and can further benefit from those face models by sharing them with others so that photos can be found and shared from photo collections belonging to others. Krupka, [0003]-[0007].

110. For example, Krupka discloses a search tool that allows a user to select a person from a menu to execute a search for photos of the selected person using a face model created and shared by another user. Krupka, [0064]. For example, FIG. 6 illustrates a system in which multiple users have contributed their face models to a shared library of face models 604 (annotated in red below).

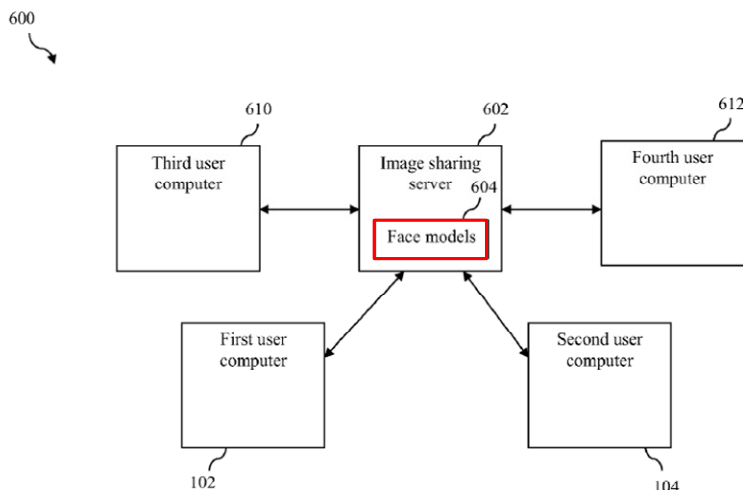


FIG. 6
(Annotated)

111. Users that have been invited to join the share network can search for photos using any available face model to which the user has access. Krupka, [0064], [0065], [0070]. For example, a search tool is provided that allows a user to select a name from a menu of user names to execute a search for photos of that person using a corresponding face model from the shared face model library 604. Krupka, [0064]-[0065]. Photos found by the search tool can then be shared. Krupka, [0064]-[0065].

112. To invite others to exchange photos, Krupka discloses providing an interface that allows a user to select one or more contacts from a contact list (see FIG. 11 reproduced below) and send selected contacts an email inviting them to exchange photos by downloading the image finding/sharing software (see FIG. 12 overlaid on FIG. 11 below). Krupka, [0083]-[0086].

113. Specifically, the “image finding/sharing software” displays a “Choose Contacts” window that allows a user to select one or more contacts that the user would like to invite to share photos, and generates an email requesting the contacts to download a copy of the software so that photos can be exchanged “using face recognition technology,” as shown in the example email of FIG. 12 of Krupka, [0083]-[0086].

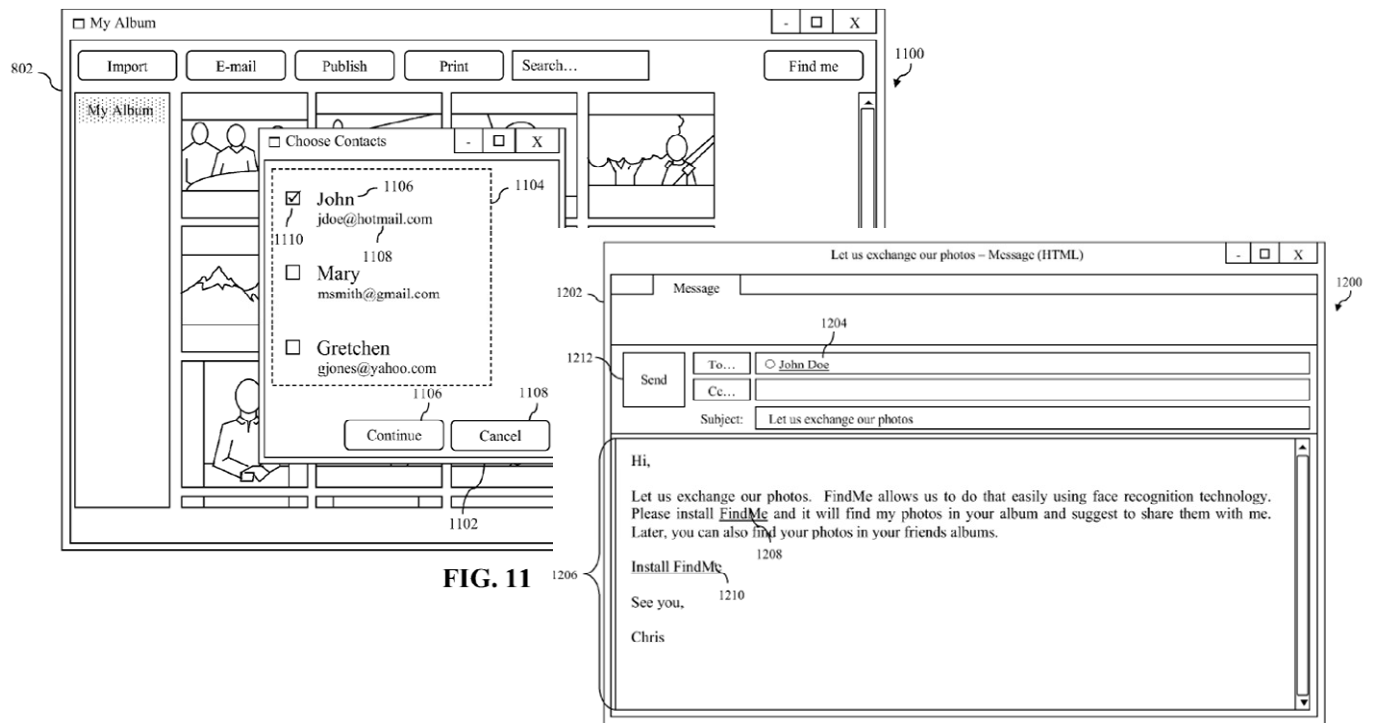


FIG. 12

114. Once the invited user has downloaded the image finding/sharing software (referred to in the e-mail as “FindMe”), the software enables users to find and share photos in his/her photo collection using a face model shared by the user

who sent the invitation. FIG. 13 of Krupka, reproduced below, illustrates an example of a GUI 1300 that displays images that are found in a user's photo collection using a face model shared by another user. Krupka, [0089].

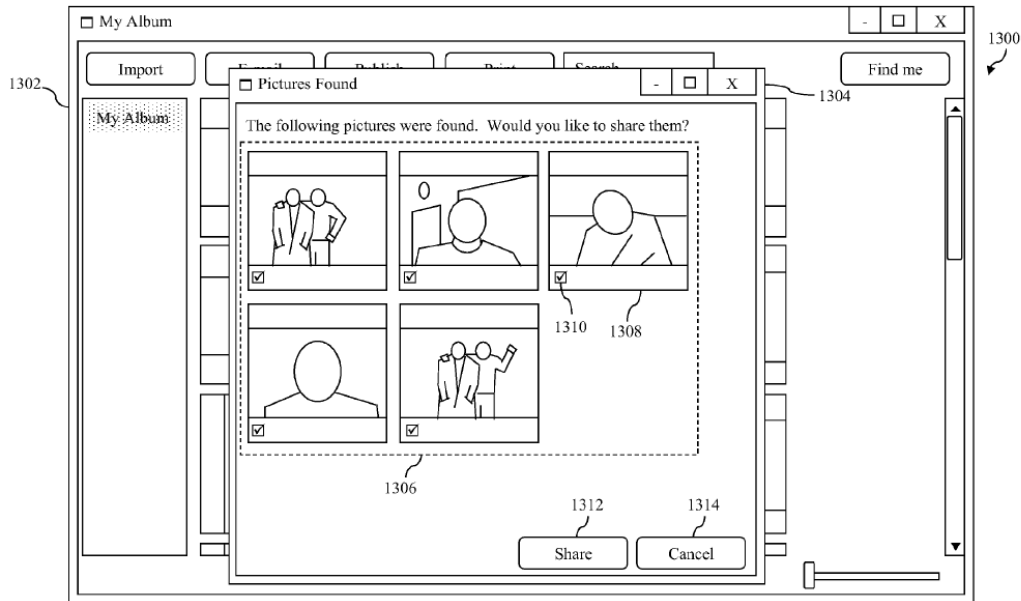


FIG. 13

115. In this example, the “Pictures Found” window displays images of a first user on a second user’s device that were found using a face model built and shared by the first user. Krupka, [0088]-[0090]. This interface provides check boxes that allow a user to choose which of the displayed images the second user would like to share when “Share” button 1312 is activated. Krupka, [0088]-[0091].

2. Claim 1

116. Claim 1 recites a “device” comprising conventional computer components (limitations [1A]-[1D]) executing instructions that cause the device to:

1) display a first set of images recognized as depicting a first face that was selected by a user from image data presented to the user (limitations [1E]-[1G]); and

2) display a second set of images recognized as depicting at least one face using associated facial recognition information received from a third party (limitations [1H]-[1I]), and select and share one or more of the second set of images (limitations [1J]-[1K]).

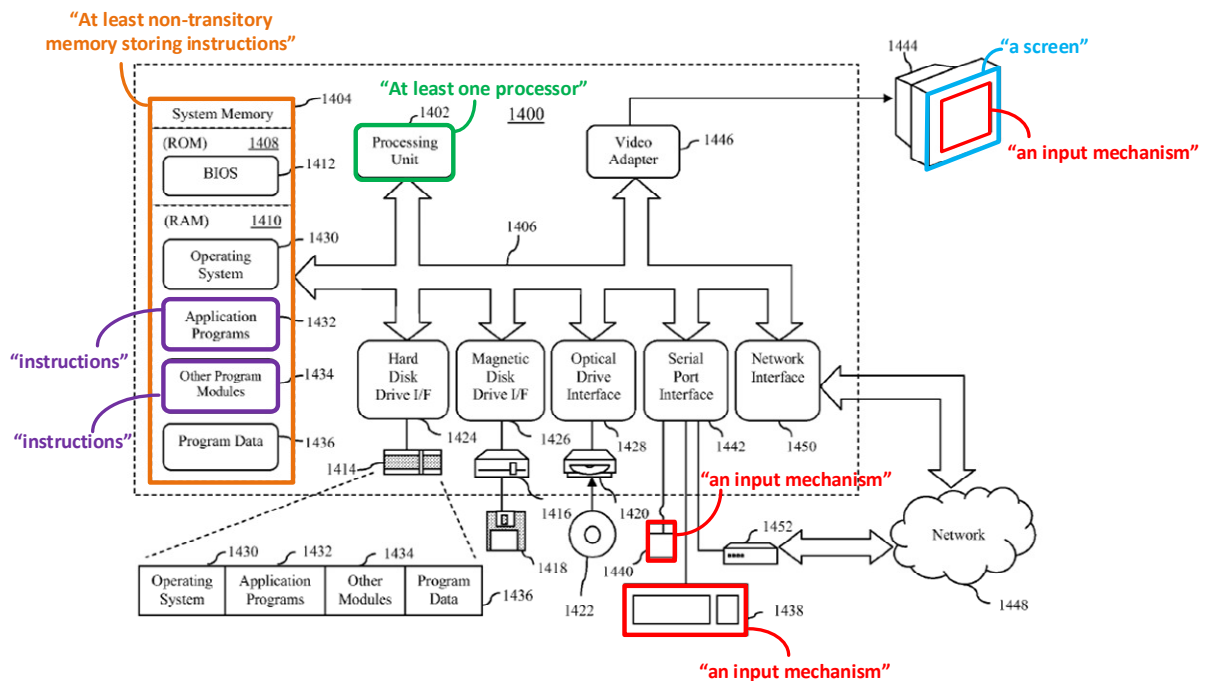
117. Krupka discloses each of these limitations, as discussed limitation-by-limitation below.

a. Krupka Discloses the Computer Components of Limitations [1PRE]-[1D]

118. The preamble [1PRE] and elements [1A]-[1D] recite a “*device*” with a “*screen*,” an “*input mechanism*,” a “non-transitory *memory* [for] storing instructions,” and “one or more *processors* in communication with” the screen, input mechanism, and memory for “execut[ing]” the instructions.

119. Krupka discloses system in which user computers and/or network servers are connected via a network and configurable to execute image finding/sharing software to perform the various techniques described therein. Krupka, [0071]-[0072]. Krupka explains that “any processor-based computer system or platform” connected via a network can be used to execute Krupka’s image finding/sharing software “for the benefit of a user” (Krupka, [0028]).

120. FIG. 14 of Krupka illustrates “a processor-based computer system” used to “implement any of the user computers” described in Krupka (Krupka devices), examples of which include “a desktop computer,” “a laptop computer,” “a tablet computer,” “a smart phone,” etc., ([0028], [0092]). This “computing *device*” ([0092]), which implement the Krupka devices, thus meets the preamble and comprises each of the conventional computer components recited in limitations [1A]-[1D], as illustrated by annotation and discussed below. Krupka, [0092]-[0101].



(1) [1A] “*a screen*”

121. Krupka’s devices includes a “monitor 1444 or other type of display device,” ([0097], FIG. 14 (boxed in blue)), A POSA would have understood that this display device (boxed in blue) of the Krupka devices meets the claimed “*screen*,” one example of which is a “touch screen” (Krupka, [0040]). The obvious way to implement the disclosed “display device” is to include a screen (e.g., conventional screens for desktop or laptop computers, a “touch screen” for tablet computers and smartphones, etc.).

(2) [1B] “*an input mechanism*”

122. Krupka discloses that a user “enters commands and information” [0092] and “interacts” ([0040]) with the user device’s display “using *an input device*” “such as a keyboard, mouse, touch screen, or the like,” (*id.*) each of which meets the claimed “*input mechanism*.” Thus, Krupka discloses multiple input mechanisms that meet this limitation. Krupka, [0096].

123. A POSA would have understood that each of the Krupka devices would have included one or more of the disclosed input device so that the user can “interact” with the device. *Id.* The disclosed “touch screen” (e.g., on a tablet computer or smartphone) meets both the claimed “*screen*,” and the claimed “*input mechanism*.” *Id.* See e.g., claim 22 of the ’726 patent (“*the input mechanism and the screen are components of a touchscreen*”). For example, the obvious way to

implement Krupka's smart phone or tablet computer would have been to use the disclosed touch screen, and the obvious way to implement Krupka desktop or laptop computer is with a keyboard and mouse to interact with the display device.

(3) **[1C]** *“at least one non-transitory memory storing instructions”*

124. Krupka discloses “computer-readable media,” including “system memory 404” that stores “*computer-readable instructions.*” Krupka, [0093]-[0095], [0100]-[0101]. The stored instructions include “application programs 1432” and/or “program modules 1434” that “when executed,...enable computer 400 to implement features of embodiments discussed herein” (i.e., instructions). Krupka, [0093]-[0095], [0100]-[0101].

125. These “computer programs, when executed, ... enable computer 400 to implement features of embodiments discussed herein” and “represent controller of the computer 1400.” Krupka, [0100]. Accordingly, the disclosed computer readable media storing computer program instructions (e.g., Krupka's “system memory 404”) meets the claimed “*at least one non-transitory memory storing instructions.*” Krupka, [0100].

(4) **[1D]** *“one or more processors in communication with the screen, the input mechanism, and the at least one non-transitory memory, wherein the one or more*

processors execute the instructions to cause the device to:

126. Krupka discloses that “computer 1400 includes *a processing unit 1402*...that may include one or more processors or processing cores” and “a bus 1406 that *couples various system component including system memory 1404 and processing unit 1402.*” Krupka, [0093]. The processing unit 1402 is also coupled to the input devices, including the display device, via bus 1406 and corresponding interfaces. Krupka, FIG. 14, [0096]-[0097].

127. Thus, Krupka discloses the claimed “*one or more processors in communication with the screen, the input mechanism, and the at least one non-transitory memory.*”

128. Krupka further discloses that the “computer programs and modules” (i.e., the “computer-readable instructions”) may include “*any of the software modules described herein*,...as well as logic for performing *any of the various method steps described herein....*” (Krupka, [0093], [0095], [0099]-[0100]), including Krupka’s “image finding/sharing module” (Krupka, [0095], FIG. 2).

129. These computer programs (*i.e.*, sets of computer instructions), which include the Krupka’s “image finding/sharing module” (Krupka, FIG. 2, [0095]), “*cause the device to*” perform each of the limitations recited in [1E]-[1K] when executed by the disclosed processing unit. Thus, the processing unit of a user device and/or server device executing Krupka’s image finding/sharing module

meets limitation [1D] because this software configures the device to perform limitations [1E]-[1K] when interacted with via the disclosed input mechanism (e.g., Krupka’s “mouse,” “keyboard,” or “touch screen”). Specifically, [1D] is met because limitations [1E]-[1K] are each met by features provided by Krupka’s image finding/sharing software installed on or accessed by a user’s device and interacted with via the disclosed input mechanism (e.g., Krupka’s “mouse,” “keyboard,” or “touch screen”), as detailed limitation-by-limitation below.

b. Krupka Discloses the Displaying Photos of a Selected Face Recited in Limitations [1E]-[1G]

130. As discussed in § VI.A.1.a, Krupka’s face model building GUI displays portions of images from a user’s photo collection that depict human faces so that the user can tag faces to create corresponding face models, and then use those face models to find and display photos depicting those faces. Krupka, [0001]-[0002], [0040]-[0041], [0050].

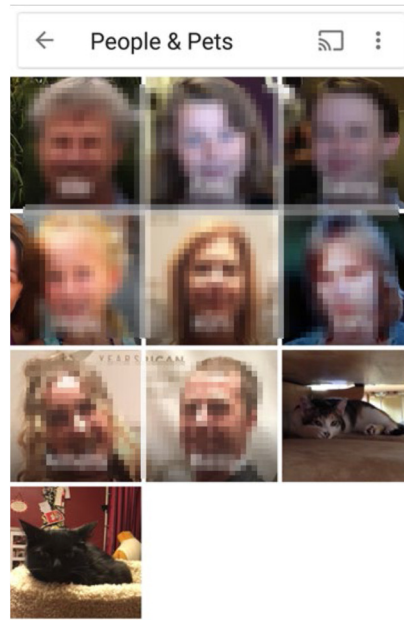
131. Krupka explains its image finding/sharing module can be invoked on any device with the software installed (or that can access a server-based installation). Krupka, [0071]-[0072]. Thus, Krupka’s image finding/sharing module installed on the second user’s device “configures” the device to perform the same face model building, image finding/sharing, and face model sharing techniques that it discloses configuring the first user’s device to perform. *Id.*, [0054] (image finding/sharing module installed on a second user computer “is

configured to perform essentially the same functions” and “includes the same components” as the software on the first user’s computer); [0068] (“second user computer 104 can also build a face model of the second user”); [0072]. Any device on which the image finding/sharing software is installed is configured so that it meets limitations [1E]-[1G].

- (1) **[1E]** *“display, utilizing the screen of the device, a plurality of indicia each including at least a portion of an image including a face”*

132. The ’726 patent uses the term “indicia” twice in the specification. Ex. 1001, 35:61-67, 36:62-64 (“[T]he first user may select the target faces (e.g. by clicking, touching, and/or otherwise selecting the pictorial indicia or related indicia, etc.).”). However, the ’726 patent also incorporates by reference the ’946 Application (Ex. 1008), *see* Ex. 1001, 1:36-41, which states that *“indicia may include any visible interface element associated with a face or object,”* including “faces” and/or “textual identifiers...associated with...faces.” Ex. 1008, [0035].

133. A POSA would thus have understood the term “indicia” to at least include any visible interface element associated with a face. This is consistent with Boccone’s infringement contention (screen shot below), which identifies thumbnails that include a face as indicia. Ex. 1009, 3.



134. Krupka discloses building face models from images that the user selects/tags as representing a particular face and using the resulting face model to find photos of that face from the user’s photo collection. Krupka, [0002], [0040]-[0041], [0050]. Krupka’s face model building GUI assists the user in the face model building process by displaying portions of those images from the user’s photo collection the software detects as including human faces. Krupka, [0041].

135. Specifically, Krupka’s face model building module “presents a graphical user interface (GUI)” to the display of the user’s device that displays “portions of digital images” that the software determined “appear to represent human faces.” Krupka, [0040]-[0041]. The user can then “select those portions that

represent his/her face,” for example (Krupka, [0041]) or that represent someone else (e.g., “family members”, Krupka, [0002]).

136. These *human faces* appearing in portions of *digital images* each provide a visible interface element associated with a face and are “*a plurality of indicia*” displayed on “*the screen of the device*,” because these faces are displayed on the user’s device (e.g., “touch screen”), and the user can select the portions representing a particular face (e.g., “those portions that represent his/her face”). Krupka, [0002], [0040]-[0041]. Krupka’s face model building GUI displaying human faces therefore meets limitation [1E].

(2) [1F] “*receive, utilizing the input mechanism of the device, a user input in connection with at least one of the indicia including at least a portion of a first image including a first face*”

137. Krupka discloses interacting with the GUI displayed on the user’s device using an “input device” such as a “keyboard, mouse, touch screen, or the like” to select, from the human faces appearing in the digital images presented to the user, portions of the digital images representing his/her face. Krupka, [0040]-[0041].

138. This disclosure meets limitation [1F] because when the user “utilizes *an input device* to select those portions [of digital images portraying human faces] that *represent his/her face*” (Krupka, [0041]) to build a face model, this “*user input*” is received by the user’s device via the claimed “*input mechanism*” (e.g.,

Krupka's "touch screen," Krupka, [0040]). This user input is received "*in connection with at least one of the indicia including at least a portion of a first image including a first face*" because the user is selecting portions of digital images of human faces ("*at least one of the indicia*") that represent the user ("*a first face*").

- (3) **[1G]** "*after receiving the user input in connection with the at least one indicia, display, utilizing the screen of the device, a first set of images each including the first face that has been recognized in at least one of a plurality of images accessible via the device*"

139. Krupka discloses that once the user's face model is built, it can be used to find photos of the user that are "stored on or accessible" by the user's device. Krupka, [0050]. Thus, these photos of the user found using the user's face model recognized in the photo collection accessible by the user's device meets "*a first set of images each including the first face that has been recognized in at least one of a plurality of images accessible via the device*" in limitation **[1G]**. See also Krupka, [0002] (explaining conventional use of face models is to find photos of a user or of others).

140. A POSA would also have understood from Krupka's disclosure that the photos of the user found with this face model (Krupka, [0050]) would then be displayed on the user's device and therefore Krupka meets limitation **[1G]**. Krupka, [0002] (conventional use of a face model is to help a user find photos of

himself/herself the “user is often interested in *seeing*”). A POSA would have inferred from Krupka’s disclosure that photos the system found using the created face model are then displayed to the user given that Krupka discloses a system designed to find, display and share photos. Krupka, [0004]-[0007], [0050], [0064], [0088]-[0091]. Finding photos using a face model and then not displaying them to the user is simply counterintuitive and a POSA would not have understood Krupka to be suggesting such a process.

141. To the extent that Krupka does not explicitly state that the photos found with a face model created by the user are then displayed, it would have been the obvious way to implement Krupka so that the user can see the search results and further interact with them, for example, by selecting photos to share with others (Krupka, [0088]-[0091], FIG. 13) or confirming correctly identified photos and/or identifying photos erroneously identified to improve the face model (Krupka, [0080], [0081], FIG. 10). Thus, this obvious implementation of Krupka meets limitation [1G].

142. For example, Krupka discloses that pictures found using a face model are displayed in a “Pictures Found” window along with the option to share the found images, as shown in FIG. 13 reproduced below. Krupka, [0088].

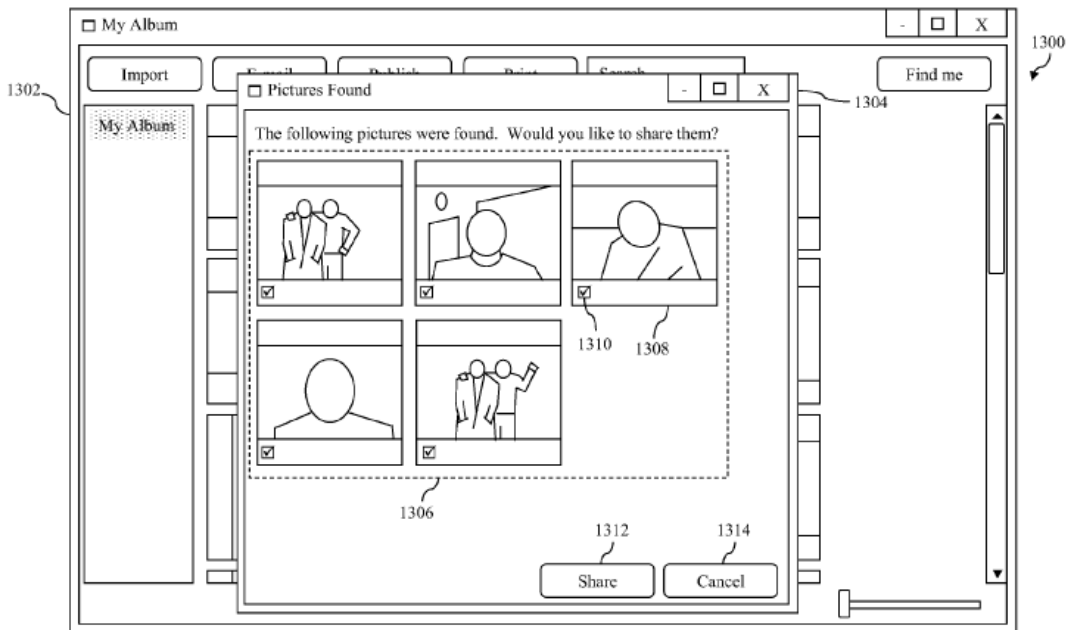


FIG. 13

143. In the specific example described in [0088]-[0091] of Krupka, the “Pictures Found” window is invoked to display images found using a shared face model (*see* §**Error! Reference source not found.** *infra*). To the extent that Krupka does not explicitly describe an example in which the found photos displayed in the “Pictures Found” window are those found using a face model created by the user (Krupka, [0050]), a straightforward and obvious way to implement Krupka to allow the user to see the results of finding photos using a face model built by the user in Krupka’s system is to use Krupka’s same “Pictures Found” GUI, which also conveniently provides options to then share the found photos. *Id.*

144. Thus, Krupka discloses or renders obvious each of limitations [1E]-[1G] recited in claim 1. For example, the second user utilizing Krupka's image finding/sharing module installed on the second user's device to select from the displayed human faces those portions that represent the second user to build a face model and to find and display photos of the second user on the user's device meets limitations [1E]-[1G]. Krupka, [0040]-[0041], [0050], [0054], [0068], [0070], [0080]-[0081], [0088].

c. Krupka Discloses the Utilization of Third Party Face Recognition Information to Display and Share Photos Recited in Limitations [1H]-[1K]

145. As discussed in § VI.A.1.b, Krupka discloses using a face model received from another user to find corresponding photos in the user's photo collection and selectively sharing those photos. Krupka, [0051]-[0072], [0083]-[0091]. This disclosure meets limitations [1H]-[1K], as discussed limitation-by-limitation below.

(1) *Krupka's Using a Face Model Built and Shared by Invitation From a User on a Different Device Meets Limitation [1H]*

146. Limitation [1H] has three parts that can be summarized as follows:

- (i) display at least one option to share images;

(ii) utilize face recognition information based on input from a third party into a different device, but only if;

(iii) a relation exists between the user and the third party.

147. All three parts are met by Krupka's disclosure of using shared face models to find and share photos. For example, each requirement is met by Krupka's disclosure of one user employing a shared face model created by another user on a different device who invited the user to exchange photos and share face models. § VI.A.1.b.

(a) **[1H.i]** - *“display, utilizing the screen of the device, at least one option for sharing images,”*

148. Krupka discloses using face models built by others on their devices to find and share corresponding photos in one's own photo collection. Krupka, [0051]-[0065], [0083]-[0091]. FIG. 13, reproduced below, illustrates a “Pictures Found” window that displays pictures of a first user on a second user's device that were found using a face model built by and received from the first user. Krupka, [0088]-[0090]. The “Picture Found” window meets **[1H.i]**.

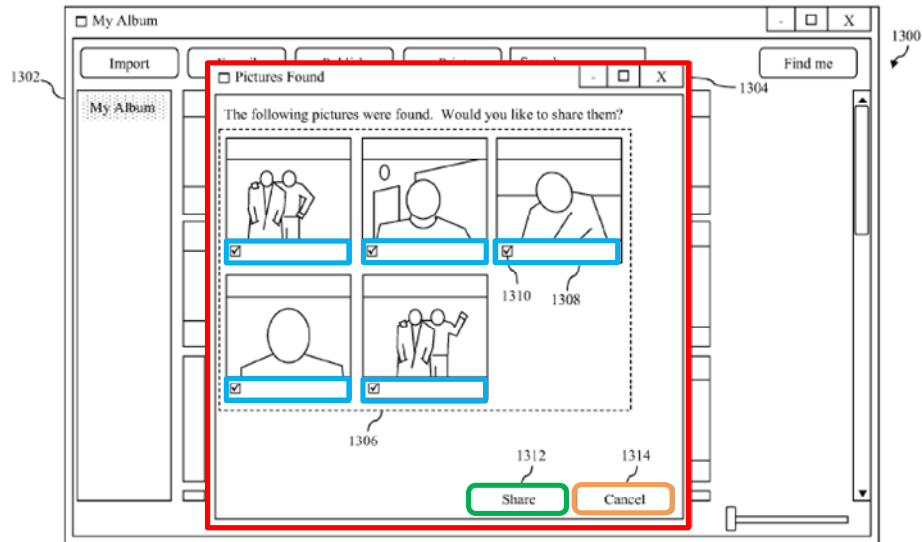


FIG. 13
(Annotated)

149. Specifically, the “Pictures Found” window (outlined in red above) meets the claimed “*display, utilizing the screen of the device, at least one option for sharing images*” because it displays found images on the screen of the user’s device (the second user’s computer in this example) and asks whether the user would like to share them. Krupka, FIG. 13 (“The following pictures were found. Would you like to share them?”).

150. The “Pictures Found” window also displays more options for sharing images, including check boxes (outline in blue above) that allow the user to select images to share, share button 1312 (outlined in green above) for sharing checked images, and cancel button 1324 (outlined in orange) that displays an option not to share any images, each share option of which also meets limitation [1H.i]. Krupka, [0090]-[0091].

- (b) **[1H.ii]** - *“where the sharing is performed utilizing face recognition information that is based on third party input of a third party that is provided by the third party into at least one other device in association with at least one face”*

151. In the specific example illustrated in FIG. 13, the “face model of the first user” (Krupka, [0089]) used to find the photos displayed in the “Pictures Found” window was built using the first user computer 102 based on input from the first user interacting with the GUI presented by Krupka’s face building module. Krupka, FIG. 4, 9-11, [0039]-[0048], [0076]-[0082]).

152. The flow chart illustrated in FIG. 3, reproduced below, shows this process by which a first user builds a face model using his/her device and shares the face model with a second user device where the face model is utilized to find photos of the first user using the second user’s device. Krupka describes two techniques for building this face model: (1) by “selecting or tagging” faces of interest from displayed human faces to build a face model (Krupka, [0040]-[0041]); or (2) by capturing video of the user to build the face model (Krupka, [0042]-[0049], [0076]-[0082]).

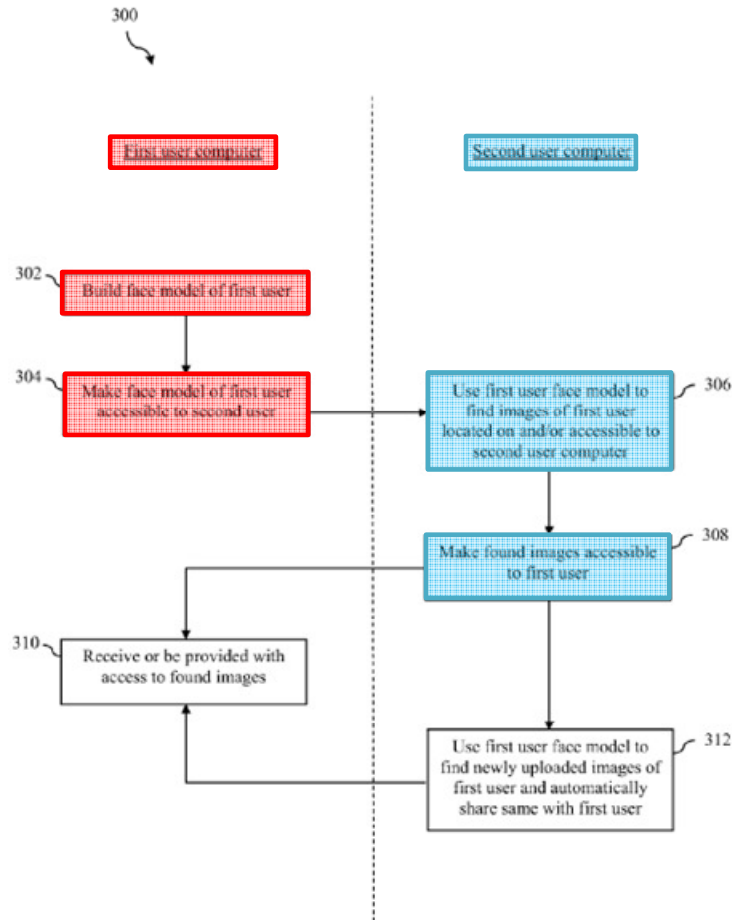


FIG. 3
(Annotated)

153. In Krupka, a face model comprising “a set of features that are representative of a face of a particular person,” (Krupka, [0039]) is built from input from the first user into a first user computer (step 302). Krupka, [0039]-[0049]. As discussed above, either the tagging approach (Krupka, [0040]-[0041]) or the video capture approach (Krupka, [0042]-[0049], [0076]-[0082]) may be used to build a face model. These face models therefore meet the claimed “*face recognition information*,” which are described in the ‘726 patent as “any feature of a face.” Ex.

1001, 6:66-7:8, 12:59-13:7. Once built, the face model is made accessible to the second user (step 304). Krupka, [0051]-[0053]. These steps, emphasized in red, are performed on the first user's computer.

154. The face model built and shared by the first user is then utilized by the second user's computer to find photos of the first user that can be shared with the first user (steps 306, 308), an example implementation of which is shown by the "Pictures Found" window of FIG. 13. Krupka, [0054], [0088]-[0089]. These steps, emphasized in blue, are performed on the second user's device.

155. Thus, Krupka discloses limitation [1H.ii] because the second user's device utilizes the face model ("*face recognition information*") of the first user ("*third party*") that is based on input from the first user ("*third party input*") provided to the first user computer ("*into at least one other device*") in connection with the first user's face ("*in association with at least one face.*").

156. Additionally, "*sharing is performed utilizing face recognition information*" is met because Krupka discloses that "[w]hen share button 1312 is activated by a user of second user computer 104, the checked images appearing in set 1306 will be shared with the first user." Krupka, [0091]. That is, the images of the first user that are shared upon activation of the share button are images that were found by utilizing the face model of the first user. *See also* §§ VI.A.2.c(2)-VI.A.2.c(4) where the remaining elements of claim 1, including those related to

sharing, result from utilizing the face recognition information and are therefore performed by that utilization.

- (c) **[1H.iii]** - *“the face recognition information being utilized in connection with the at least one option for sharing images based on a relation between a user of the device and the third party associated with the third party input, such that the face recognition information is only utilized in connection with the at least one option for sharing images if the relation exists between the user of the device and the third party associated with the third party input.”*

157. The term “relation” in limitation **[1H.iii]** appears only in the claims and in the patent’s “Summary” section that merely repeats the claim language. Dependent claims clarify, however, that “relations” between users “include relationships” (claim 22) and can be established based on (1) “an invitation and an acceptance of the invitation” (claim 13), (2) “a request and a response to the request” (claim 22), (3) presence in “a contact database” (claim 14), or (4) “one or more previous communications” between users (claim 24). Ex. 1001, 73:47-49, 73:50-53, 75:59-61, 76:66-67. Krupka discloses each type of “relation.”

158. First, Krupka discloses a second user sharing photos found using a first user’s face model (e.g., via the “Pictures Found” window) only after a relation has been established between a first and second user. In Krupka, a first user’s face model is shared with a second user only after (a) the first user has sent an email inviting the second user to exchange photos using Krupka’s image finding/sharing

software (FIGS. 11-12), and (b) the second user has accepted the invitation and installed Krupka's software. Krupka, [0084]-[0085], FIGS. 11-12. This invitation-acceptance process (which includes responding to a request to install the software) establishes both relations (1) and (2) between these users. *See also* § VI.A.2.c(1)(c)(i) below.

159. Because the shared face model is utilized to find the photos displayed by the "Picture Found" window (*see* § VI.A.2.c(1)(a); *see also* §§ VI.A.2.c(2)-VI.A.2.c(4) below), the shared face model is utilized "*in connection with the at least one option to share,*" and because this utilization occurs only after the image finding/sharing software is downloaded by the second user after receiving an invitation to do so, it occurs "*only*" "*if*" the "*relation exists between the user of the device and the third party associated with the third party input.*"

160. Second, prior to the invitation-acceptance process beginning, the first user and second user in Krupka already have a "*relation*" as the second user is a pre-existing "contact" of the first user. Krupka, [0083], FIG. 11. A POSA would have understood this pre-existing contact to establish above relations (3) and (4) between the users because the second user is present in the first user's contact database and these "connected" (Krupka, [0083]) users would have had one or more previous communications at least to establish that connection. Ex. 1001,

73:50-53, 76:66-67. *See also* § VI.A.2.c(1)(c)(ii) below. Krupka discloses limitation [1H.iii] for this independent reason as well.

161. Finally, Krupka also discloses limitation [1H.iii] by establishing what the ‘726 patent refers to as “indirect relationships.” Krupka discloses that users can invite other users to share photos found using shared face models. Krupka, FIG. 6, [0064]-[0070]. Each invite establishes “*a relation*” with the invitee for the reasons discussed above. Each user that installs the image finding/sharing software in response to an invitation also has “*a relation*” with each of the other users similarly invited for the additional reason that a POSA would have understood “*a relation*” to also include such “indirect relationships” disclosed in the ‘726 patent in which a user has a relation with another user via one or more intermediate users having a sharing relationship. Ex. 1001, 34:27-35, 34:35-59 (“indirect sharing relationship of the first user may involve a sharing relationship with the second user who has a sharing relationship with a third user who has accepted a general sharing relationship with any person (e.g. first user, etc.) who has a sharing relationship with the second user.”). Krupka discloses limitation [1H.iii] for this additional reason.

162. Specifically, because a shared face model is utilized only after a user has been invited to exchange photos and has downloaded the image finding/sharing software, thus establishing the claimed relation, the shared face model is utilized

only if this relation exists. Krupka also discloses relationships that are established between users *before* an invitation to share is sent, as is the case when users appear in a contacts list (see e.g., claim 14), and limitation [1H.iii] is met for this additional reason, as discussed in further detail below.

(i) ***Krupka's Invitation to Exchange Photos Establishes a "Relation" Prior to Utilizing Another User's Face Model***

163. To provide access to the face model built by the first user, Krupka discloses that the user sends an email to one or more contacts from the user's contact list (Krupka, FIG. 11) inviting the selected contacts to exchange photos by downloading the image finding/sharing software (see software shown in FIG. 2). Krupka, ¶ [0085] (stating that the e-mail includes "text that *explains to the intended recipient that the user would like to share images with the recipient* using an image finding/sharing module (referred to in the e-mail as "FindMe") that will find images *of the user in the contact's album.*").

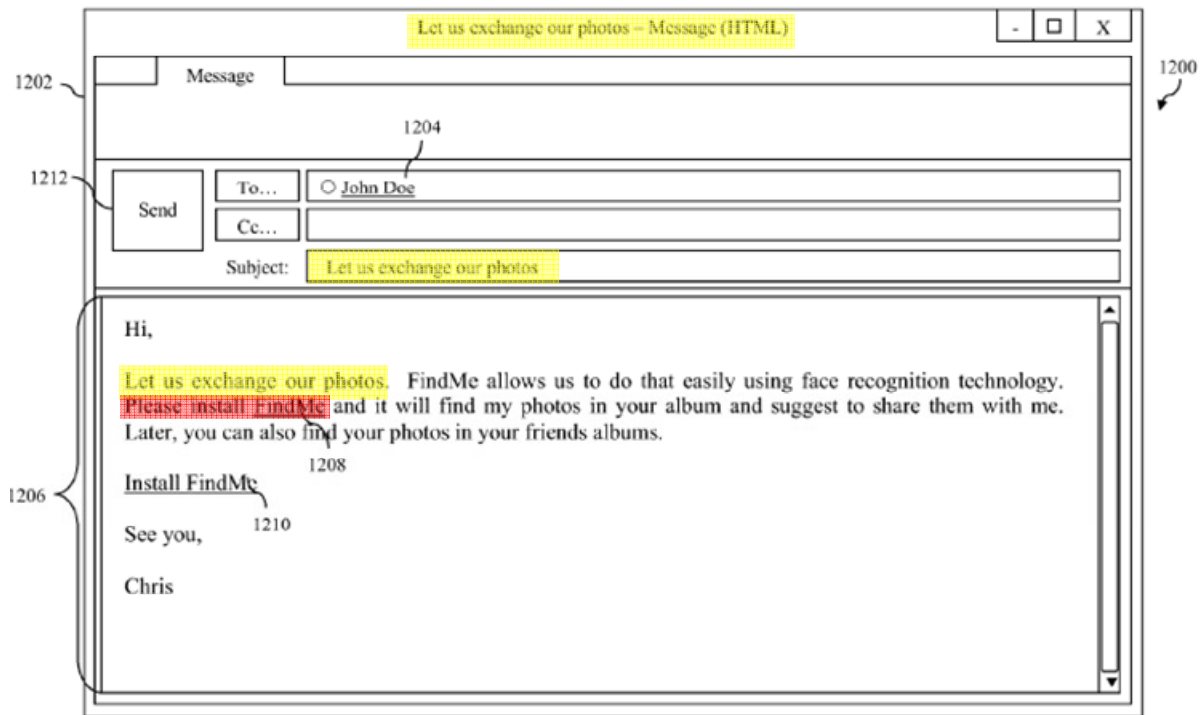


FIG. 12
(Annotated)

164. A POSA would have understood the words “Let us exchange our photos” (highlighted in yellow in FIG. 12 above) in the title, subject line and body of the email to be an invitation to exchange photos, and would have understood the words “Please install FindMe” (highlighted in red above) to be a request to download the software to accomplish photo exchange “using face recognition technology.” Krupka in fact uses the word “invite” to describe this exchange by which one user invites another user to share images and face models by downloading the image finding/sharing software in connection with the share network in FIG. 6. Krupka, [0069].

165. Only after downloading the imaging finding/sharing software (“FindMe”) as requested in the email can the face model built by the first user on his/her device be utilized to find photos of the first user. Downloading this software establishes a relation between the first and second user because thereby accepts the invitation to exchange photos (“Let’s exchange our photos”) and responds to the request to download the software (“Please install FindMe”), both actions of which are recited in dependent claims as ways in which a relation is established (*see e.g.*, claim 13 and 22). Ex. 1001, 73:47-49; 75:59-60.

(ii) ***Krupka Discloses an Existing “Relation” Established by Being Listed in a Contact Database and/or Having Previous Communications Between Connected Users***

166. Krupka also discloses relations that are established prior to establishing a share relationship between users via email invite. Specifically, prior to sending an invitation to exchange photos, Krupka discloses displaying a “Choose Contacts” window that shows a user his/her contacts and allows the user to select which contacts the user wants to send an invitation to exchange photos, as shown in FIG. 11, reproduced below.

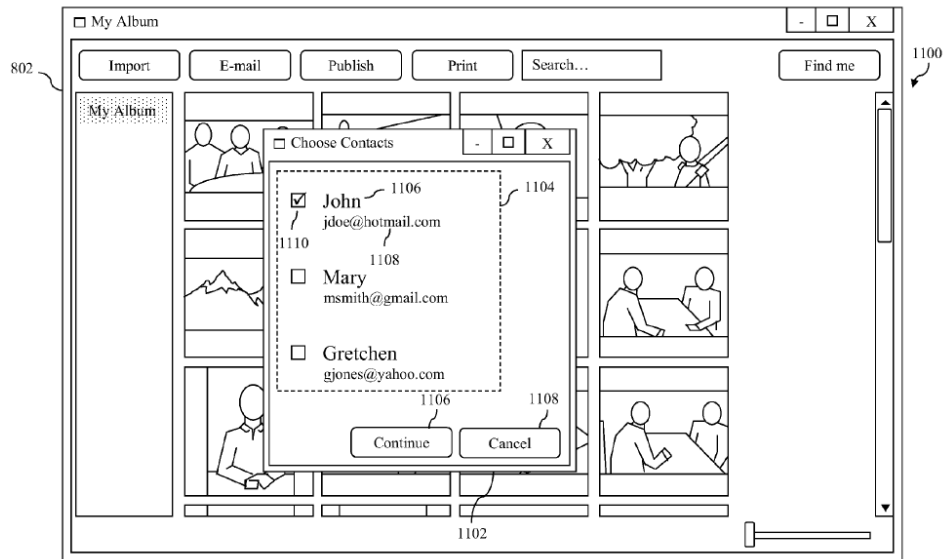


FIG. 11

167. Krupka discloses that the contacts may include “contacts identified in an address book, contacts with whom the user is connected via one or more social networking application or services, contacts from one or more instant messaging applications or services, or the like.” Krupka, [0083]. A POSA would have understood that such contacts would have previously communicated, at least to establish the connection. Accordingly, the first user has a “*relation*” with his/her contacts both because the contacts appear in a contact database of the user (*see e.g.*, claim 14 of the ‘726 patent) and because the user has previously communicated with his/her contacts (*see e.g.*, claim 24). This relation exists even before a share relationship is established and therefore Krupka meets limitation [1H.iii] for this additional reason. Krupka, FIG. 11, ¶ [0083].

**(iii) *Krupka Discloses Establishing Relations
Via “Indirect Relationships”***

168. Krupka also discloses limitation [1H.iii] by establishing relations by what the ‘726 patent refers to as “indirect relationships.” Specifically, Krupka discloses a share network in which users can invite other users to share photos found using shared face models. Krupka, FIG. 6, [0065]-[0070]. Each individual invitation of establishes a relation between the user and the invitee for one or both of the reasons discussed in sub-sections (i) and (iii) above.

169. Additionally, each user that joins the share network via invite also has a relation with each of the other users in the share network. This is because the ‘726 patent describes sharing relationships as including such “indirect sharing relationships.” Ex. 1001, 34:35-59 (“such indirect sharing relationship of the first user may involve a sharing relationship with the second user who has a sharing relationship with a third user who has accepted a general sharing relationship with any person (e.g. first user, etc.) who has a sharing relationship with the second user.”).

170. Thus, a POSA would have understood a relation to also include indirect relationships established between users via one or more intermediate users having a sharing relationship, and Krupka discloses limitation [1H.iii] for this additional reason. Ex. 1001, 34:27-59.

- (2) **[11]** *“in connection with the at least one option for sharing images, display, utilizing the screen of the device, a second set of images each including the at least one face that has been recognized in at least one of the plurality of images accessible via the device utilizing the face recognition information”*

171. Krupka discloses limitation **[11]** because the “Pictures Found” window displays “a set of images 1306 of a first user that were found by a face model classifier module executing on second user computer 104 based on a face model of the first user” (Krupka, [0089]).

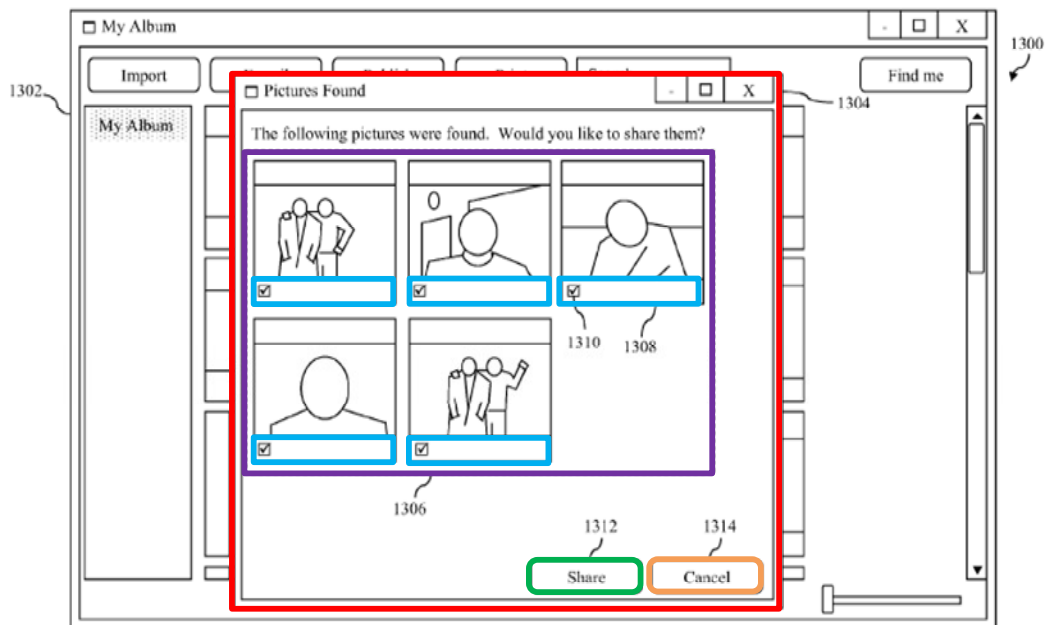


FIG. 13
(Annotated)

172. That is, the set of images 1306 of the first user, which is “a second set of images each including the at least one face,” is found in a collection of digital images owned or managed by the second user using the first user’s face model, *i.e.*, is “recognized in at least one of the plurality of images accessible via the device

utilizing the face recognition” and is displayed in the share options “Pictures Found” window along with the other options for sharing, such as the checkboxes, share button and cancel button, i.e., “*in connection with the at one option for sharing images.*” Krupka, [0088]-[0091].

173. As discussed in § V.B.1.a above, claim 1 does not require any correspondence between the “*first set of images*” and the “*second set of images*” or the faces depicted (i.e., the “*first face*” and the “*at least one face,*” respectively) other than that both sets of images are recognized among the same “*plurality of images accessible via the device,*” e.g., the second user’s device configured by Krupka’s software. This is consistent with Boccone’s infringement contentions where different images of different faces are alleged to read on claim 1, and supported by dependent claim 22. Ex. 1009, 3-7; Ex. 1001, 74:65, 75:41-42; §§ V.B.1.b-V.B.1.d.

(3) **[1J]** “*receive, utilizing the input mechanism of the device, a user input in connection with at least one of the second set of images*”

174. Krupka’s “Pictures Found” window displays a check box for each found image that “a user of second user computer 104 may check...to indicate that a corresponding image is to be shared...or un-check...to indicate that a corresponding image is not to be shared.” Krupka, [0090]. The user checking or un-checking a check box via the device’s “input device” (e.g., via the “touch

screen” of the user’s device) (Krupka, [0040]) to select which found images to share meets limitation [1J].

- (4) **[1K]** *“after receiving the user input in connection with at least one of the second set of images, cause one or more of the second set of images to be shared.”*

175. Krupka discloses that “[w]hen share button 1312 is activated by a user of second user computer 104, the checked images appearing in set 1306 will be shared with the first user.” Krupka, [0091]. Thus, limitation [1K] is met because Krupka discloses that after the second user has checked the boxes of images to be shared (limitation [1J]), the checked images are shared upon activating share button 1312.

3. Claim 2

176. As explained previously (§ V.B), the device of claim 1 is configured to perform two tasks: (1) find and display a first set of images of a face selected by the user (limitations [1E]-[1G]), and (2) display and share of a second set of images of a face found using face recognition information received from a third-party (limitations [1H]-[1K]). Dependent claim 2 relates to this first task by reciting a device configured to share via e-mail a third set of images found of one or more faces selected by the user.

177. Claim 2 merely recites limitations commonly found in conventional digital photo sharing systems that share photos that are found using face

recognition. Krupka, [0001] (“digital photos can be shared with others via e-mail, via online photograph sharing services, via social networking Web sites..., or by other means”). Claim 2 depends from claim 1 and is directed to sharing a set of images recognized as including “one or more faces” that a user selected from the plurality of indicia recited in claim 1. Claim 2 recites similar limitations recited in claim 1 whereby a user selects a face of interest to find images depicting that face (*compare* [1E]-[1G] reciting displaying images of a first face selected by the user *with* [2D]-[2F] reciting sharing images of one or more faces selected by the user).

178. Claim 2 therefore also performs this same process of claim 1, but recites **sharing** images of the “*one or more faces*” that were selected by the user by using contact information of another (“*an email address or a name of at least one other person,*” limitations [2C]) in connection with “*at least one additional option for sharing images.*”

179. Krupka’s image finding/sharing software includes an “image sharing module” that “operates to share images located by using face model classifier module 204” (Krupka, [0037], FIG. 2) using face models created by the user (Krupka, [0050]) and/or face models received from others (Krupka, [0054]). Krupka, [0037], [0057]-[0061], FIG. 2. To perform this sharing, Krupka’s above-discussed “Pictures Found” window of FIG. 13 is presented by the image sharing

module to display found pictures and allow the user to share some or all of them. Krupka, [0088].

180. In [0088]-[0091] of Krupka, the FIG. 13 GUI is described as being invoked to show images specifically found using a shared face model. Krupka describes that it was conventional for users to share images from their collections of photos (e.g., via e-mail) and to find images of the user or others (family and friends) using a face model built by the user's device. Krupka, [0001]-[0002].

181. A POSA would have had reasons to maintain this known functionality in Krupka's system so that the user thereof can benefit from this known functionality and not be restricted to sharing images found using a shared face model received from another, but can also share images found using a face model the user created.

182. A straightforward and obvious way to allow the user to perform the conventional function of sharing photos found using a face model built by the user in Krupka's system is to use Krupka's same "Pictures Found" GUI, because the way in which Krupka allows photo sharing is not impacted by where the face model used to find the candidate photos was created, and the system would be more intuitive for the user if there was a common GUI used for sharing photos found using any face model regardless of where it originated.

183. Krupka teaches that “sharing of the found images...may be achieved in a variety of ways” (Krupka, [0058]) using the image sharing module. One option is for the image sharing module to upload found images to a remote server and notify recipient(s) so the recipient(s) can access the shared images via their own copy of the software. Krupka, [0057]-[0061]. The image sharing module also can “invoke the e-mail module” to transfer found images “by e-mail,” perform a “direct file transfer” between the sender and recipients’ computers, or store found images to a CD or flash drive. Krupka, [0058]-[0059].

184. Both the sharing option to transfer found images by email and to upload found images to a remote server disclosed by Krupka meet claim 2, as discussed limitation-by-limitation below.

a. [2A] “display, utilizing the screen of the device, at least one additional option for sharing images”

185. As discussed immediately above, Krupka discloses options for sharing images found using a face model using the image finding/sharing software to upload images to a remote server, or to transfer the found images via email, both of which meet limitation [2A]. Krupka, [0058]-[0060].

(1) *Krupka’s E-mail Sharing Provides an “Additional Option for Sharing Images” Displayed on the User’s Device*

186. As discussed above, Krupka teaches that “sharing of [] found images...may be achieved in a variety of ways” (Krupka, [0058]) using the image

sharing module. Krupka does not describe any specific technique for allowing the user to choose among Krupka's different options for sharing images. A conventional and obvious way to do so would have been to identify those options in a GUI to the user and allow the user to choose the user's preferred option. For example, in one obvious implementation when the user activates the "Share" button 1312 of the "Pictures Found" window, the image sharing module presents the user with the options (e.g., an "E-mail" button to share via e-mail, an "Upload" button to share via a remote server, etc.) so the user can select which share option he/she prefers for sharing the images selected in the "Pictures Found" window. Krupka, [0091].

187. This was the routine and conventional way to allow a user to select among different available share options. *See e.g.*, Young's (Ex. 1010) "Share Photos" button 112 in FIG. 1A (below left) that, when activated in connection with photos found using face recognition (Young, 2:46-65; 3:13-32), displays the "SHARE PHOTOS" interface of FIG. 3 (below right) that allows the user to select which contacts to send photos to and how to send them (e.g., via email, text message, or both). Young, 3:43-60; 5:37-44; 6:13-21.

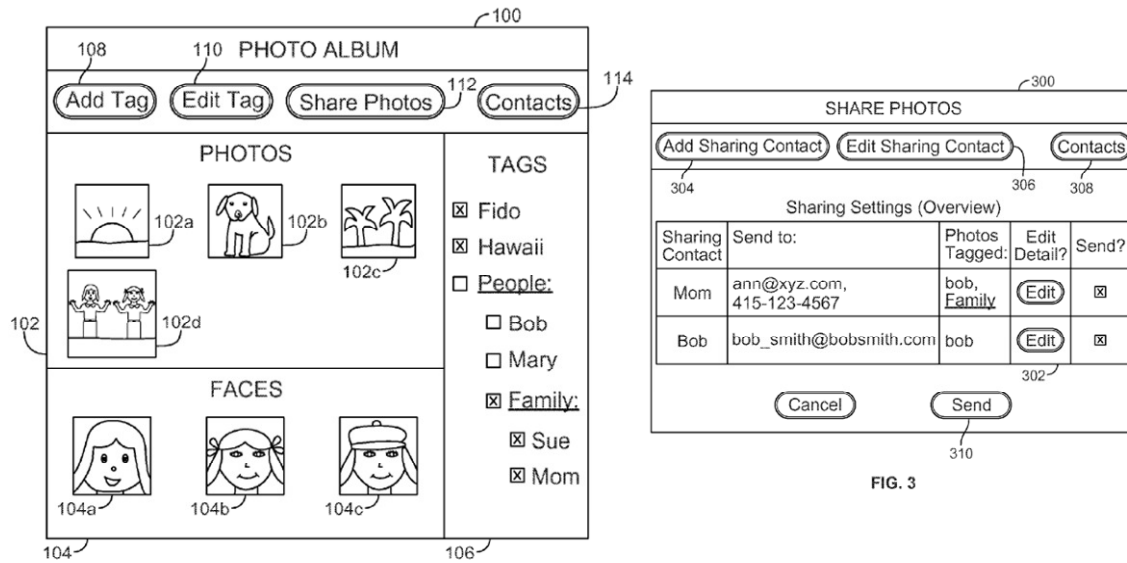


FIG. 1A

FIG. 3

188. Implementing Krupka’s disclosed different options for sharing images by displaying the options to the user meets “*at least one additional option for sharing images*” because in addition to the “*at least one option to share images*” provided by Krupka’s “Share” button, this **additional** option to select the method of sharing those found images is displayed on the user’s device.

189. This additional option to meets limitation [2A] for both Krupka’s option to transfer found images by email (Krupka, [0058]-[0060]) and Krupka’s option to upload found images to a remote server (*id.*) because this additional option to share displays the available options the user has to share the found images selected by the user via the “Pictures Found” window. Furthermore, each available share method displayed via this option from which the user can choose

(e.g., an “E-mail” or “Upload” option) is also an “*additional option to share images*” that meets limitation [2A].

**(2) *Krupka’s “Choose Contacts” Window Also Provides
“At Least One Additional Option for Sharing Images”
Displayed on the User’s Device***

190. As discussed above, the additional option of allowing the user to select the method of sharing the found images meets limitation [2A]. Additionally, Krupka’s email invitation process allowing photos to be exchanged via the remote server provides an additional reason that Krupka meets limitation [2A] for the remote server upload sharing option.

191. Specifically, Krupka’s option to share by uploading images to a remote server (or authorizing access to images already uploaded) so that another user can access the images via their own copy of the software (Krupka, [0058], [0060]) is accomplished via Krupka’s “Choose Contacts” window (highlighted in red below), that allows a user to select desired recipients with whom the user would like to exchange photos.

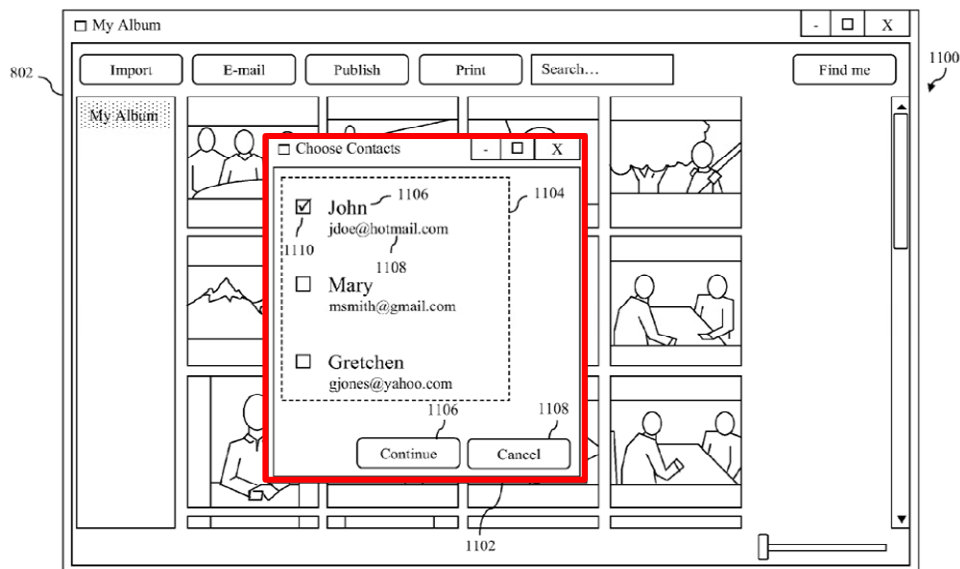


FIG. 11
(Annotated)

192. Contacts selected by the user are sent an email requesting that the contact install the image finding/sharing software so that photos can be exchanged “using face recognition technology” (Krupka, FIG. 12), as discussed in VI.A.2.c(1)(c)(i). Krupka, FIGS. 11-12; [0083]-[0086].

193. This option to exchange photos by installing the image finding/sharing software is presented in a different display than the option to share photos via the “Pictures Found” window discussed in claim 1 as meeting the “*at least one option for sharing images*” limitation, and therefore displaying the “Choose Contacts” window on the user’s device also meets displaying “*at least one additional option for sharing images*” recited in [2A] for this additional reason.

b. [2B] “*in connection with the at least one additional option for sharing images:*”

194. As demonstrated in the following sections, Krupka discloses performing the actions recited in limitations [2C]-[2F] in connection with both the option for sharing via email and the option to share by uploading found images to the remote server.

c. [2C] “*receive, utilizing the input mechanism of the device, an email address or a name of at least one other person*”

195. Both the additional share options (*i.e.*, via email transfer and via the remote server) discussed in above utilize an email address and/or a name of another person in performing the corresponding sharing and therefore [2C] is met for either reason.

(1) *Krupka’s Email Sharing Option Includes Receiving an Email Address or a Name to Indicate the Recipient or it Would Have Been Obvious To Do So*

196. Krupka’s option to share found photos via e-mail utilizes an e-mail address of another person. Specifically, to share photos via e-mail, *e.g.*, when the “image sharing module” “invokes e-mail module 122 and transfers the found images...by e-mail” (Krupka, [0058]), the e-mail address of intended recipient(s) is received from the user via the device’s input mechanism so that the software knows where to e-mail the photos.

197. Krupka's e-mail module comprises a conventional e-mail program like Microsoft Outlook ([0032]), and a POSA would have understood that an e-mail sent via Microsoft Outlook conventionally uses an e-mail address input by the user. Krupka explains as much when describing FIG. 12, reproduced below, which depicts an "example e-mail" Krupka's software can generate. Krupka, [0021], [0085], FIG. 12 (element 1204); *see also* [0083] (explaining that a user's contacts are identified by name and e-mail address as depicted in FIG. 11). *Id.*

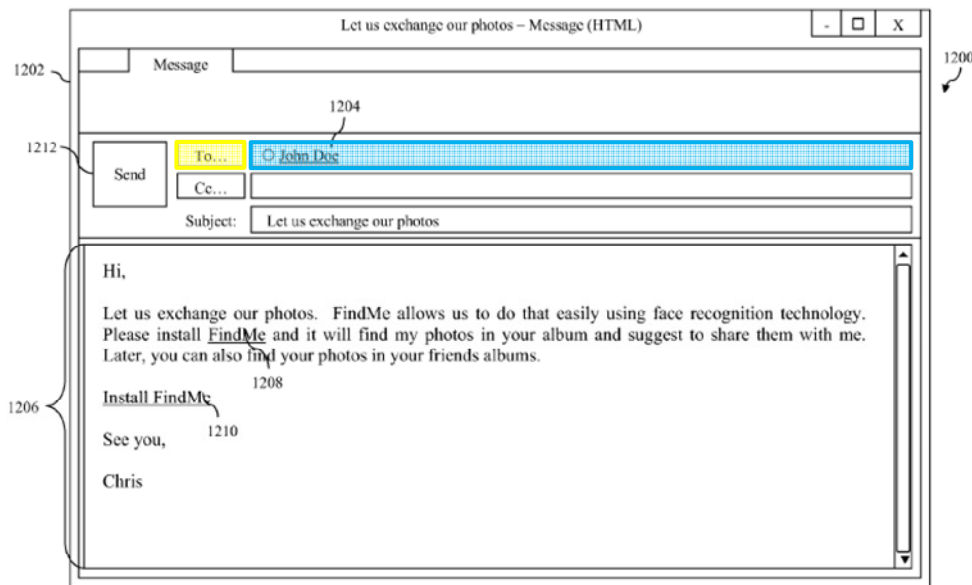


FIG. 12

198. Alternatively, to the extent Krupka is not considered to expressly disclose receiving an email address, the conventional and obvious way to implement the email sending that Krupka describes is to receive the e-mail address of intended recipients from the user via the device's input mechanism when the image sharing module invokes the e-mail module, either by directly entering e-

mail address(es) into the recipient field of the e-mail (highlighted in blue above), or selecting the “To...” button (highlighted in yellow above) to open a list of contacts from which the user can choose recipient(s) (e.g., via Krupka’s “Choose Contact” window illustrated in FIG. 11), both options of which meet limitation [2C].

(2) *Krupka Discloses Receiving an Email Address and/or a Name of Another to Send an Email Invitation to Exchange Photos*

199. As discussed in § VI.A.2.c(1)(c)(i), to establish a share relationship so that photos can be made accessible between users via a remote serve using the image finding/sharing software, Krupka displays a “Choose Contacts” window so that a user can select from a list of contacts using corresponding checkboxes to select contacts the user would like to invite to exchange photos. Krupka, FIG. 11, [0083].

200. Each contact may be identified “by a nickname” and/or “an e-mail address,” so that [2C] is met when the user selects the “Continue” button via the input mechanism (e.g., via the touch screen of the user’s device) to generate an email invitation because the user’s device receives the email address of the selected contact(s).

201. The “Choose Contacts” window is displayed in connection with generating an email inviting another user to “exchange our photos,” and so

receiving the email address and/or name of the contact(s) with whom the user would like to exchange photos is therefore “*in connection with the at least one additional option for sharing images,*” as recited in [2B].

- d. [2D] “*display, utilizing the screen of the device, the plurality of indicia each including the at least portion of the image including the face*”

202. Limitation [2D] uses similar language to limitation [1E], referring back to “*the plurality of indicia*” recited in claim 1. Therefore, Krupka meets limitation [2D] for the same reasons described above for limitation [1E] by displaying on the user’s computer digital images recognized as including human faces. § VI.A.2.b(1).

- e. [2E] “*receive, utilizing the input mechanism of the device, a user input in connection with one or more of the indicia corresponding to one or more faces*”

203. Limitation [2E] uses similar language to limitation [1F] except that instead of the user selecting indicia corresponding to “*a first face*” the user selects indicia corresponding to “*one or more faces.*” Krupka therefore discloses limitation [2E] for the same reason described above for limitation [1F], where the “*one or more faces*” can be any face tagged by the user from which a corresponding face model is built to find photos of that face (see e.g., § VI.A.2.b(2) above), including when the user tags his/herself or tags the faces of others. Krupka, [0002], [0006], [0040]-[0041]; VI.A.2.b(2).

- f. [2F] *“based on the user input in connection with the one or more of the indicia corresponding to the one or more faces and utilizing the email address or the name of the at least one other person, cause sharing of a third set of images each including the one or more faces that has been recognized in at least one of the plurality of images accessible via the device”*

204. Limitation [2F] is similar to limitation [1G] in that a set of images recognized as including the face(s) selected by the user are found in the plurality of images accessible via the device so that this aspect is met for the same reason that Krupka meets [1G]—by finding photos depicting the person for which the user created a face model. Krupka, [0040]-[0041], [0050]; § VI.A.2.b(3).

205. Specifically, as discussed in § VI.A.1.a above, Krupka discloses using the face building GUI of the image finding/sharing software to tag faces in photos to build corresponding face models to facilitate finding and sharing photos of those faces. Krupka, [0001]-[0002], [0006], [0037], [0040]-[0041], [0050], [0058]. Thus, photos found in a user’s photo collection using a face model built from the user tagging photos of him/herself or tagging the face of others meets the claimed *“third set of images each including the one or more faces that has been recognized in at least one of the plurality of images accessible via the device.”*

206. The limitation in [2F] of causing the found images to be shared based on the email address or name of another person received in [2C] is met using either the e-mail sharing option or the remote server upload sharing option performed by

Krupka's image sharing module within the image finding/sharing software to share photos found using a face model created by the user.

207. When the user selects how to share the found photos by choosing Krupka's email option to share those found images, Krupka's image sharing module "invokes the e-mail module" and "transfers the found images" to selected recipients "by email" (Krupka, [0058]), thus causing "*sharing*" of the "*third set of images*" that is "*based on the user input in connection with the one or more of the indicia corresponding to the one or more faces*" (e.g., the user selecting from human faces "portions that represent his/her face" (Krupka, [0041])), and that "*utilize[es] the email address...of the at least one other person*" received from the user as discussed for [2C] above.

208. Additionally, because a user must have accepted the email invitation by downloading Krupka's image finding/sharing software to utilize the image sharing module to upload found images to a remote server, the upload share option also utilizes the email address received in limitation [2C] in causing the third set of images to be shared, so that limitation [2F] is also met by this option.

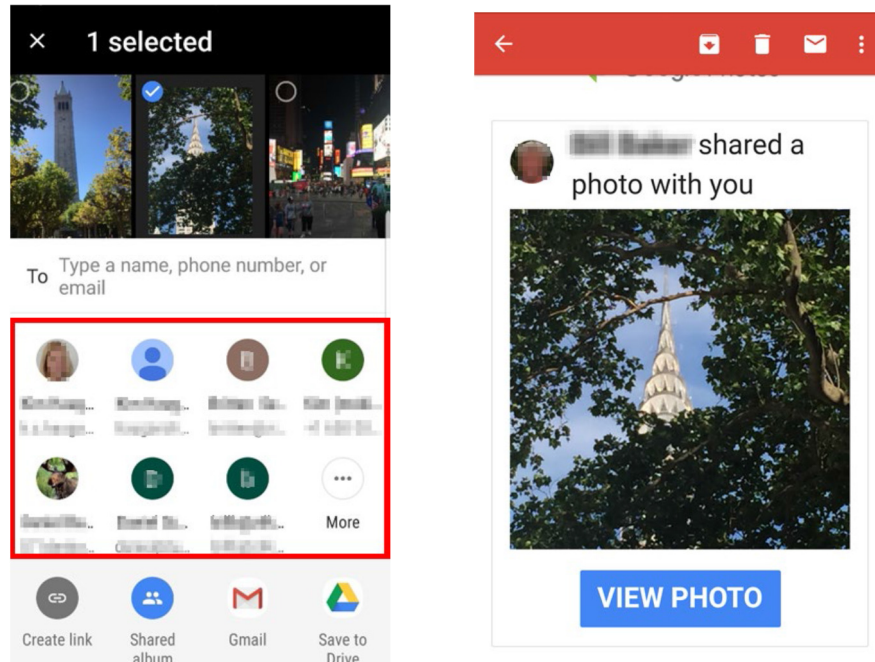
209. When images found using a face model built from a face selected by the user from displayed human faces ([2D]-[2E]) are shared via email or the remote server ([2F]) using the email address received from the user ([2C]) by selecting to share via the corresponding one of Krupka's share options, limitations

[2C]-[2F] are *each* performed “*in connection with the at least one additional option for sharing images,*” as recited in [2B]. Krupka, [0032], [0058]-[0060].

4. Claim 3

210. Claim 3 depends from claim 2 and further recites that “*the third set of images is caused to be shared by causing an invitation to be sent to the email address of the at least one other person.*”

211. Krupka’s teaching to email a recipient photos found of the recipient—*i.e.*, as discussed immediately above for claim 2 in § VI.A.3—meets the further limitation recited in claim 3. A POSA would have understood that when a user emails another user and attaches photos of that user, that email is an invitation to view the attached photos. This is consistent with Boccone’s infringement contention where it is alleged that an email sent to a recipient with a photo allegedly of that recipient is an invitation, as shown by the screen shots below. Ex. 1009, 26. This is also consistent with the ‘726 patent’s description of invitation by email. Ex. 1001, 45:6-16; 46:10-19; 66:7-14.



212. Furthermore, Krupka’s option for sharing images using the image finding/sharing module to upload images to a remote server (or authorizing access to images already uploaded) and notify another user that the photos are accessible via their copy of this software (Krupka, [0058]-[0061]) meets claim 2 (see §§ VI.A.2.c(1)(c)(i), VI.A.3.a(2), VI.A.3.c(2), VI.A.3.f). Specifically, Krupka’s remote server sharing option, which displays the “Choose Contact” window (meeting [2A], § VI.A.3.a(2)) to receive the email address of the recipient of the email invite (meeting [2C], § VI.A.3.c(2)) so that photos can be exchanged via the remote server (meeting [2F], § VI.A.3.f) meets claim 2.

213. This photo sharing option using the remote server (Krupka, [0058]-[0061]) is accomplished by the recipient receiving an e-mail invitation to exchange photos by downloading the software (Krupka, [0083]-[0085]) and so this sharing

option causes “*an invitation to be sent to the email address of the at least one other person,*” that meets claim 3. Krupka’s email invitation to join in a share relationship causes images to be shared in the same way as the invitations described in the ‘726 patent, which describe invitations to join a share relationship so that photos can be shared, just like Krupka. Ex. 1001, 17:34-40; 22:56-67; 27:5-13; 34:6-15. Thus, causing Krupka’s email invite to be sent causes the sharing of photos to the same extent the invite disclosed in the ‘726 patent does.

5. Claim 4

214. Claim 4 depends from claim 2 and further recites that “*in response to the one or more faces being recognized in new images, the new images are automatically caused to be shared after the third set of images is caused to be shared.*”

215. In the context of a first user sharing his/her face model with a second user, Krupka discloses that every time the second user adds new images to his/her photo collection, the image finding/sharing software uses the shared face model to find newly added images of the first user and automatically shares the found images. Krupka, [0062].

216. A POSA would have been motivated to apply Krupka’s feature of automatically sharing newly added photos to photos that were originally shared using a face model created on the users device, as discussed above in connection

with claim 2 (VI.A.3) so that the user does not have to manually invoke the finding and sharing functionality when new photos are added that include a face for which the user has previously decided to share photos from his/her collection.

217. Alternatively, it would have been obvious to a POSA to apply the existing feature of automatically sharing photos to face models that the user created to facilitate sharing photos of others as a user's photo collection grows without the user having to periodically invoke the finding and sharing functionality as new photos are added.

6. Claim 5

218. Claim 5 depends from claim 2 and further recites that “*the plurality of indicia is part of a face screen that is configured for receiving tags in connection with the plurality of indicia.*”

219. Krupka's face model building GUI displays thumbnails of human faces (*i.e.*, “*the plurality of indicia*”) from which the user tags faces of interest to build corresponding face models (Krupka, [0002], [0006], [0040]-[0041]), thus this GUI is “*configured for receiving tags in connection with the plurality of indicia.*” A POSA would have understood this ***display of human faces*** to meet the claimed “*face screen*” (a term used in claim 5 only).

220. Claim 5 further recites that “*the tags are displayed with the plurality of indicia in connection with the at least one additional option for sharing images.*”

221. Krupka discloses associating tags with face models so that a user can execute a search for photos of any person for whom a corresponding face model has been created by selecting the name of the person (*i.e.*, the associated tag) from a menu of user names in the search tool to initiate a search for that person.

Krupka, [0064]. Krupka does not explicitly state that the name of the person is then displayed along with the photos found by the search tool, but displaying tags with photos found of the corresponding person was a common feature of digital photo sharing systems that use face recognition to identify people in photos. For example, Perlmutter discloses displaying tags to allow the user to interact with the system “in a more natural way” (Perlmutter, 30:65-67, FIGS. 14-16) and discloses displaying tags to label folders containing all of the photos of that person (Perlmutter, 36:26-37:35, FIG. 19). Gokturk (Ex. 1011) discloses displaying thumbnails of faces with tags that were matched from the user’s contact list (Gokturk, 18:24-67, FIG. 8). Young discloses displaying tags so that a user can search for corresponding images (Young, 3:13-36; Fig. 1A).

222. Thus, a POSA would have had myriad reasons to implement this known feature of displaying tags received from the user in Krupka to conveniently

display the identity of the person in photos found using a face model built using Krupka's face model building GUI (i.e., "*the face screen*" of which "*the plurality of indicia is part*" where the tag was received) along with the different options by which the user can share those photos of the identified person (i.e. "*in connection with*" the "*additional option to share images*"). Doing so would merely have been the use of the known technique of displaying tags to improve similar devices in the same way to yield the predictable result of providing a more user-friendly interface.

223. One obvious way to implement this known technique to improve Krupka would have been to display the tag associated with a face model in Krupka's "Pictures Found" window along with the photos found using that face model. As discussed in §VI.A.3.a, the obvious way to implement Krupka is to use the "Pictures Found" window to display photos found using any face model regardless of where it originated (i.e., to display photos found using a face model created by a user and photos found using a face model received from another device). Claim 5 does not require that the "*face screen*" display the tags, only that the "*face screen*" is "*configured for receiving tags in connection with the plurality of indicia,*" so that displaying tags in the "Pictures Found" window with photos found using a face model built using Krupka's face model building GUI (i.e., the

“face screen” through which the user tagged thumbnails of human faces of a particular face of interest) meets claim 5.

7. Claim 6

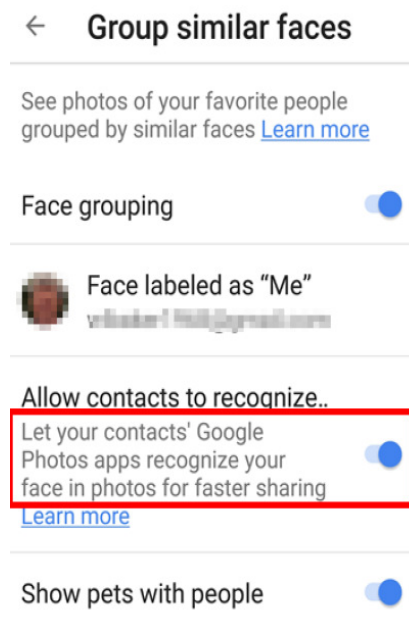
224. Claim 6 depends from claim 1 and further recites that after the displaying recited in [1H], “*the second set of images is conditionally displayed*” based on “*user input in connection with the at least one option for sharing images.*”

225. Krupka discloses that images found using a shared face model can either be automatically shared or displayed in the GUI (the “Pictures Found” window) so that the user can “select which of the found images he/she chooses to share” (Krupka, [0057]). Therefore, Krupka’s found images are “*conditionally displayed*” depending on whether found images are automatically shared (i.e., without being displayed) or are displayed in the GUI to allow the user to select which images to share. *See also* the conditional display of newly found images. Krupka, [0062].

226. Additionally, Krupka’s “*second set of images,*”—those presented in the “Pictures Found” window of FIG. 13—are “*conditionally displayed*” because the “Pictures Found” window opens only if a third-party has invited the user to install Krupka’s image sharing module (*see, e.g.,* FIG. 12, [0085]) and the user has opted to do so ([0089]). Displaying the “Pictures Found” window is thus

conditioned on the third-party sending an invitation to the user to install Krupka's image finding/sharing module and the user accepting the invitation and installing the module, and Krupka therefore meets claim 6 for this additional reason.

227. This understanding of claim 6's scope is consistent with Boccone's infringement contentions, which identifies an option to allow contacts to recognize the user's face in photos as meeting the "*conditionally displayed*" element of claim 6. Ex. 1009, 26-27.



8. Claim 7

228. Claim 7 depends from claim 1 and further recites that after the displaying recited in [1H], "*display of the plurality of images is disabled or enabled,*" based on "*a user input in connection with the at least one option for*

sharing images.” Krupka discloses a number of ways that the “Pictures Found” window can be “*enabled*” or “*disabled*” that meet claim 7.

229. First, claim 7 is met for the same reasons the “*conditionally displayed*” element of claim 6 is met. Specifically, display of the “Pictures Found” window can be “*disabled*” or “*enabled*” depending on whether found images are automatically shared (“*disabled*”) or displayed to the user via the GUI (“*enabled*”) to allow the user to select which images to share. Krupka, [0057]. Specifically, a POSA would have understood Krupka’s disclosure that images of a user found using a shared face model can be automatically shared or displayed first to give the second user the option to share the found images to mean that the display of these photos can be “*enabled*” to give the user the option to share, or “*disabled*” such that found images are automatically shared, thus meeting claim 7.

230. Additionally, the display of the “Pictures Found” window, can be “*disabled*” or “*enabled*” depending upon whether a third-party has invited the user to install Krupka’s image sharing module (*see e.g.*, Krupka, FIG. 12, [0085]) and the user has opted to do so (Krupka, [0089]). This understanding of claim 7’s scope is consistent with Boccone’s infringement contentions. Ex. 1009, 26-27 (citing same subject matter as claim 6). *Id.*

231. Finally, the “Cancel” button (highlighted in orange below) and the standard window control elements (red), both interface elements “*in connection*

with the least one option for sharing images” of the “Pictures Found” window provide additional ways in which the display of the found images in the “Picture Found” window can be “disabled” or “enabled” by aborting the share process or collapsing and/or redisplaying the window. Krupka’s “Pictures Found” window itself meets the claimed “at least one option for sharing images” and also displays multiple interface elements that are also options for sharing images, so that any input received from the user in connection with this window meets the above quoted language in claim 7.

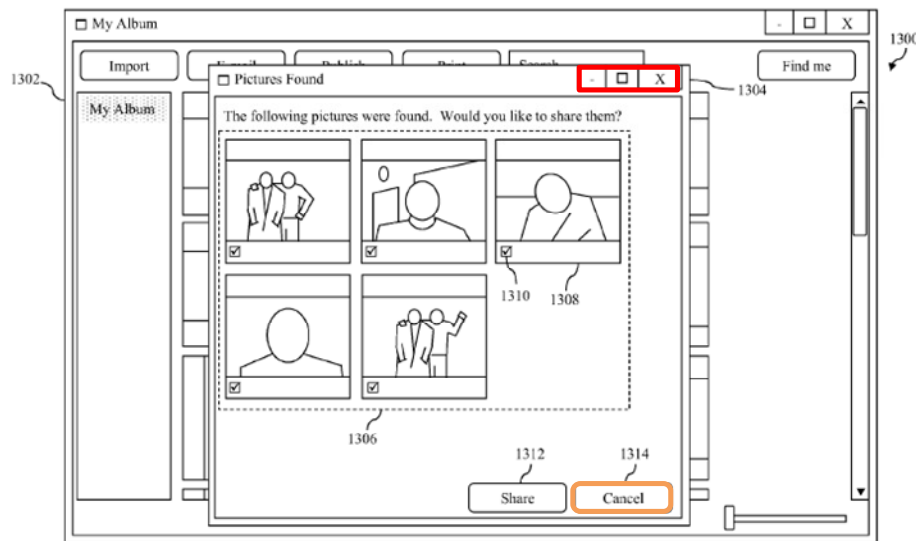


FIG. 13
(Annotated)

232. As such, a POSA would have understood that the cancel button aborts the image sharing process by closing the “Pictures Found” window so that “display of the plurality of images is disabled,” otherwise the image sharing process would in no sense be aborted.

233. The cancel button is “activated by a user of second user computer 104” (Krupke, [0091]) and is therefore an input received by the user’s device via the device’s input mechanism (e.g., the touch screen) in connection with the “Pictures Found” window that displays, and is itself, “*the at least one option for sharing images.*” § VI.A.2.c(1)(a).

234. Claim 7 recites that the display of the images is “*disabled or enabled*” so that this limitation is met by an input that does one or the other, but need not do both. To the extent that claim 7 is interpreted as requiring both disabling and enabling the display of the found images, a POSA would have understood that the standard window interface elements highlighted in red above can be used to both disable and enable the display of the images.

235. Specifically, a POSA would have understood that the minimize element would perform its well-known function of collapsing the “Pictures Found” window when activated, which would disable the display of the images. A POSA also would have understood that the “Pictures Found” window can be re-displayed by the collapsed (minimized) window icon to enable the display of those images within the re-displayed window, as this is the known and familiar function of these standard window interface elements.

9. Claim 8

236. Claim 8 depends from claim 1 and further recites that the device is configured such that “*the at least one face is a face of the third party, and the third party input includes an identification [sic] the face of the third party.*”

237. Krupka’s two techniques by which a user can create a face model of his/her face that can be shared with others (Krupka, [0002], [0040]-[0041] and [0042]-[0049], [0076]-[0082]) both involve identifying the person for whom a face model is being built.

238. Using the first technique, a user tags his/her face in photos in which it appears to build a face model of him/herself. Krupka, [0002], [0040]-[0041]. A POSA would have understood that “tagging” (Krupka, [0040]) faces in photos in which they appear refers to identifying a face and that when a face model is built from “tagged photos”, this identity is associated with the resulting face model. Krupka, [0064] (“each face model is associated with a user name”). Therefore, when a user tags him/herself and that face model is shared with another, the user is the “*third party*” and the tagging is “*third party input*” that “*includes an identification [sic] the face of the third party.*”

239. Likewise, Krupka’s alternative face model building process shown in FIG. 9 below uses video capture of the user to build a face model that also meets claim 8.

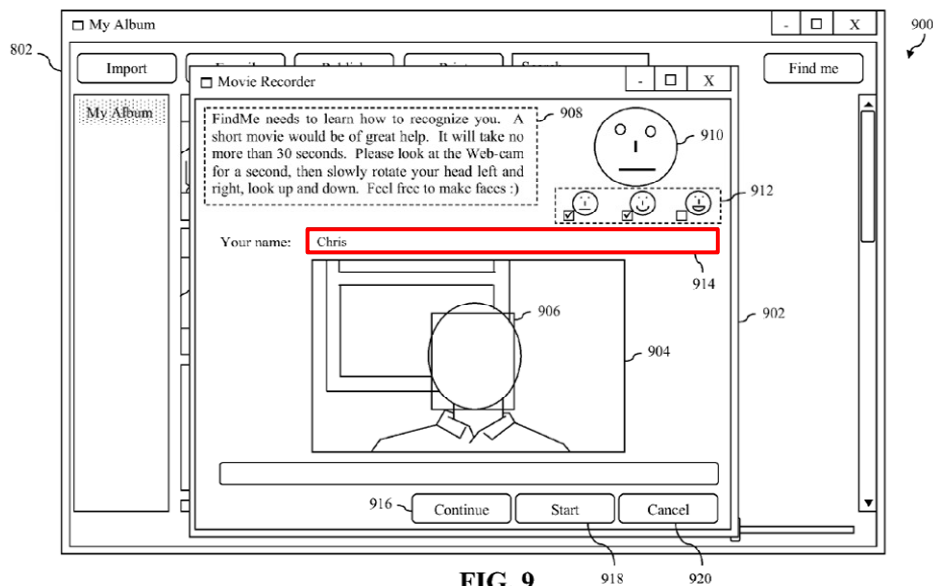


FIG. 9

240. Using this technique (Krupka, [0076]-[0079]), the identity of the person whose face model is being built is entered via “a data entry box 914 in which a user may enter his/her name” (e.g., “Chris,” [0079]) and the name can be associated with the resulting face model ([0064] (“each face model is associated with a user name,” and the “user may type a user name into a data entry box or select the user name from a menu of user names...and the search tool will execute a search for digital images of the user identified...”).

241. When the resulting face model is shared to find photos of the user in photos belonging to others, the user is the “*third party*” and the face model is of the “*face of the third party*.” The user input identifying the face associated with a shared face model, whether input via tagging or via the data entry box, includes “*an identification [sic] the face of the third party*” that meets claim 8.

242. Krupka further discloses that shared face models are associated with their identity (e.g., the identity of the corresponding person that was input by the user creating the face model via tagging or via the data entry box) so that the “face recognition information” includes “*an identification [sic] the face of the third party*” as claimed. Krupka, [0064] (“in one implementation in which each face model is associated with a user name, the second user may type a user name into a data entry box or select the user name from a menu of user names...and the search tool will execute a search for digital images of the user identified...”).

10. Claim 9

243. Claim 9 depends from claim 8 and further recites that “*the face recognition information is based on the third party input of the third party, by reflecting the face of the third party.*” Krupka discloses claim 9 because a POSA would have understood that a face model comprising “a set of feature that are representative of a face of a particular person” (Krupka, [0039]) built from photos of the user’s face includes information “*reflecting the face*” of that user.

11. Claim 10

Claim 10 depends from claim 1 and further recites that “*the face recognition information is based on the third party input ... by including a correspondence that is identified by the third party input of the third party.*”

244. Krupka discloses including a “*correspondence that is identified by the third party*” for the same reasons discussed in connection with claim 8 (§ VI.A.9) by associating the identity of a person with his/her face model (e.g., associating a person’s name with the face model that *corresponds to* that person). Krupka, [0002], [0040], [0064], [0079].

12. Claim 11

245. Claim 11 depends from claim 1 and further recites that “*the third party input includes training input*” and then repeats the antecedent language from claim 1 regarding the third party input (i.e., “*that is input into the at least one other device for generating the face recognition information that is capable of being utilized for identifying the at least one face in the plurality of images accessible via the device.*”). Both of Krupka’s face building techniques include a user providing training input to build a face model, either of which meets the claimed “*training input.*”

246. Specifically, the first technique uses those image portions selected by the third party user that represent his/her face to build a face model of the user. Krupka, [0041]. This user input—selection of the image portions of the user’s face from which the face model is built—meets the claimed *training input*.

247. Additionally, Krupka’s video capture technique displays to the third party user a preliminary set of images found using a face model built from the

video so that the user can select the images that were correctly identified to “improve the face model for the user.” Krupka, [0046]-[0048], [0080]-[0081]. This input from the user used by the software to improve the face model of the first user also meets the claimed “*training input*.” Krupka thus discloses claim 11 for at least these two reasons.

248. A POSA would have understood the user input used to build and/or improve a face model to be “*training input*.” The ‘726 patent describes “training data” as equivalent to, or at least being part of, “*face recognition information*” (Ex. 1001, 12:6-13) so that any user input in connection with creating/building/improving a face model meets the claimed “*training input*.”

13. Claim 12

249. Claim 12 depends from claim 1 and recites “*wherein the device is configured such that the third party input correlates the at least one face with the third party*.” Krupka discloses claim 12 because the third party user’s input in connection with building a face model of him/herself correlates the user with his/her face using either face model building technique (§§ VI.A.9-VI.A.12).

250. Specifically, when the user selects images of his/her face from those identified as depicting human faces (Krupka, [0040]-[0041]), or when the user selects those images preliminarily found by the software that correctly depict the

user's face (Krupka, [0046]-[0047], [0080]-[0081]), this user input *correlates* the user's face with the user.

14. Claim 13

251. Claim 13 depends from claim 1 and further recites “*wherein the device is configured such that the relation is established based on an invitation and an acceptance of the invitation.*”

252. As discussed in §§ VI.A.2.c(1)(c) and VI.A.2.c(1)(c)(i), Krupka establishes “*a relation*” via the email invitation sent to recipients selected via the “Choose Contacts” window of FIG. 11. Krupka, [0053], [0083]. FIG. 12 of Krupka (below) illustrates an example of this email invitation.

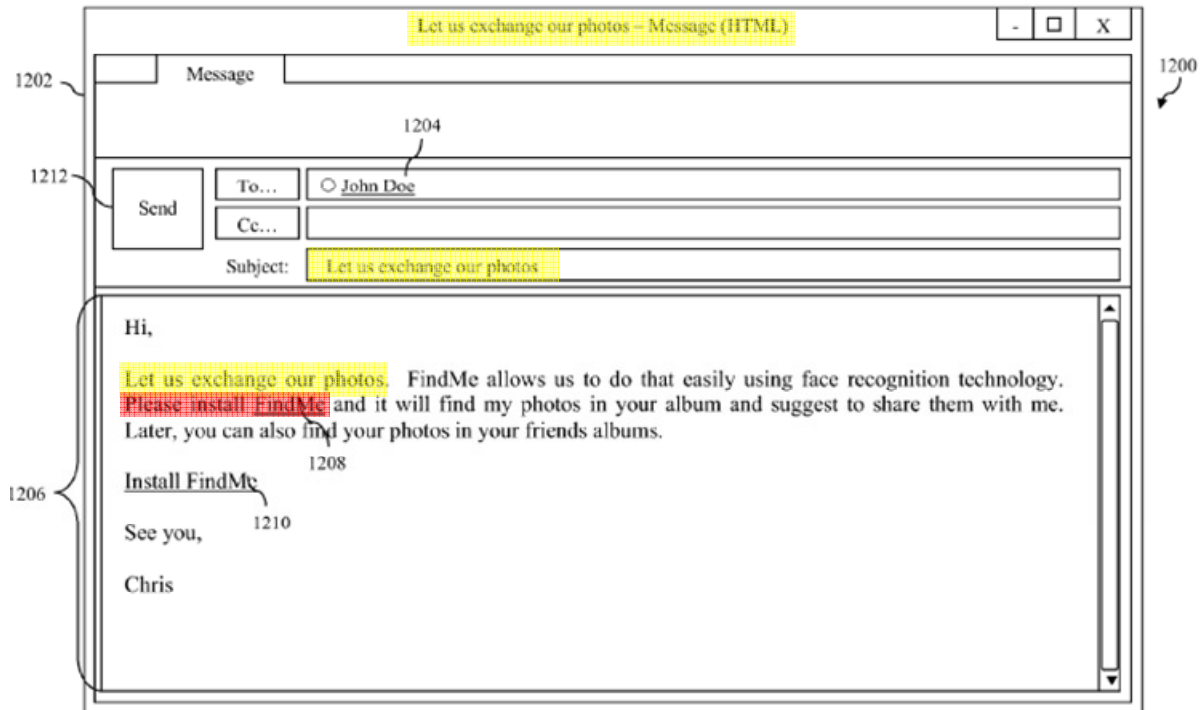


FIG. 12
(Annotated)

253. A POSA would have understood an email inviting another user to exchange photos (“Let us exchange our photos” (yellow above)) to be an invitation to exchange photos that the user can accept by downloading the image finding/sharing software (“referred to in the email as ‘FindMe,’” Krupka, [0085]) as requested by the email (“Please install FindMe,” (red above), *id.*).

254. Krupka calls this process an “invite” to share images and face models by downloading the image finding/sharing software. Krupka, [0069]. Only after accepting the invitation by downloading the imaging finding/sharing software (“FindMe”), thereby establishing “*the relation*” recited in claim 13, can the shared face model be utilized.

15. Claim 14

255. Claim 14 depends from claim 1 and recites “*the relation is established based on contact information of the third party being present in a contact database of the user.*” A POSA would have understood that both contacts from an “address book,” and “contacts with *whom the user is connected*” via a social networking service displayed in Krupka’s “Choose Contact” window (below) meet “*contact information*” that is “*present in a contact database.*” Krupka, [0083].

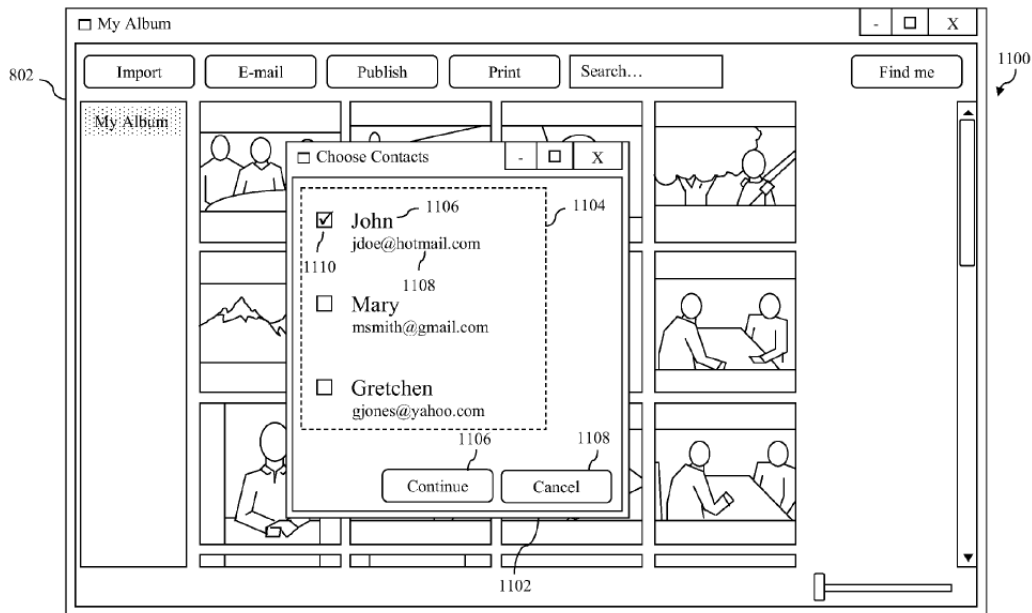


FIG. 11

256. Furthermore, a POSA would have understood that a contact (“*user*”) of the person that sends an email invite (“*third party*”) to this contact “with whom the *user is connected*” would also have this third party listed in his/her contact database via this service. Krupka, [0083].

16. Claim 15

257. Claim 15 depends from claim 1 and further recites “*the at least one option for sharing images includes an option for displaying sharing suggestions based on the face recognition information and the second set of images is displayed as the sharing suggestions,*” followed by antecedent language from [1K] of claim 1 regarding causing one or more images to be shared (i.e., “*for causing the one or more of the second set of images to be shared after the user input in*

connection [sic] the at least one of the second set of images.”). The “Pictures Found” window meets this limitation.

258. Specifically, the “Pictures Found” window displays images found on a user’s device using a shared face model along with multiple options to share. § VI.A.2.c(1)(a), A POSA would have understood that the displayed images are “share suggestions” (“Would you like to share them?” Krupka, FIG. 12) since sharing of the displayed images is not compulsory. Claim 15 in fact recites that the displayed images *are* the sharing suggestions.

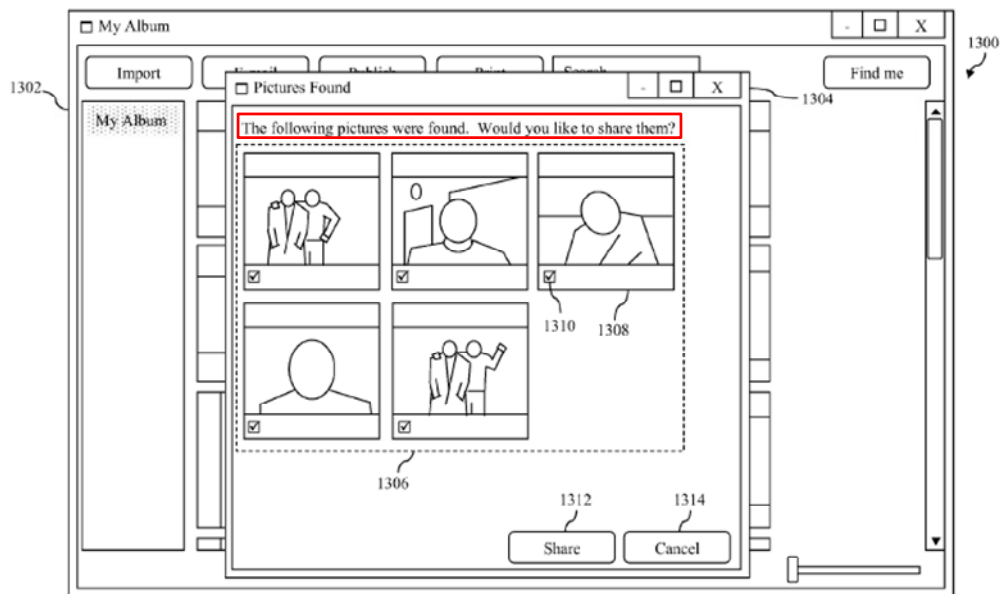


FIG. 13

259. Additionally, Krupka discloses that the software may present the images of the user with all of the check boxes checked, providing an initial suggestion to the user to share each of the images displayed that the user can then choose to un-check. The remainder of claim 15 (“for causing the one or more of

the second set of images to be shared after the user input in connection the at least one of the second set of images”) antecedent language from limitation [1K] in claim 1. § VI.A.2.c(4).

17. Claim 16

260. Claim 16 depends from claim 1 and further recites “*that the one or more of the second set of images is caused to be shared with the third party.*”

Krupka’s disclosure that “[w]hen share button 1312 is activated by a user of second user computer 104, the checked images appearing in set 1306 will be shared with the first user,” (Krupka, [0091]) meets claim 16 because the first user is the user that created/shared his/her face model (i.e., “*the third party*”). Krupka, [0088]-[0091].

18. Claim 17

261. Claim 17 depends from claim 1 and recites that “*the user input in connection with the at least one of the second set of images includes a deselection of at least a portion of the second set of images, where the second set of images are selected by default.*”

262. Krupka’s “Pictures Found” window displays a check box for each found image, and Krupka discloses that “the image sharing module executing on second user computer 104 *checks each check box by default* and a user of second user computer 104 can *selectively un-check check boxes associated with certain*

images.” Krupka, [0090]. The user deselecting one or more check boxes that are checked by default meets claim 17.

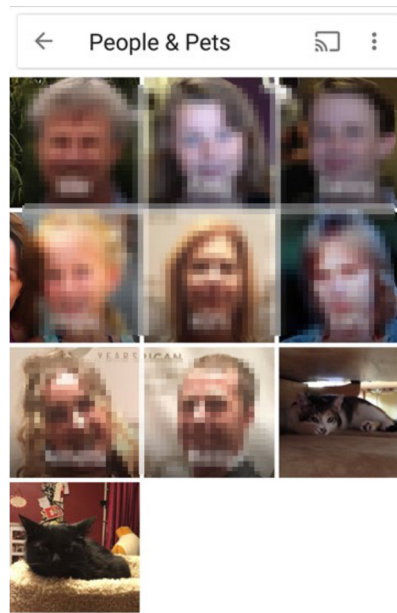
19. Claim 18

263. Claim 18 depends from claim 1 and further recites “*that the plurality of indicia*” (*i.e.*, human faces displayed in Krupka’s GUI addressed in § VI.A.2.b(1) above), “*include a plurality of face icons of a face recognition home screen.*”

264. A POSA would have understood a “*face icon*” to refer to a selectable representation of a face. Newton’s Telecom (Ex. 1016), 363 (“An icon is a picture or symbol representing an object, task, command or choice you can select from a piece of software (e.g., a trash can for a deletion command)”). Krupka’s GUI displays “*portions* of digital images” that “appear to represent human faces,” (Krupka, [0041])—*i.e.*, thumbnails of human faces from which the user can “select those portions that represent his/her face” (*id.*). Thus, a POSA would have understood that each image portion depicting a human face is a “face icon” because it is a selectable representation of a face.

265. This is consistent with Boccone’s infringement contentions in which the “plurality of face icons” is allegedly met by the display of portions of images depicting the faces of people/pets. This is consistent with Boccone’s infringement contentions in which the “*plurality of face icons*” is alleged to be met by the

display of portions of images depicting the faces of people and pets, as shown in the screen shot reproduced below from page 51 of Boccone’s infringement contention regarding claim 18.



266. The ‘726 patent uses the term “*home screen*” in claim 18 but nowhere else. But, the incorporated ‘435 patent uses this term to describe a screen from which other functionality may be accessed. *See e.g.*, Ex. 1008, FIG. 5 (“Home”). This use is consistent with the conventional meaning of “home screen” as a screen from which commonly used or related functionality could be accessed, in this case face recognition functionality.

267. A POSA would have understood Krupka’s *face model building* GUI that displays thumbnails of human faces so that a user can tag faces to build face

models to be a “*face recognition home screen*,” at least because Krupka’s face model building module presents this GUI as a starting screen from which the face model building process proceeds, and from which image finding/sharing functionality can be accessed.

268. Claim 18 further recites that “*the at least one option is accessible via a configuration interface element separate from the face recognition home screen.*” The ‘726 patent does not use the term “*configuration interface element*” (nor anything like it) and so provides no guidance on the meaning of this term.

269. As discussed in § VI.A.2.c(1)(a), the “Pictures Found” window provides the claimed “*at least one option*,” and the share options this window provides are accessible via a search tool provided to allow users to find photos using shared face models (Krupka, [0064]), both interface elements of which are separate from Krupka’s face model building GUI that meets the “*face recognition home screen*.”

270. Krupka discloses that the search tool provides “a data entry box” (Krupka, [0064]) in which a user can enter a name or select a name from “a menu of user names” (*id.*) to cause the search tool to execute a search for photos of the identified user. To the extent it is not explicit, the obvious way to implement Krupka’s search tool to find, display and share photos using available face models (Krupka, [0084]-[0085]) in the system of Krupka would have been to display the

search results in the “Pictures Found” window so that the user can select which found photos to share. A POSA would have understood either the data entry box or the menu of user names of the search tool to meet the claim “*configuration interface element*,” because both are interface elements that configure the search tool to search for photos of the particular user chosen for display in the “Pictures Found” window. Nothing in the ‘726 patent precludes this interpretation. As both configuration elements are also separate from Krupka’s face model building GUI, Krupka meets each limitation in claim 18 for either reason.

20. Claim 19

271. Claim 19 depends from claim 1 and recites that the instructions cause the device to access a server to accomplish limitations recited in claim 1. Krupka’s server-based embodiment meets each limitation in claim 19.

a. [19A] “*wherein the instructions are configured to cause the device to access at least one server for:*”

272. Krupka’s discloses a “server-based system” in which “*a portion or all of the functionality* provided by each image finding/sharing module” is “provided by *one or more remote servers* that are *communicatively connected to each user computer.*” Krupka, [0016], [0071]. This functionality is provided by the “server image finding/sharing module” (Krupka, [0071]) and can be accessed by a “network access module” (Krupka, [0072]) installed on each of the user’s devices, as shown in FIG. 7 below.

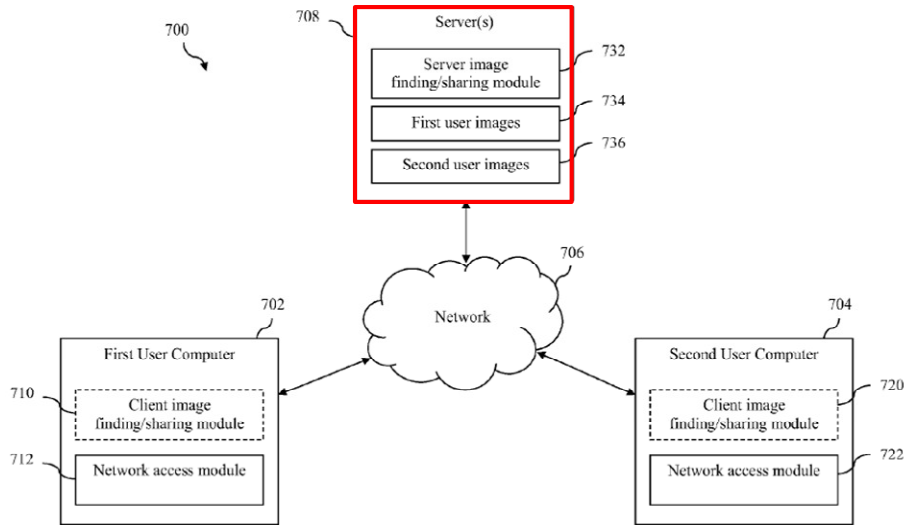


FIG. 7

273. This server-based system meets limitation [19A] because the user devices can access the server image finding/sharing module to perform *all* of the functionality of Krupka’s image finding/sharing software, which includes the functionality recited in elements [19B], [19C], [19D], which simply recite that the device accesses “*at least one server*” to accomplish claim 1’s limitations [1E]-[1K], precisely what is disclosed by Krupka’s server-based system.

- b. [19B] “receiving at least one web page to cause the device to display the plurality of indicia, the first set of images, the second set of images, and the at least one option for sharing images.”**

274. Limitation [19B] recites “*receiving at least one web page to cause the device*” to cause the device to perform claim 1’s display limitations of [1E], [1G], [1H] and [1I], each of which is performed by Krupka’s image finding/sharing

software as discussed in §§ VI.A.2.b(1), VI.A.2.b(3), VI.A.2.c(1)(a), and VI.A.2.c(2) in connection with claim 1. Because Krupka's server-installation of this software can instruct performance of "all of thie functionality," Krupka's remote server causes the user device to meet these display limitations when the user device accesses this server functionality. Krupka, [0072].

275. Regarding "*receiving at least one web page to cause the device*" to perform these steps, Krupka's network access module in each user device that invokes the server's functionality is disclosed as comprising a "Web browser." Krupka, [0033]. To the extent that Krupka does not explicitly describe the server image finding/sharing module providing its functionality via a website/web page (the '726 patent uses the term "website" throughout and the term "web page" exclusively in claim 19), it would have been obvious to implement Krupka's server-based system via a website wherein user devices access the server image find/sharing module ([0072]) via the network access module's "Web browser" ([0033]), as this was a conventional and routine way to enable a device to access server-based software via a network.

- c. [19C] "*wherein the at least one web page further permits the receipt, by the device, the user input in connection with the at least one indicia and the user*

input in connection with at least one of the second set of images”

276. Limitation [19C] recites that “*the at least one web page further permit the receipt, by the device,*” of claim 1’s user input limitations [1F] and [1J], each input limitation of which is performed in connection subject matter displayed by the image finding/sharing module as discussed in §§ VI.A.2.b(2) and VI.A.2.c(3) in connection with claim 1. In Krupka’s server-based system that performs “*all* the functionality,” the receipt of this input is permitted by what the “*at least one web page*” provides for display on the user device when it accesses the server image finding/sharing module.

d. [19D] “*where the sharing of the one or more of the second set of images is caused by sending a signal from the device to the at least one server.*”

277. Limitation [19D] recites that “*the sharing of the one or more of the second set of images*” recited in limitation [1K] of claim 1 “*is caused by sending a signal from the device to the at least one server.*”

278. This sharing is caused by activation of the share button in the “Pictures Found” window as discussed in § VI.A.2.c(4) in connection with claim 1, so that in Krupka’s server-based system this sharing happens when activation of the share button by the user is signaled to the server to cause the server to share the photos checked in the “Pictures Found” window.

21. Claim 20

279. Claim 20 depends from claim 1 and further recites that the “*the at least [sic] option is capable of being enabled, for permitting the face recognition information, that is based on the third party input, to be utilized for the benefit of the user by displaying, as sharing suggestions, the second set of images, so that the user is capable of sharing, with the third party and conditionally based on user control, the one or more of the second set of images that are previously accessible only via the device of the user.*”

280. Most of the words of claim 20 merely refer back to antecedent language in claim 1. Claim 20 merely requires that the “*face recognition information*” utilized in claim 1 “*benefit*” the user by displaying the “*second set of images*” as “*sharing suggestions*” so that the user controls which of those images to share with the third party, which were “*previously accessible only via the device of the user.*” This is precisely what Krupka’s “Pictures Found” window does for images “owned or managed” (Krupka, [0088]) by the user of the device and not accessible by the third party. Krupka, [0088]-[0091]. The “Pictures Found” window can be “*enabled*” by downloading Krupka’s image finding/sharing software (Krupka, [0085]) and/or configuring the software by choosing to display found images first before sharing (Krupka, [0057], [0062]).

281. Specifically, Krupka’s “Pictures Found” window displays pictures of the first user found in the second user’s photo collection (i.e., “owned or managed” by the second user) using the face model received from the first user and allows the second user to choose which, if any, of these pictures the second user would like to share with the first user. Krupka, [0088]-[0091]. As discussed in VI.A.16, a POSA would have understood the pictures displayed to be “*sharing suggestions.*” Krupka explains that the “*benefit*” of this face model sharing is that a user can obtain photos that the user previously had no access to. Krupka, [0004]-[0007]; *See also* Krupka, [0028] (explaining that the software is “executed for the benefit of a user.”).

22. Claim 21

282. Claim 21 depends from claim 1 and recites the same limitations as claim 20 but requires that displaying the images as share suggestions occurs “*without a prior visible indication being received by the user indicating a sharing of the face recognition information by the third party.*”

283. As discussed above § VI.A.2.c(1)(c)-VI.A.2.c(1)(c)(iii), a face model can be shared when a user downloads the image finding/sharing software in response to an email inviting the user to exchange photos. This email invitation does not provide any visible indication that a face model is being shared, which happens by virtue of the user downloading the software. This email invitation

simply states that “FindMe” allows photos to be exchanged “using face recognition technology” (Krupka, FIG. 12), but does provide any visual indication that a face model will be shared, nor does the email share a face model in this embodiment. The “Pictures Found” window is displayed after the image finding/sharing software has been downloaded without any prior visual indicator of the face model being shared.

284. To the extent that the email invitation can be interpreted as a visual indication of sharing a face model (on which the ‘726 patent is completely silent), Krupka also discloses that users can utilize face models of those invited by other users who they may not even know (Krupka, [0065]-[0070]), in which case such a face model is “*utilized*” with “*no prior visible indication received by the user indicating a sharing*” of the face model. Indeed, a user can obtain access to and can utilize a face model by virtue of interactions between other users without any prior notification that such a face model has been shared with the user, and Krupka meets claim 21 for this additional reason. Krupka, [0064]-[0069].

23. Claim 22

285. Claim 22 depends from claim 1 and recites a list of alternatives (see the “or” before the last alternative), only “at least one” of which must be met. Element [22A] recites that “the device includes a mobile device.” Krupka

discloses implementing its system in a mobile device. Krupka, [0028] (“smart phone”), [0092] (“mobile computer”). Krupka thus meets claim 22.

24. Claim 23

286. Independent claim 23 recites an “*apparatus*” that includes essentially the same components as the “*device*” in claim 1 and is configured in substantially the same way. A POSA would have understood that each of Krupka’s user computers (i.e., the “*device*” of claim 1) is also an “*apparatus*.” Claim 23 also uses the term “*input device*” instead of “*input mechanism*,” which is met by Krupka’s *expressly* disclosed “input device” (Krupka, [0040]).

287. Additionally, claim 23 recites user input “*on*” the claimed indicia [23F] instead of “*in connection with*” the indicia as recited in claim 1 [1F]. Krupka’s selection of displayed human faces “that represent his/her face” (Krupka, [0041]) meets user input “*on*” the plurality indicia for the same reasons Krupka meets “*in connection with*,” discussed in VI.A.2.b(2).

288. Similarly, claim 23 recites user input “*on at least one of the second set of images*” [23J] instead of “*in connection with*” as recited in [1J]. Krupka’s “Pictures Found” window (below) displays a “set of images 1306” (Krupka, [0088]) as thumbnails with checkboxes for selecting and deselecting. Krupka, [0088]-[0091]. Thus, user input in connection with any checkbox is performed on at least one of the “set of images 1306” that meets [23J].

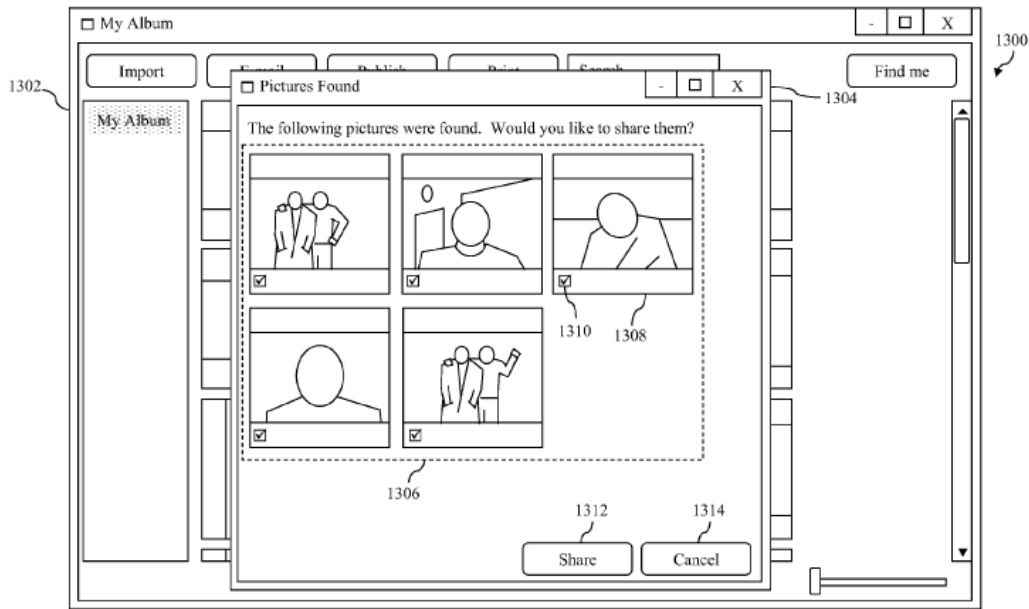


FIG. 13

289. To the extent claim 23 is interpreted as requiring direct input on an image, a POSA would have inferred from the way that these thumbnails and checkboxes are presented in Krupka, that clicking on the thumbnail would toggle the checkbox or, alternatively, toggling the checkbox by selecting the thumbnail would have been an obvious way to implement Krupka's interface.

290. Selection/deselection of an image by selecting a thumbnail was a known technique (*see e.g.*, selection of a query image in Perlmutter, 30:40-5, FIG. 13) and was a routine and conventional way to select a photo. Implementing Krupka's "Pictures Found" window to choose images by selecting the thumbnail would have been merely the use of a known technique to yield the predictable result of providing a convenient way to select/deselect images for sharing.

291. Furthermore, claim 23 recites “*provide access to at least one feature for displaying images for sharing,*” [23H] instead of “*display, utilizing the screen of the device, at least one option for sharing images,*” in claim 1 [1H]. This limitation is met for the same reasons discussed for claim 1 in § VI.A.2.c(1)(a). Additionally, limitation [23H] recites that the third party input is in “association with at least one face *for correlating the at least one face with the third party.*” Krupka discloses this limitation recited in claim 12 depending from claim 1 for the same reasons discussed for claim 12 in § VI.A.13. See also the discussion in §§ VI.A.9-VI.A.11 for claims 8-10 demonstrating the correlation between the at least one face and the third party.

292. Finally, claim 23 recites that the one or more of the second set of images is “*shared with the third party*” [23K]. Krupka discloses this limitation recited in claim 16 depending from claim 1 for the same reasons discussed for claim 16 in VI.A.17. The remainder of limitations [23A]-[23K] in claim 23 recite the subject matter of the corresponding limitations [1A]-[1K] in claim 1 and are met by Krupka for the same reasons disclosed in corresponding discussion in sections as shown in the table below.

Claim 23 Element	Corresponding Claim 1 Element(s)	Section
[23PRE]	[1PRE]	§ VI.A.2.a
[23A]	[1A]	§ VI.A.2.a(1)
[23B]	[1B]	§ VI.A.2.a(2)
[23C]	[1C]	§ VI.A.2.a(3)
[23D]	[1D]	§ VI.A.2.a(4)
[23E]	[1E]	§ VI.A.2.b(1)
[23F]	[1F]	§ VI.A.2.b(2)
[23G]	[1G]	§ VI.A.2.b(3)
[23H]	[1H]	§ VI.A.2.c(1)
[23I]	[1I]	§ VI.A.2.c(2)
[23J]	[1J]	§ VI.A.2.c(3)
[23K]	[1K]	§ VI.A.2.c(4)

25. Claim 24

293. Claim 24 depends from claim 23 and recites that “*the relation is established based on one or more previous communications with the third party.*” Krupka discloses that the “Choose Contact” window (FIG. 11) lists “contacts with whom the *user is connected*” via a social networking service. Krupka, [0083]. A POSA would have understood that because the user and the listed contact are connected, the parties would have had at least one previous communication to establish this connection via the service. *See also* §§VI.A.2.c(1)(c) and VI.A.2.c(1)(c)(ii).

26. Claim 25

294. Claim 25 depends from claim 23 and recites the same limitations as claim 20 and is met by Krupka for the reasons discussed in § VI.A.21.

27. Claim 26

295. Claim 26 depends from claim 23 and recites the same limitations as claim 21 and is met by Krupka for the reasons discussed in § VI.A.22.

28. Claim 27

296. Independent claim 27 recites [27PRE] a “*computer-implemented method*” comprising [27A] “*providing access to at least one server utilizing an apparatus*” that comprises the same conventional computer components of the device/apparatus recited in claims 1 and 23 ([1A]-[1D], [23A]-[23D]). Claim 27 further recites “*communicating with the at least one server such that the apparatus is configured to*” perform the identical steps recited in claim 23 ([23E]-[23K]), each of which are demonstrated as being obvious over Krupka (§§ VI.A.2 and VI.A.24 above).

297. Krupka discloses communicating with at least one server such that the user’s device (*i.e.*, “*the apparatus*”) performs each of the limitations recited in claim 27 for at least the same reasons discussed in connection with claim 19 in VI.A.20. Specifically, Krupka discloses that “*a portion* or *all of the functionality* provided by *each image finding/sharing module* may...be provided by *one or more remote servers* that are *communicatively connected to each user computer*,” (Krupka, [0016], [0071]), as shown in the server-based system illustrated in FIG. 7 below.

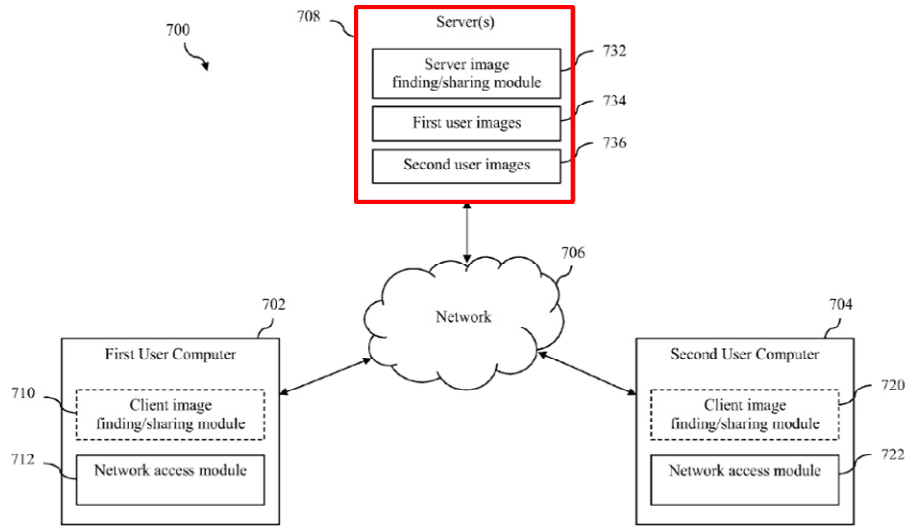


FIG. 7

298. Because the server(s) can provide *all* of the functionality of the image finding/sharing software and this software discloses all of the functionality recited in claim 27 for the same reasons it discloses these limitations in claims 1 and 24, Krupka discloses each and every limitation of claim 27. §§ VI.A.2, VI.A.24.

29. Claim 28

299. Claim 28 depends from claim 27 and recites the same further limitations as claim 20 and is met by Krupka for the same reasons discussed in § VI.A.21.

30. Claim 29

300. Claim 29 depends from claim 27 and recites the same further limitations as claim 21 and is met by Krupka for the same reasons discussed in § VI.A.22.

31. Claim 30

301. Claim 30 depends from claim 27 and recites substantially the same further limitations as claim 24, and those are met by Krupka for the same reasons discussed in § VI.A.25. Claim 30 further recites “*the plurality of indicia is a grid of face interface elements.*” Krupka does not expressly disclose the precise manner in which the thumbnails of human faces are displayed by Krupka’s face model building GUI (Krupka, [0040]-[0041]), but a grid arrangement would have been an obvious way to do so, as this was the conventional and routine way to display thumbnails of human faces, for example, as shown below in FIG. 8 of Gokturk (where thumbnails of human faces detected in the user’s photo album are displayed in a grid) and FIGS. 13 Perlmutter (where thumbnails of photos from the user’s photo album are displayed in a grid).

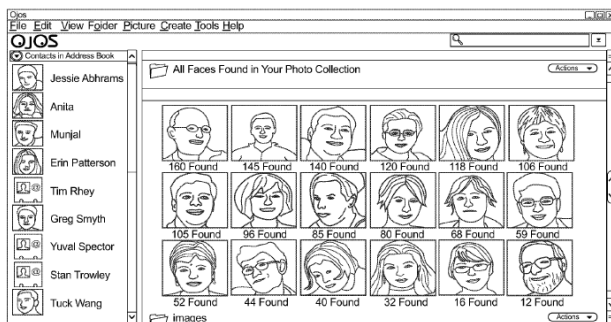


FIG. 8

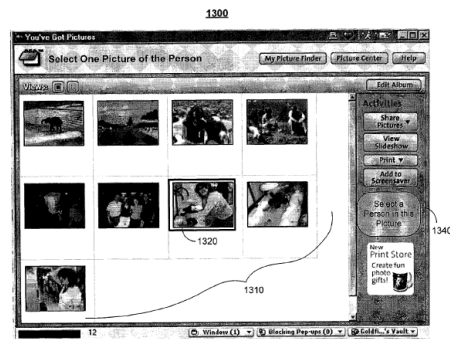


Fig. 13

302. Displaying Krupka’s thumbnails of human faces in a grid so that the user can select faces of interest would merely have been the use of this known technique in the same way to yield the predictable result of providing a user-

friendly presentation of the human faces from which the user can easily locate faces of interest.

B. Claims 1-30 Would Have Been Obvious Over Krupka in View of Young

1. Young (Ex. 1010)

303. Young, titled “Sharing Data Based on Tagging,” was filed on March 7, 2006 and issued as U.S. Patent No. 8,341,219 on December 25, 2012. I am informed and understand that based on its filing date and that Young subsequently issued as a patent, Young is prior art under 35 U.S.C. § 102(e).

304. During prosecution, the Patent Office found Young to be among the numerous references disclosing limitations [1A]-[1G] of claim 1, including “sharing images” when “a specific face is identified within images.” Ex. 1002, 242. The Patent Owner did not dispute these findings. Young provides an example of the conventional and routine sharing of photos that the Patent Office correctly found was disclosed by Young.

305. As Young explains in its Background more than six years before the filing of the ‘726 patent, “[s]haring photos...has become increasingly popular as the use of email and the Internet has grown.” Young, 1:5-7. To share photos found using face recognition, Young displays a “Share Photos” button 112 in interface 100 in which photos matching selected tags are also displayed, as illustrated in FIG. 1A below. Young, 2:46-65; 3:13-32.

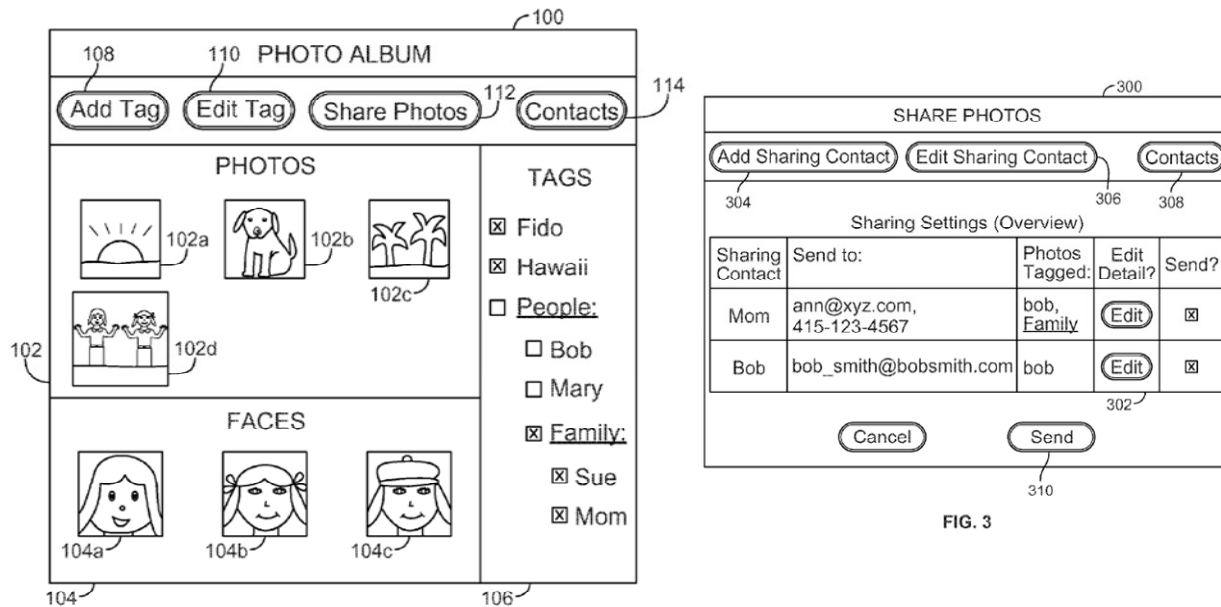


FIG. 1A

FIG. 3

306. Selecting the “Share Photos” button 112 displays a “Share Photos” interface 300 shown in FIG. 3 above, which allows the user to select which contacts to send photos via email. Young, 3:43-60; 5:37-44.

2. Reasons for the Krupka-Young Combination

307. An obvious way to implement Krupka’s emailing of photos found using face models (Krupka, [0001]-[0002], [0050], [0058]) is to display an interface element that provides access to that functionality. For example, it would have been obvious to a POSA to implement Krupka’s email functionality by displaying Young’s “Share Photos” button (Young, 3:43-45) in conjunction with photos found using a face model built via Krupka’s face model building GUI to provide convenient access to Krupka’s expressly disclosed email sharing functionality (Krupka, [0001]-[0002], [0040]-[0041], [0058], [0060]). Using

Young’s button would have been the use of a known technique to yield the predictable result of displaying an interface element to the user that provides convenient access to Krupka’s email functionality.

308. Additionally, a POSA would have been motivated to display Young’s “Share Photos” interface 300 of Fig. 3 (above) as a convenient and intuitive way to apply sharing settings (Young, 5:37-54), add contacts to the share photos interface (Young, 5:55-6:12), and choose how to send to each recipient (Young, 5:46-54) photos found using face models built using Krupka’s face model building GUI (Krupka, [0040]-[0041]) to facilitate sharing photos via email with friends and family (Krupka, [0001]-[0002], [0006], [0058]).

3. Claim 2

309. Claim 2 recites similar limitations to claim 1 except that “*a third set of images*” of “*one or more faces*” selected by the user are *shared* based on an email address or name of another person received by the device via the input mechanism. Krupka-Young meets each limitation of claim 2.

a. Krupka-Young’s “Share Photos” Button Meets [2A] - “*display, utilizing the screen of the device, at least one additional option for sharing images*”

310. In Krupka-Young (see § VI.B.2), Young’s “Share Photos” button 112 (see Fig. 1A above) is used to implement Krupka’s “alternative” option to share photos “by email” (*i.e.*, an “*additional option for sharing images,*”) by displaying

this button on the user’s device in connection with photos found using face models created using Krupka’s GUI. Displaying this “Share Photos” button to provide convenient access to Krupka’s email functionality meets [2A].

b. Krupka-Young’s “Share Photos” Interface Meets [2C]

311. In Krupka-Young (see § VI.B.2 above), Young’s “Share Photos” button opens a sharing interface 300 that displays a user’s contacts that have been added using either the “Add Sharing Contact” button 304 (Young, 5:55-65) or the “Contacts” button (Young, 5:66-6:12) highlighted in red below, either option of which meets [2C].

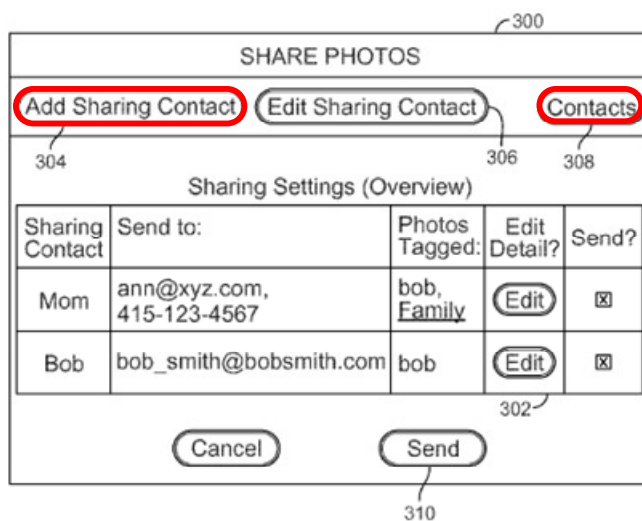


FIG. 3

312. Specifically, in Krupka-Young (see § VI.B.2 above), the user inputs the “*email address*” and “*name*” of contacts (i.e., “*of another person*”) and selects

whether each contact is a recipient for photos found using face models created using Krupka's face model building GUI.

c. Krupka-Young Meets [2D] and [2E] for the Same Reasons that Krupka Meets these Limitations

313. As discussed in §§ VI.A.3.d and VI.A.3.e, limitation [2D] is similar to limitation [1E] and limitation [2E] is similar to [1F] except that the user selects “*indicia*” corresponding to “*one or more faces*” instead of “*a first face*.” Thus, Krupka-Young discloses these limitations for the same reasons discussed in the these sections (§§ VI.A.2.b(1) and VI.A.2.b(2)).

d. Krupka-Young's “Send” Button Meets [2F]

314. Limitation [2F] is similar to limitation [1G] in that a set of images (“*a third set of images*”) recognized as including the face(s) selected by the user are found “*in at least one of the plurality of images accessible via the [user's] device*” so that this aspect is met for the same reason that Krupka discloses [1G]. § VI.A.2.b(3).

315. Limitation [2F] also recites that this third set of images is caused to be shared based on “*the one or more faces*” selected by the user and “*utilizing the email address or the name of the at least one other person*” received in [2C]. This sharing limitation is met when the “Send” button is activated in Krupka-Young.

316. Specifically, in Krupka-Young (see § VI.B.2 above), when Young’s “Share Photos” button is activated, Young’s sharing interface is displayed so that the user can select the contacts (see checkboxes in the “Send?” column in FIG. 3 in red below) to which photos found using a face model built via Krupka’s face model building GUI are emailed when “Send” button 310 is activated. Young, 6:13-21.

Sharing Contact	Send to:	Photos Tagged:	Edit Detail?	Send?
Mom	ann@xyz.com, 415-123-4567	bob, Family	Edit	<input checked="" type="checkbox"/>
Bob	bob_smith@bobsmith.com	bob	Edit	<input checked="" type="checkbox"/>

FIG. 3

317. The Krupka-Young combination therefore meets limitation [2F]. Limitation [2B] is met because when images found using a face model built from a face selected by the user from displayed human faces ([2D]-[2E]) are shared via email ([2F]) using the email address received from the user ([2C]) by selecting Young’s “Share Photos” button and then selecting “Send” to share via Krupka’s email share option, limitations [2C]-[2F] are *each* performed “*in connection with the at least one additional option for sharing images.*” Krupka, [0032], [0058]-

[0060]. Krupka-Young also discloses claims 3, 4 and 6-30 for the reasons discussed in §§ VI.A.4, VI.A.5 and VI.A.7-VI.A.31.

4. Claim 5

318. Claim 5 depends from claim 2 and further recites that “*the plurality of indicia is part of a face screen that is configured for receiving tags in connection with the plurality of indicia.*”

319. Krupka’s face model building GUI displays human faces (*i.e.*, “*the plurality of indicia*”) from which the user tags faces of interest to build corresponding face models (Krupka, [0002], [0040]-[0041]), thus this GUI is “*configured for receiving tags in connection with the plurality of indicia.*” A POSA would have understood this ***display of human faces*** to meet the claimed “*face screen*” (a term used in claim 5 only). Krupka does not discuss the details about its interface for tagging faces, which were known (Krupka, [0002]). However, it would have been obvious to a POSA that Krupka’s face building GUI provides some interface functionality that allows the user to tag faces from those human faces displayed.

320. Young’s “Add Tag” (highlighted in green below) is one example of a known interface element that allowed a user to tag faces detected in photos from a user’s photo album. Young, 3:37-41. Once added, Young discloses displaying the tags hierarchically in side panel 106 (highlighted in red below). Young, 3:13-32.

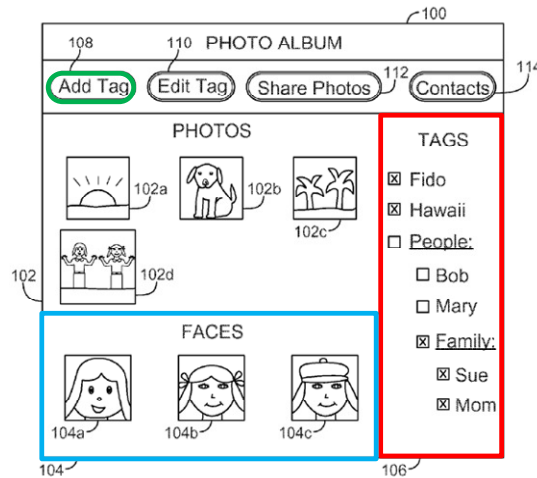


FIG. 1A

321. Like Krupka, Young displays faces detected in photos from the user's photo album (see "Faces" panel 104 highlighted above in blue, Young, 2:46-65) and so also discloses a "*face screen*." It would have been obvious to a POSA to implement Krupka's tagging capability (Krupka, [0002], [0040]-[0041]) using Young's tagging interface to allow the user to add a tag for each face of interest the user selects from the displayed human faces to build a face model. Using Young's tagging interface with Krupka's face model building GUI would have been the use of a known technique to improve similar devices in the same way to yield a predictable result.

322. Furthermore, a POSA would have been motivated to use Young's tagging interface so that tags added to faces are displayed hierarchically, as taught by Young, so that a user can quickly find and share photos of friends and family as disclosed in Krupka (Krupka, [0001]-[0002], [0058]).

323. Claim 5 further recites that “*the tags are displayed with the plurality of indicia in connection with the at least one additional option for sharing images.*” Krupka-Young meets this limitation. Specifically, in Krupka-Young, Young’s tagging interface is used with Krupka’s face model building GUI so that tags added using the “Add Tags” button for the displayed human faces (i.e., “*the plurality of indicia*”) are displayed hierarchically along with the detected human faces (i.e., “*the plurality of indicia*”) and the “Share Photos” button (i.e., “*the at least one additional option for sharing images.*”).

C. Claims 1-30 Would Have Been Obvious Over the Combination of Perlmutter and Krupka

1. Perlmutter (Ex. 1006)

324. Perlmutter, titled “Using Relevance Feedback In Face Recognition,” issue August 24, 2010. I am informed and understand that based on the issue date, Perlmutter is prior art under § 102(b). Based upon my review of the file history for the ’726 patent, I understand that Perlmutter was not considered during prosecution.

325. Perlmutter uses face recognition to find and organized photos. The user’s photos are displayed and the user can select a face of a person the user would like the system to find more photos of—this selected face is referred to as a “query face.” Perlmutter, 11:1-12:60; 19:24-21:42; 30:23-67, FIGS. 12-14. The

user can assign a name to the query face to identify the person that the query face depicts. Perlmutter, 30:62-67.

326. Perlmutter builds a “face feature vector” from the query face using a “feature extractor,” and uses the query face to “search for other images in the photo album that include a face that is the same as the query face.” Perlmutter, 14:43-15-35, 31:1-32:47, FIGS. 15-16. Search result images that include a face that is determined to be the same as the query face are displayed to the user (e.g., so that the user can provide feedback to improve the face model), and stored in a folder labeled with the name that the user assigned to the query face. Perlmutter, 31:8-58.

327. Perlmutter uses “face feature vector” to refer to what Krupka refers to as a “face model,” with both terms being described as comprising a set of features representing a particular face (*compare* Perlmutter, 11:66-12:14, *with* Krupka, [0039]). *Id.* The term “face model” is used hereinafter to refer to both of these sets of features representing a face (*i.e.*, Perlmutter’s “face feature vectors” and Krupka’s “face models”), as they both describe the same or equivalent types of information that can be used to find photos of the corresponding face.

2. Motivation to Combine Perlmutter and Krupka

328. Perlmutter describes another example of a conventional photo finding and sharing system, like the Picasa™ software described in Krupka’s Background (Krupka, [0002]), that allows a user to build a face model of a person to find and

display additional photos of that person in the user's photo collection. Perlmutter, 30:40-31:58.

329. POSA would have recognized from Krupka's disclosure that the system described in Perlmutter would also have had the shortcoming identified in Krupka [0003]-[0004] that "digital images of a user and his/her family members that are located in albums *belonging to others*" cannot be found and shared unless other users repeat the process for each person for which a user is interested in obtaining photos (*id.*).

330. Thus, a POSA would have been motivated to use Krupka's techniques for *sharing* face models and photos in the system described by Perlmutter so that Perlmutter's face models can be used to not only find and share photos in one's own photo collection, as disclosed in Perlmutter, but *also* to find and share photos in photo collections belonging to others, as expressly taught by Krupka. (Krupka, [0004]-[0007]).

3. Implementing Perlmutter-Krupka

331. A POSA implementing the Perlmutter-Krupka system to share Perlmutter's face models so that photos can be found and shared from photo collections belonging to others, as taught by Krupka, would have applied Krupka's face model and photo sharing techniques (Krupka, [0050]-[0091], e.g., as discussed *supra* §§VI.A.1.b and **Error! Reference source not found.**) to

Perlmutter's face models created using the process implemented by Perlmutter's system (Perlmutter, 30:23-37:35, FIGS. 12-19).

332. The Perlmutter-Krupka system would therefore have been configured to create face models to find, display and organize corresponding photos from a user's album by face, as taught by Perlmutter (Perlmutter, 30:23-37:35), and configured to share the resulting face models so that photos can be found and shared in photo collections belonging to others, as taught by Krupka (Krupka, [0004]-[0007], [0050]-[0091]). Specifically, a POSA would have implemented Perlmutter-Krupka so that Perlmutter's system included the functionality of Krupka's imaging finding/sharing module, as doing so provides the benefits of Krupka's face model and photo sharing techniques to improve Perlmutter's system.

333. Implementing the Perlmutter-Krupka combination would have been within a POSA's capabilities, and a POSA would have had a reasonable expectation that the implementation would work successfully. For example, Krupka discloses that the image finding/sharing module may be implemented as a "plug-in module" of an existing photo management application (Krupka, [0074]), or installed as a server image finding/sharing module accessible by user devices via a network (Krupka, [0071], [0072]). Either implementation would have been within a POSA's capabilities to implement with a reasonable expectation that the implementation would work successfully. Specifically, implementing Krupka as a

“plug-in module” to Perlmutter’s existing software, or providing Krupka’s network accessible installation, would have been within a POSA’s capabilities to implement with a reasonable expectation that such straightforward software installations would work successfully.

4. Claim 1

334. As discussed in §§V.B, **Error! Reference source not found.**, claim 1 recites a device having conventional computer components (limitations [1A]-[1D]) including a processor that executes instructions that cause the device to (1) display a first set of images recognized as including a first face selected by the user (limitations [1E]-[1G]) and (2) display and selectively share a second set of images of at least one face associated with face recognition information received from a third party device (limitations [1H]-[1K]).

335. In Perlmutter-Krupka, Perlmutter’s GUI implementation that allows a user to select a query face to find and display other photos of that face in a user’s photo album meets [1E]-[1G], and Krupka’s image finding/sharing software implemented to share Perlmutter’s face models so that photos of a face associated with a shared face model received from another device can be found and shared meets limitations [1H]-[1K] for substantially the same reasons discussed in **Error! Reference source not found.** *supra*, as further discussed below.

a. Perlmutter-Krupka Discloses Limitations [1A]-[1D]

336. Both Perlmutter and Krupka disclose techniques that are implemented in software that can be executed on conventional computer components.

Perlmutter (37:53-38-20); Krupka, [0028]. Thus, a POSA would have understood that Perlmutter-Krupka can be implemented on either the conventional computer components described in Krupka or Perlmutter, for example, on any of the Krupka devices discussed *supra* **Error! Reference source not found.** or any of the Perlmutter computing device (Perlmutter, 37:53-38-20). Thus, Perlmutter-Krupka implemented on any of the Krupka devices meets limitations [1A]-[1D] for the reasons discussed in §**Error! Reference source not found.**.

b. Perlmutter-Krupka Discloses Limitations [1E]-[1G]

- (1) **[1E]** *“display, utilizing the screen of the device, a plurality of indicia each including at least a portion of an image including a face”*

337. To allow a user to select a “query face” from which a face model is created to find other photos in a user’s album, Perlmutter displays thumbnails of photos from the user’s photo album, as shown in the GUI of FIG. 13, reproduced below (*see also* “My Album” in FIG. 12). Perlmutter, 30:23-50.

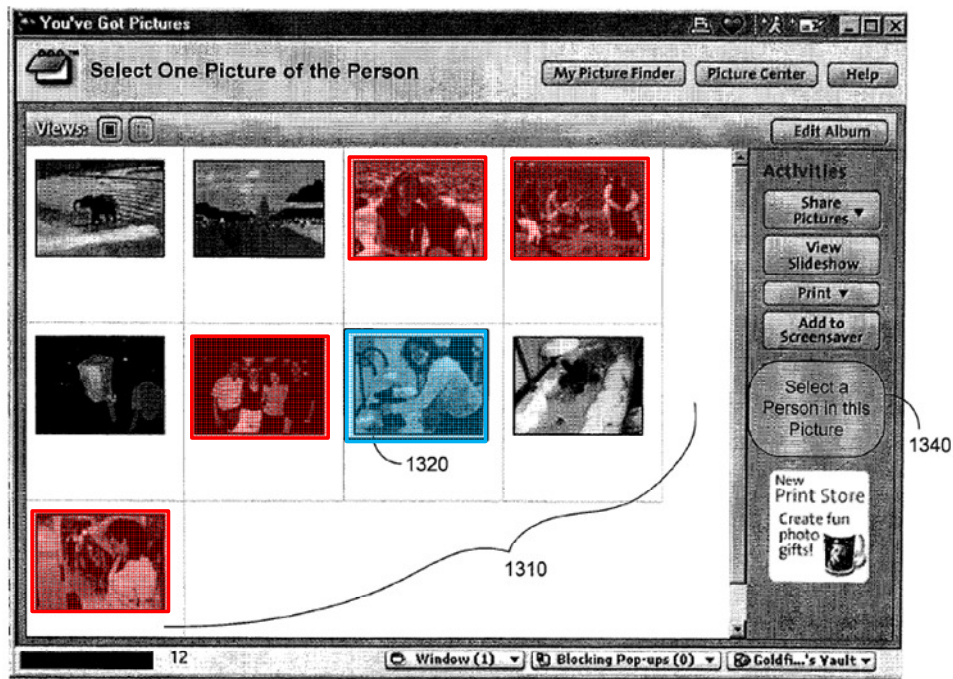


Fig. 13

338. Each thumbnail image highlighted in red and blue includes at least one face and, as shown by the user's selection of image 1320 highlighted in blue (Perlmutter, 30:46-47), are selectable visible interface elements, any two or more of which meet the claimed "*plurality of indicia each including at least a portion of an image including a face.*" Thus, the thumbnails faces displayed on the user's device meet limitation [1E]. *Id.*

- (2) [1F] "*receive, utilizing the input mechanism of the device, a user input in connection with at least one of the indicia including at least a portion of a first image including a first face*"

339. Perlmutter also discloses that the "the user may select an image, such as image 1320, as a query image" (see query image 1320 highlighted in blue

above) and the “user may select a face in image 1420 to serve as a query face” (Perlmutter, 30:47-61) to “initiate a search for images that include faces that are the same as the query face” (Perlmutter, 31:1-3). As with all of the Perlmutter-Krupka GUIs displayed on the user’s device (e.g., any of the Krupka devices), interaction with the GUI is performed via the device’s input mechanism (e.g., via Krupka’s touch screen or via a mouse). As shown in FIG. 14 reproduced below, GUI 1400 allow the user to enter the name of the person selected as the query face, which in this example is “Stephanie.” *Id.*; Perlmutter, 30: 62-67.



Fig. 14

340. Because the query image containing the query face is selected from the images in the user’s photo album displayed as thumbnails including faces, the

user selecting (“*user input*”) the query image (“*at least one of the indicia*”) containing the query face (“*a first face*”) from the displayed thumbnails (“*plurality of indicia*”) via Perlmutter’s GUIs (“*received, utilizing the input mechanism of the device*”) meets [1F].

- (3) [1G] “*after receiving the user input in connection with the at least one indicia, display, utilizing the screen of the device, a first set of images each including the first face that has been recognized in at least one of a plurality of images accessible via the device*”

341. Perlmutter discloses that the query face is used to “search for other images in the photo album that include a face that is the same as the query face” (Perlmutter, 31:1-3). Perlmutter’s FIG. 15, reproduced below, illustrates a GUI that “presents search result images” to the user (Perlmutter, 31:8-13).

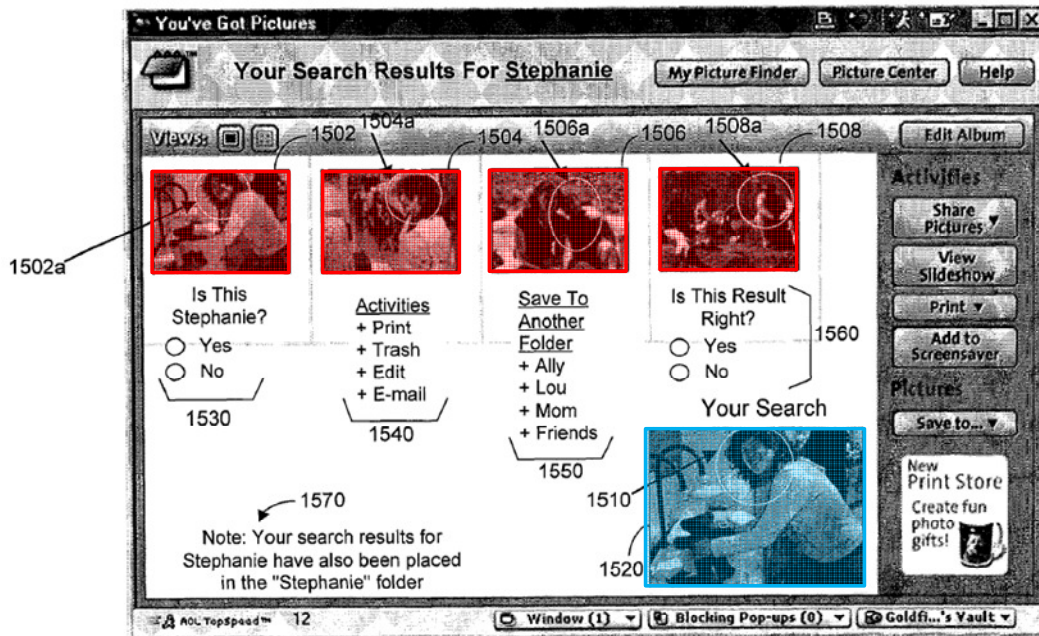


Fig. 15

342. These displayed images (highlighted in red) from the user's photo album that "include faces that are the same as the query face" (highlighted in blue) (Perlmutter, 31:11-12; 32:7-10, FIGS. 15-16) are thus *"a first set of images each including the first face that has been recognized in at least one of a plurality of images accessible via the device,"* that are displayed via the GUI on the user's device so that Perlmutter-Krupka meets [1G].

c. Perlmutter-Krupka Discloses Limitations [1H]-[1K]

343. Perlmutter's face models meet the claimed "face recognition information" for the same reasons that Krupka's face models do—both describe information representing features of a particular face that can be used to find

images containing that face. §§VI.A.2.c(1)(b), VI.C.1. As discussed *supra* §VI.C.2, a POSA would have been motivated to share Perlmutter's face models so that photos can be found and shared from photo collections belonging to others, as taught by Krupka. *Id.*; Krupka, [0003]-[0007]. In Perlmutter-Krupka (§VI.C.3), Perlmutter's models and images found using those face models are shared and received using the techniques provided by Krupka's imaging finding/sharing software so as to gain the benefits of Krupka's face model and photo sharing techniques. §§VI.C.2-VI.C.3.

344. The Perlmutter-Krupka combination using Krupka's email invitation and request to download the image finding/sharing software to share and receive Perlmutter's face models and using Krupka's "Pictures Found" window to display and share images found using face models received from another device meets limitations [1H]-[1K] for the same reasons discussed in §**Error! Reference source not found.** in connection with Krupka alone. Thus, claim 1 is also obvious over Perlmutter-Krupka.

5. Claims 2-5

345. Claim 2 is obvious over Perlmutter-Krupka for substantially the same reasons discussed in §**Error! Reference source not found.**, except that limitations [2D] and [2E] are met by Perlmutter-Krupka because Perlmutter discloses a user selecting a query image containing a query face from photos in the user's photo

album (Perlmutter, 30:47-61; §§VI.C.4.b(2)-VI.C.4.b(3) *supra*), and the “*third set of images*” recited [2F] is met by Perlmutter-Krupka because Perlmutter discloses that the query face is used to find photos from the users photo album that include the same face (Perlmutter, 31:1-19; §VI.C.4.b(3) *supra*). Thus, Perlmutter-Krupka meets these claim 2 limitations for the same reasons Perlmutter-Krupka meets claim 1’s [1E]-[1G] discussed *supra* §VI.C.4.b.

346. In particular, as discussed in §§**Error! Reference source not found.**-e, claim 2’s [2D] and [2E] are similar to claim 1’s [1E] and [1F] except that the “*indicia*” corresponds to “*one or more faces*,” which is also met by the user selecting the query image containing the query face of Stephanie. so that Perlmutter-Krupka meets limitations [2D] and [2E] for the same reasons discussed in §VI.C.4.b for limitations [1E]-[1F]. With respect to limitation [2F], the photos found of Stephanie include the same face as the query face of Stephanie that the user selected and therefore meet “a *third set of images each including the one or more faces*.” The remaining limitations in claim 2 are met by Perlmutter-Krupka for the same reasons Krupka does as discussed in §§**Error! Reference source not found.** Specifically, because these found images are shared via Krupka’s “*additional option to share*” when a user thereafter selects Krupka’s email option to share the photos of Stephanie via this additional share option, each of limitations

[2C]-[2F] are performed in connection with this “*additional option to share images*” as recited in [2B].

Additionally, FIGS. 13 and 15 of Perlmutter display a “Shares Pictures” (highlighted in yellow below) element that also meets the “*additional option to share images*” recited claim 1.

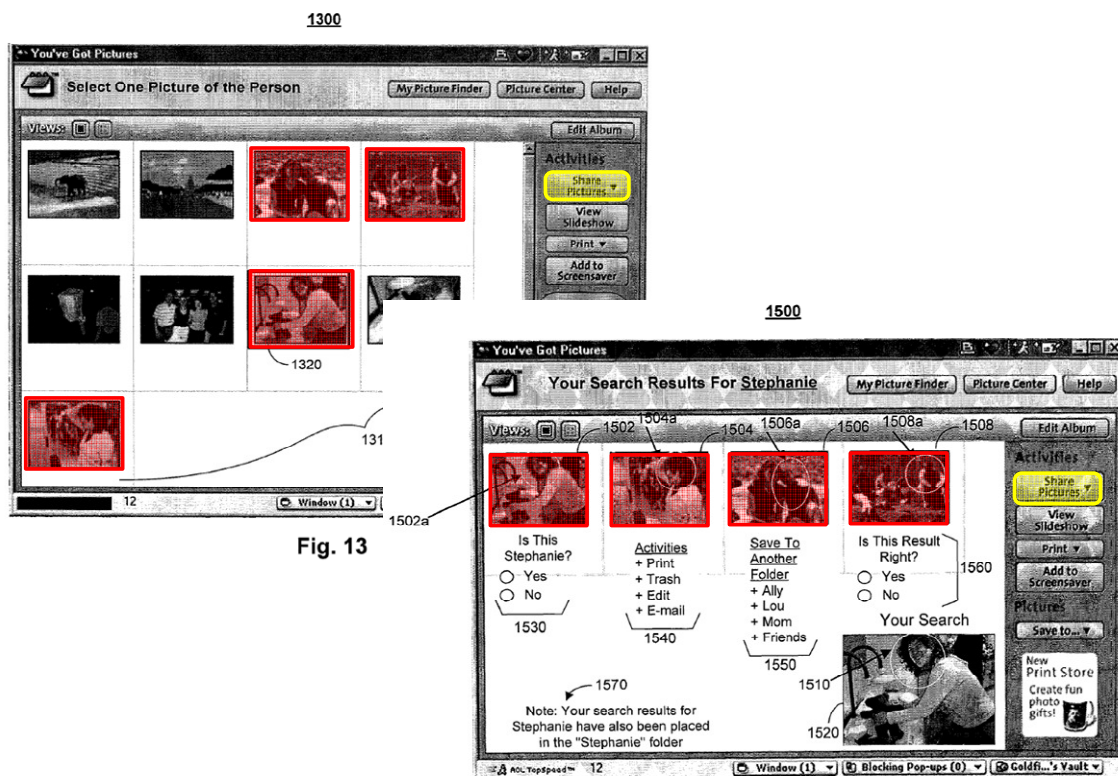


Fig. 15

347. A POSA would have had reasons to implement Perlmutter-Krupka such that Perlmutter’s “Share Pictures” interface element invoked Krupka’s options for sharing found images to allow a user to conveniently share images found using the Perlmutter-Krupka face models from the same GUI in which those found images are displayed. Thus, this Perlmutter-Krupka “Share Pictures” option

provides an additional way to access Krupka's share options (i.e., an "*additional option to share images*") that meets limitation [2A] so that Perlmutter-Krupka renders claim 2 obvious for this additional reason.

348. One obvious way to implement Perlmutter's "Share Pictures," which includes a dropdown icon, would have been to display Krupka's available share options (e.g., via Krupka's email option or via Krupka's server upload discussed *supra* §**Error! Reference source not found.**) when Perlmutter's "Share Pictures" dropdown is selected so the user can select *how* the user would like to share the found images displayed in the same GUI.

349. Because Perlmutter-Krupka's "Share Pictures" element is configured to access Krupka's e-mail sharing option, Perlmutter-Krupka receives "*an email address...of at least one other person*" in limitation [2C] for the same reasons Krupka meets this limitation discussed above in §VI.A.3.c. As discussed in §§**Error! Reference source not found.**-e, limitations [2D] and [2E] are similar to limitations [1E] and [1F] in claim 1 except that the selected "*indicia*" corresponds to "*one or more faces*," which is also met by the user selecting the query image containing the query face of Stephanie so that Perlmutter-Krupka meets limitations [2D] and [2E] for the same reasons discussed in §VI.C.4.b for limitations [1E]-[1G].

350. With respect to limitation [2F], the photos found of Stephanie include the same face as the query face of Stephanie that the user selected and therefore meet “a *third set of images each including the one or more faces.*” Because, these found images are shared via the Perlmutter-Krupka “Share Pictures” option, when a user thereafter selects Krupka’s email option to share the photos of Stephanie via this additional share option, each of limitations [2C]-[2F] are performed in connection with this “*additional option to share images*” as recited in [2B].

351. Claims 3-5, which depend from claim 2, are obvious over Perlmutter-Krupka for the reasons just discussed for claim 2 and those reasons discussed in §§VI.A.4-VI.A.6.

6. Claim 5

352. Claim 5 depends from claim 2 and further recites that “*the plurality of indicia is part of a face screen that is configured for receiving tags in connection with the plurality of indicia, and the tags are displayed with the plurality of indicia in connection with the at least one additional option for sharing.*”

353. Perlmutter’s folders, each labeled with the name of the person depicted in the photos stored therein, provide an independent basis for finding claim 5 obvious over Perlmutter-Krupka. As discussed above (§§VI.A.6) tagging photos with the name of a face pictured in the photo and displaying tags with corresponding photos were known features commonly found in face recognition

software, including Perlmutter’s FIG. 19 GUI (below) where images are organized into folders labeled with the name of the person whose face appears in the photos stored in the folder. Perlmutter, 36:26-37 (“Each folder includes search result images that contain faces...determined to belong to a particular person.”)

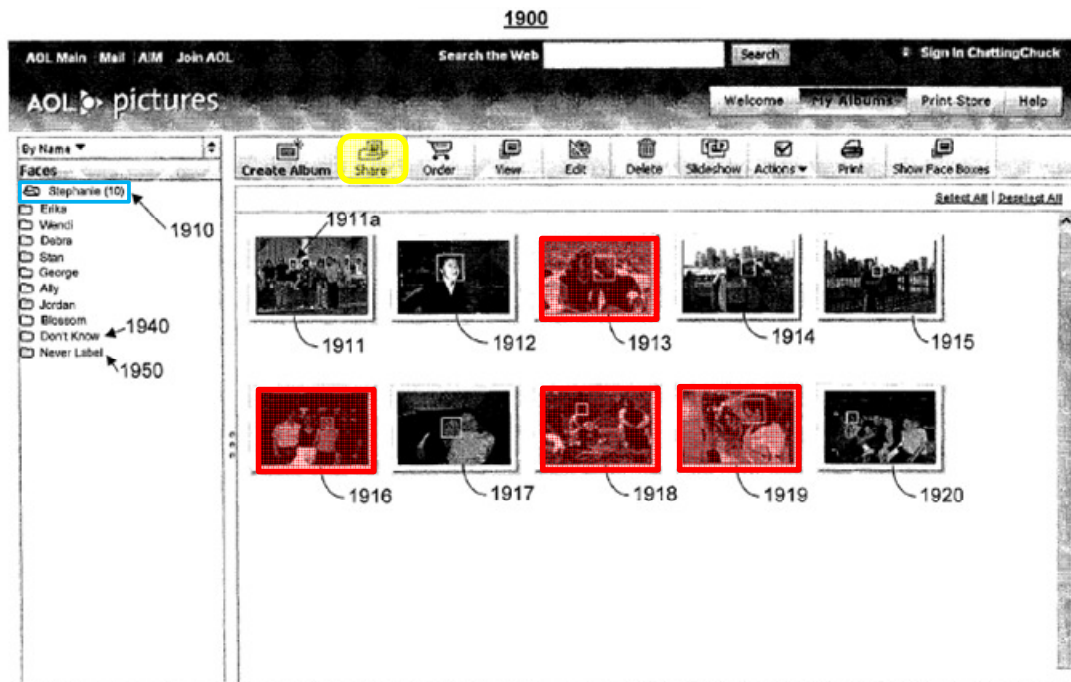


Fig. 19

354. Perlmutter’s FIG. 19 GUI organizes photos into folders labeled with the name of the person pictured in those photos that the user assigned to the query face—i.e., the name with which the user tagged the query face. Perlmutter, 30: 62-67, FIG. 14 (showing the user tagging the query face with the name “Stephanie”), 36:26-37. As shown in FIG. 19, the tags are displayed as folder labels and, as shown by the thumbnails highlighted in red above in the open “Stephanie” folder, the “*plurality of indicia*” from which the user selected the query image with

Stephanie's face are displayed along with all of the other photos of Stephanie's face (i.e., a "*face screen*") and so are "*part of a face screen*" and "*the tags are displayed with the plurality of indicia,*" as recited in claim 5.

355. For example, as noted in FIG. 15 of Perlmutter, the photos found using a query face that the user tagged as being the face of Stephanie (CITE) are placed in the Stephanie folder 1910 illustrated in FIG. 19. FIG. 19 displays a folder for each person that has been identified in one or more photos. Perlmutter, FIG. 19 (displaying folder for "Stephanie," "Erika," "Wendi," etc.); 36:26-37. The photos found for each person are displayed when the corresponding folder is selected, as shown by the open "Stephanie" folder in FIG. 19, and each face is shown with a white box. (Perlmutter, 36:38-44) A POSA would have understood this GUI to be a "face screen," a term that the '726 patent uses exclusively in claim 5, because it provides a screen displaying the faces of the corresponding person.

356. Furthermore, a POSA would have understood the folder names assigned to the face in the photos contained therein to be "tags" because they are names assigned to the photos that depict the corresponding person. Perlmutter, 30:62-67; 37:32-35. This is consistent with how the '726 patent uses the term "tag." Ex. 1001, 22:1-5, 21:14-16, 40:32-35, 41:14-18, 42:18-19, FIG. 31B. Also, FIG. 19 is "*configured to receive tags*" because Perlmutter discloses that the user

can “assign[] a different name to ... a face by, for example, right clicking on the face” via the FIG. 19 GUI. Perlmutter, 37:31-35.

357. FIG. 19 further displays a “Share” button (highlighted in yellow). A POSA would have had reasons to implement Perlmutter-Krupka such that Perlmutter’s “Share” interface element invoked Krupka’s option for sharing found images. Doing so would have provided an “*additional option to share images*” that allows a user to conveniently share images matching a query face from the folder containing all the photos of that face. By linking this “Share” element to Krupka’s share option, this additional option to share meets each of the limitations of claim 2 for the same reasons the discussed above in §VI.C.5 in connection with Perlmutter’s “Share Pictures” interface element and, by being displayed “*in connection with*” the tags, Perlmutter-Krupka also meets each limitation in claim 5 for this additional reason.

7. Claims 6-30

358. Claims 6-30 are obvious over Perlmutter-Krupka for the same reasons discussed in §§**Error! Reference source not found.-Error! Reference source not found.** Claim 30 is obvious over Perlmutter-Krupka for the additional reason that Perlmutter discloses that the selectable thumbnails of photos from the user’s photo album are displayed to the user in a grid arrangement, as shown in FIG. 15

reproduced below so that the “*plurality of indicia*” (see §VI.C.4.b(1)) are “*a grid of face interface elements*,” as recited in claim 30.

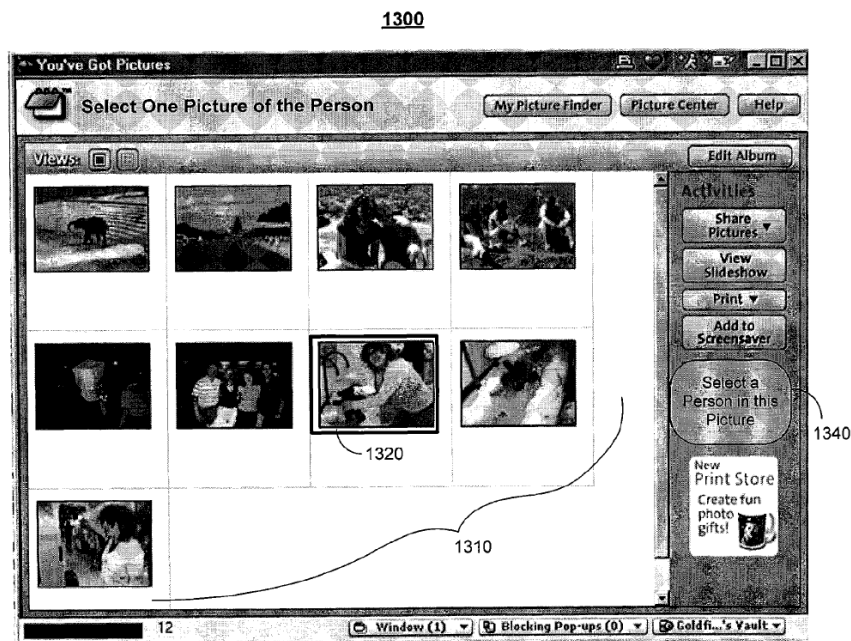


Fig. 13

D. Claim 5 Would Have Been Obvious Over the Combination of Gokturk and Krupka

1. Gokturk (Ex. 1011)

359. Gokturk, titled “System and Method for Enabling Search and Retrieval from Image Files Based on Recognized Information,” issued on October 5, 2010. I am informed and understand that based on the issue date, Gokturk is prior art under § 102(b). Based upon my review of the file history for the ’726 patent, I understand that Gokturk was not considered during prosecution.

360. Like Krupka, Gokturk discloses using “recognition signatures” or “face signatures” to find and share photos with others (Gokturk, 18:17-67; 48:17-

64), and discloses automatically sharing face signatures along with these photos (Gokturk, 48:52-64).

361. Also like Krupka, Gokturk presents a GUI displaying all of the photos from a user's photo collection that depict human faces so that the user can tag faces of interest, as shown in FIG. 8 of Gokturk below.

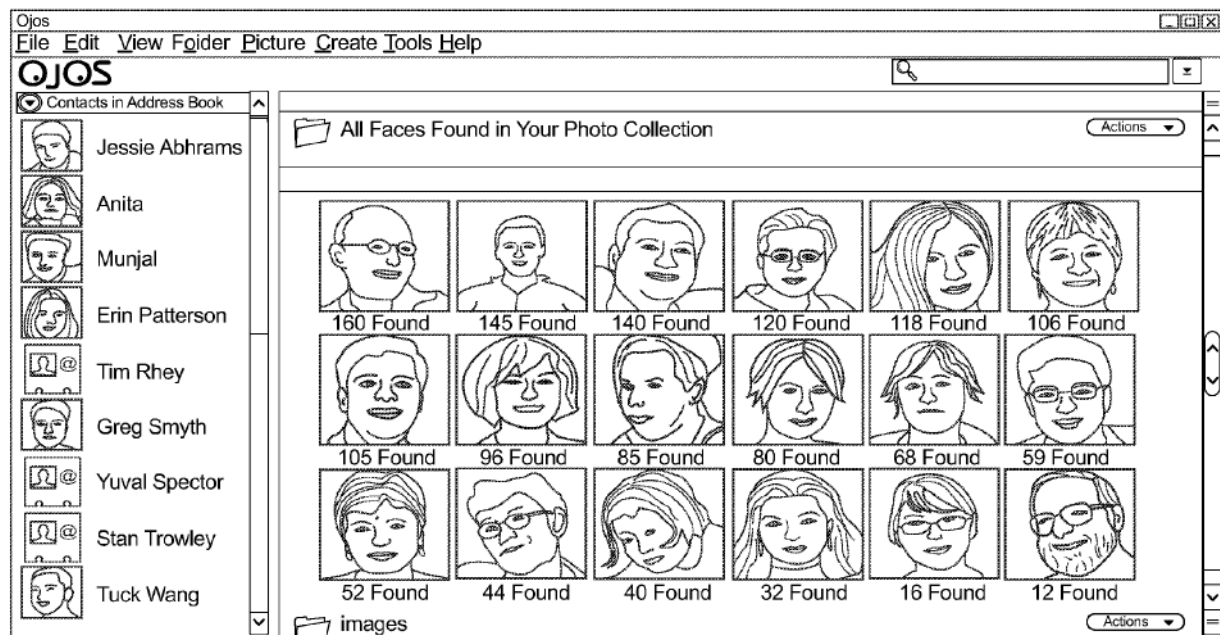


FIG. 8

362. Gokturk's GUI also displays contacts from the user's contact list so that a user can link found faces with a corresponding contact. Gokturk, 15:1-13. A POSA would have been motivated to use Gokturk's tagging feature with Krupka's similar face model building GUI (Krupka, [0040]-[0041]) that allows users to tag faces of interest to build face models, as discussed in further detail below.

363. Claims 1-2 are met by the combination of Gokturk with Krupka (Krupka-Gokturk) for the reasons discussed above in §§ VI.A.2 and VI.A.3.

2. Claim 5

364. Claim 5 depends from claim 2 and further recites that “*the plurality of indicia is part of a face screen that is configured for receiving tags in connection with the plurality of indicia.*” As discussed in §VI.A.6, Krupka’s face model building GUI meets this limitation.

365. Krupka does not provide details on how its tags are handled thereafter except to say they are associated with the face models (Krupka, [0064]). However, displaying tags along with the image of a face that was tagged was known (see e.g., Gokturk, FIG. 8; Perlmutter, FIGS. 13-15, 19; Young, Fig. 1A) and it would have been obvious to a POSA to use these techniques in connection with Krupka’s face model building GUI. For example, it would have been obvious to display tags along with faces tagged via Krupka’s GUI, as disclosed in Gokturk’s GUI of FIG. 8 (below).

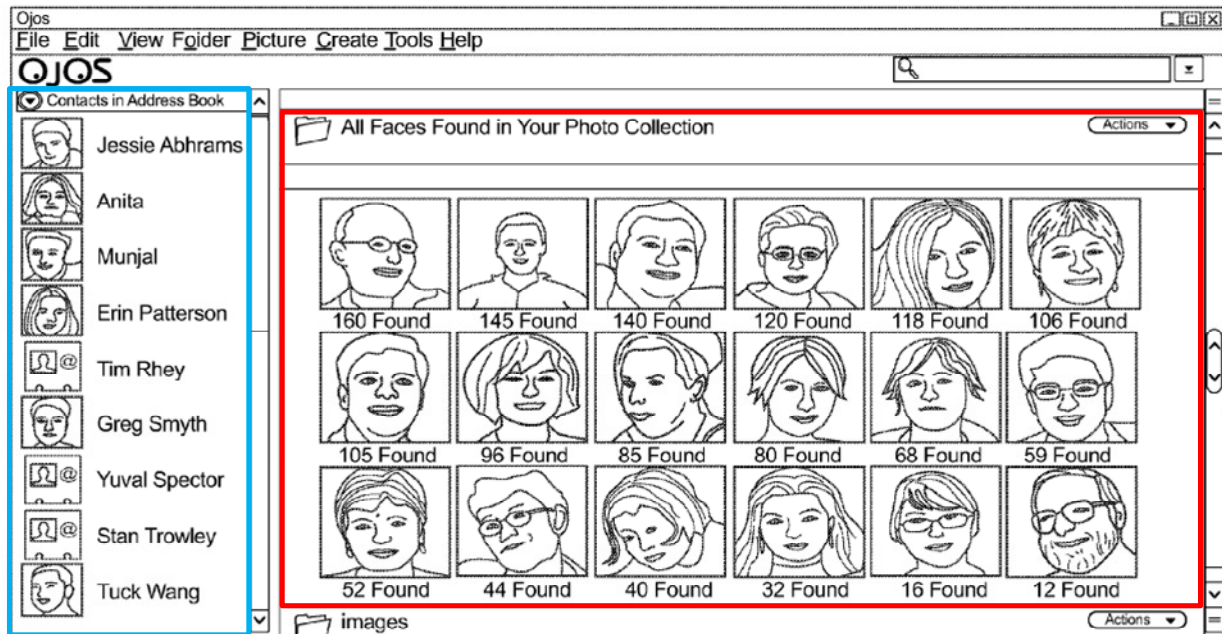


FIG. 8
(Annotated)

366. Like Krupka’s face model building GUI, Gokturk provides a GUI that displays human faces detected in a user’s photo collection (and therefore is also a “face screen”) so that the user can tag photos with the identity of those depicted, as shown above with found faces highlighted in red. Gokturk, 18:52-67.

367. In Gokturk, faces found by the software are tagged by the user by matching faces to names and/or e-mail addresses found in the user’s address book. Gokturk, 18:17-67. The tags are displayed together with the tagged face in the side panel highlighted in blue above. *Id.*

368. A POSA would have been motivated to apply Gokturk’s known technique to Krupka’s face model building GUI (that likewise displays human faces that are tagged by the user) so that tagged faces and resulting face models can

be associated with respective people from the user's contact list (Krupka, [0083]) and conveniently displayed to the user using Gokturk's side panel alongside detected human faces—i.e., where “*the tags are displayed with the plurality of indicia*”—or with other views such as the display of photos found using resulting face models. Such an implementation would have been the use of a known technique to yield the predictable result of providing an interface that allows a user to link detected faces with contacts and conveniently display them together.

369. Claim 5 further recites that “*the tags are displayed with the plurality of indicia in connection with the at least one additional option for sharing.*” In Krupka-Gokturk, a user sharing photos found of a tagged face (which is displayed along with its tag per above) using Krupka's e-mail sharing option meets “*in connection with the at least one additional option for sharing.*” Notably, in Boccone's infringement contentions, the alleged “*face screen*” and the alleged “*at least one additional option to share*” are part of entirely different screens with no relationship between the two displays even alleged. Ex. 1001, 22-23.

I understand and have been warned that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. § 1001). I 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 § 1001 of title 18 of the United States Code.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: April 17, 2020

Matthew A. Tush