

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
HP INC., DELL INC., DELL TECHNOLOGIES INC.,
ASUSTEK COMPUTER INC., ASUS GLOBAL PTE. LTD.,
Petitioners

v.

LITL LLC,
Patent Owner.

IPR2024-00456
U.S. Patent No. 8,612,888

**DECLARATION OF DR. HENRY HOUH
REGARDING U.S. PATENT NO. 8,612,888**

TABLE OF CONTENTS

I. INTRODUCTION.....	1
II. BACKGROUND AND QUALIFICATIONS.....	2
III. LEVEL OF ORDINARY SKILL IN THE ART	6
IV. MATERIALS CONSIDERED AND RELIED UPON.....	7
V. LEGAL STANDARDS.....	10
A. Legal Standards for Prior Art.....	10
B. Legal Standards for Priority Date	11
C. Legal Standards for Obviousness	11
VI. SUMMARY OF OPINIONS	15
VII. BRIEF DESCRIPTION OF THE TECHNOLOGY	15
VIII. OVERVIEW OF THE '888 PATENT.....	17
A. Subject Matter Overview of the '888 Patent.....	17
B. Brief Summary of '888 Patent Prosecution History	21
C. Brief Summary of Prior Patent Office Proceedings involving the '888 Patent.....	23
IX. CLAIM CONSTRUCTION	23
A. “plurality of views of digital media content”.....	23
B. Means-Plus-Function (“MPF”).....	24
1. “view selector component”	24
2. “aggregation component”	24
3. “display component”	25
4. “storage component”	25
5. “execution component”	25
X. DETAILED EXPLANATION OF GROUNDS	26
A. Ground 1: Obviousness Over Reavey, Martinez, and Proctor (Claims 1, 2, 24, 26-27)	26
1. Reavey (EX-1009).....	26
2. Martinez (EX-1007)	27
3. Proctor (Ex. 1010)	30
4. Motivation to Combine.....	34

5.	Claim 1.....	41
6.	Claim 2.....	68
7.	Claim 24.....	69
8.	Claim 26.....	72
9.	Claim 27.....	76
B.	Ground 2: Obviousness over Reavey, Martinez, Proctor, and Aldrich (Claims 3-8, 15-17, 20, 21, 24).....	82
1.	Aldrich	82
2.	Motivation to Combine.....	87
3.	Claim 3.....	91
4.	Claim 4.....	96
5.	Claim 5.....	99
6.	Claim 6.....	100
7.	Claim 7.....	103
8.	Claim 8.....	107
9.	Claim 15.....	108
10.	Claim 16.....	115
11.	Claim 17.....	118
12.	Claim 20.....	127
13.	Claim 21.....	131
C.	Ground 3: Obviousness over Reavey, Martinez, Proctor, and Pröll (Claim 25)	132
1.	Pröll.....	132
2.	Motivation to Combine.....	133
3.	Claim 25.....	135
D.	Ground 4: Obviousness over Reavey, Martinez, Proctor, Aldrich, and Chao (Claims 9, 18, 19)	138
1.	Chao	138
2.	Motivation to Combine.....	140
3.	Claim 9.....	143
4.	Claim 18.....	147
5.	Claim 19.....	148

E.	Ground 5: Obviousness over Reavey, Martinez, Proctor, and Chao (Claim 22)	150
1.	Claim 22.....	150
XI.	CONCLUSION	153

I, Dr. Henry Houh, hereby declare as follows:

I. INTRODUCTION

1. I have been retained on behalf of Microsoft Corp. (“Microsoft” or “Petitioner”) to offer technical opinions related to U.S. Patent No. 8,612,888 (“the ’888 patent”) (EX-1001). I understand that Microsoft is requesting that the Patent Trial and Appeal Board (“PTAB” or “Board”) institute an inter partes review (“IPR”) proceeding of the ’888 patent. Specifically, I have been asked to consider the validity of claims 1-9, 15-22, and 24-27 of the ’888 Patent (the “Challenged Claims”) in view of prior art and obviousness considerations from the perspective of a person of ordinary skill in the art at the time of the invention (“POSITA”) as it relates to the ’888 Patent.

2. I am being compensated for my time at my standard consulting rate. I am also being reimbursed for expenses that I incur during the course of this work. My compensation is not contingent upon the results of my study, the substance of my opinions, or the outcome of any proceeding involving the Challenged Claims. I have no financial interest in the outcome of this matter or on the pending litigation between Petitioner and Patent Owner.

3. My analysis here is based on my years of education, research and experience, as well as my investigation and study of relevant materials, including those cited herein.

4. I may rely upon these materials, my knowledge and experience, and/or additional materials to rebut arguments raised by the Patent Owner. Further, I may also

consider additional documents and information in forming any necessary opinions, including documents that may not yet have been provided to me.

5. My analysis of the materials in this proceeding is ongoing, and I will continue to review any new material as it is provided. This declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

II. BACKGROUND AND QUALIFICATIONS

6. I am over the age of 18 and am competent to write this declaration. I have personal knowledge, or have developed knowledge of these technologies, based upon education, training, or experience, of the matters set forth herein.

7. My qualifications are set forth in my curriculum vitae, a copy of which is filed as Exhibit EX-1004. The following is a brief summary of my relevant qualifications and professional experience.

8. I received a Ph.D. in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology (“MIT”) in 1998. Beforehand, I received a Master of Science degree in Electrical Engineering and Computer Science in 1991, a Bachelor of Science degree in Electrical Engineering and Computer Science in 1989, and a Bachelor of Science degree in Physics in 1990, all from MIT.

9. I am currently self-employed as an independent technical consultant. Until late 2022, I was also president of a company that provides supplemental science,

technology, engineering, and mathematics (“STEM”) education to children of all ages.

10. I first entered telecommunications in 1987 when I worked as a summer intern at AT&T Bell Laboratories as part of a five-year dual degree program at MIT. During my first summer, I worked designing digital hardware including using programmable logic devices. I continued to work at AT&T Bell Laboratories as part of this MIT program. While at MIT, I was a teaching assistant (“TA”) in the Electrical Engineering and Computer Science Department’s core Computer Architectures course. I first was a TA as a senior for a role typically reserved for graduate students. I later became head TA. The course covered various topics in computer architectures, including programmable logic arrays, multiprocessor systems, and parallel processing. As a TA, I helped write homework assignments, lab assignments, and exams. I also taught in the recitation sections.

11. Later, as part of my doctoral research at MIT from 1991-1998, I was a research assistant in the Telemedia Network Systems (“TNS”) group at the Laboratory for Computer Science. The TNS group built a high-speed gigabit network and created applications that ran over the network. Example applications included ones for remote video capture, processing, and display of video on computer terminals. In addition to working on the design of core network components, designing and building the high-speed links, and designing and writing the device drivers for the interface cards, I also helped design the switch, which was composed of an array of FPGAs at the core.

12. I also set up the group’s web server and helped to build the web pages that

initiated the above-mentioned video sessions via a web interface. Vice President Al Gore visited our group in 1996 and received a demonstration of—and remotely drove—a radio-controlled toy car with a wireless video camera mounted on it that was built by our group. This toy car device received commands transmitted over a network from a remote computer, and video data from the toy car was transmitted wirelessly then over a computer network back to the user controller. On occasion, we allowed users visiting our web site to drive the toy car from their remote computer while they watched the video on their computer. The video stream was encoded by TNS-designed hardware, streamed over the TNS-designed network, and displayed using TNS-designed software.

13. I defended and submitted my Ph.D. thesis, titled “Designing Networks for Tomorrow’s Traffic,” in January 1998. As part of my thesis research, I analyzed local area and wide area flows to show a more efficient method for routing packets in a network, based on traffic patterns at the time.

14. From 1997 to 1999, I was a Senior Scientist and Engineer at NBX Corporation, a start-up that made business telephone systems for streaming packetized audio over data networks instead of using traditional telephone lines. NBX was later acquired by 3Com Corporation and the phone system is still used today by numerous businesses.

15. As part of my work at NBX, I designed the core audio reconstruction algorithms for the telephones, as well as the packet transmission algorithms. I also designed and validated the core packet transport protocol used by the phone system.

The protocol was used for all signaling in the phone system, including for the setup of conference calls. The NBX system also featured a computer interface for initiating phone calls, which could also initiate conference calls. The NBX system also supported the Telephony Application Programming Interface (“TAPI”) that allowed other computer programs to integrate with our system telephony features. We obtained U.S. Patent No. 6,697,963, entitled “Telecommunication method for ensuring on-time delivery of packets containing time-sensitive data,” as part of this work.

16. From 1999-2004, I was employed by Empirix or its predecessor company, Teradyne. Empirix was a leader in test tools for telecommunications protocols and systems, providing functional testing tools as well as load testing tools. From 2000-2001, I conceived and built a test platform for testing Voiceover-IP (VoIP) based on highly parallel network processors. The first application on this new test platform was a cloud emulator for simulating the effects of transmitting VoIP over a busy network. The platform was based on a multi-core high performance network processor chip.

17. In 2006, as part of my role at BBN Technologies, I helped found PodZinger Inc., now known as RAMP Inc. PodZinger utilized BBN’s speech recognition algorithms to search through the spoken words in audio and video segments. While I was Vice President of Operations and Technology, PodZinger followed its initial prototype with a full streaming audio and video search solution. I also created a social networking web site, which BBN sold to a venture-funded startup company. In the process of creating the web site, I designed and specified the authentication and

authorization protocols.

18. Since I set up one of the web's first hundred or so servers around late 1993, I have continued to create web servers and their interfaces for various organizations and companies. I have coded the web user interface from scratch, and I also have used various content management systems to create user interfaces.

19. I have been awarded several United States patents, and I have several patent publications including the following examples:

- U.S. Patent No. 7,975,296, "Automated security threat testing of web pages";
- U.S. Patent No. 7,877,736, "Computer language interpretation and optimization for server testing";
- U.S. Patent No. 7,801,910, "Method and apparatus for timed tagging of media content";
- U.S. Patent 7,590,542, "Method of Generating Test Scripts Using a Voice-Capable Markup Language";
- U.S. Patent No. 6,967,963, "Telecommunication method for ensuring on-time delivery of packets containing time-sensitive data."

III. LEVEL OF ORDINARY SKILL IN THE ART

20. In rendering the opinions set forth in this declaration, I was asked to consider the patent claims and the prior art through the eyes of a POSITA at the time of the alleged invention, which I understand is asserted to be April 1, 2008—the earliest possible priority date of the '888 Patent. I understand that the factors considered in

determining the ordinary level of skill in a field of art include the level of education and experience of persons working in the field; the types of problems encountered in the field; the teachings of the prior art; and the sophistication of the technology at the time of the alleged invention. I understand that a POSITA is not a specific real individual, but rather is a hypothetical individual having the qualities reflected by the factors above. I understand that a POSITA would also have knowledge from the teachings of the prior art, including the art cited below.

21. Taking these factors into consideration, in my opinion, at the relevant time, a POSITA relating to the technology of the '888 Patent would have had a Bachelor's degree in Electrical Engineering, Computer Engineering, Computer Science, or a similar field, plus two years of work experience in designing GUIs for computing devices. In my opinion, more education could substitute for experience and vice versa.

22. Before April 1, 2008, my level of skill in the art was at least that of a POSITA. I am qualified to provide opinions concerning what a POSITA would have known and understood at that time, and my analysis and conclusions herein are from the perspective of a POSITA as of that date.

IV. MATERIALS CONSIDERED AND RELIED UPON

23. In forming my opinions expressed herein, in addition to relying on my education and experience, I considered the totality of the following materials:

Exhibit	Reference
1001	U.S. Patent No. 8,612,888 (“the ’888 Patent”)
1002	File History of the ’888 patent
1003	Declaration of Dr. Henry Houh in Support of Petition (“Houh Decl.”)
1004	Dr. Henry Houh CV
1005	RESERVED
1006	German Patent Application Publication DE10331185A1 (“Pröll”) with certified translation
1007	U.S. Patent 6,137,468 (“Martinez”)
1008	Joan Preppernau & Joyce Cox, <i>Step By Step Windows Vista</i> , Microsoft Press (Jan. 3, 2007) (“Preppernau”)
1009	U.S. Patent 5,847,698 (“Reavey”)
1010	U.S. Patent Application Publication 2006/0227122 A1 (“Proctor”)
1011	U.S. Patent Application Publication 2006/0062141 A1 (“Chandhri”)
1012	U.S. Patent Application Publication 2006/0265390 A1 (“Aldrich”)
1013	U.S. Patent No. 7,970,240 B1 (“Chao”)
1014	RESERVED
1015	RESERVED
1016	Complaint, <i>LiTL LLC v. ASUSTeK Computer Inc.</i> , No. 23-cv-00122 (D. Del. Feb. 1, 2023)
1017	Complaint, <i>LiTL LLC v. Dell Techs. Inc.</i> , No. 23-cv-0121 (D. Del. Feb. 1, 2023)
1018	Complaint, <i>LiTL LLC v. HP Inc.</i> , No. 23-cv-00120 (D. Del. Feb. 1, 2023)
1019	Order Granting Microsoft Intervention, <i>LiTL LLC v. HP Inc.</i> , No. 23-cv-00120 (D. Del. Oct. 16, 2023)
1020	Scheduling Order, <i>LiTL LLC v. HP Inc.</i> , No. 23-120 (D. Del. Jan. 11, 2024), ECF No. 44
1021	Foley, James D., et al., <i>Computer Graphics Principles and Practice</i> , Second Edition in C (July 1997)
1022	Dino Esposito, <i>New Graphical Interface: Enhance Your Programs with New Windows XP Shell Features</i> , MSDN Magazine

Exhibit	Reference
1023	Maintenance & Service Guide, <i>HP Pavilion dv1600 Entertainment Notebook PC</i> (June 2006)
1024	Complaint, <i>LiTL LLC v. Lenovo (United States), Inc.</i> , No. 20-cv-00689 (D. Del. May 22, 2020)
1025	Stipulation of Dismissal, <i>LiTL LLC v. Lenovo (United States) Inc.</i> , No. 20-cv-00689 (D. Del. Feb. 3, 2023)
1026	RESERVED
1027	Fujitsu LifeBook T3000 Tablet PC review: Fujitsu LifeBook T3000 Tablet PC, available at https://www.cnet.com/reviews/fujitsu-lifebook-t3000-tablet-pc-review/
1028	HP Compaq Tablet PC TC1100 review: HP Compaq Tablet PC TC1100, available at https://www.cnet.com/reviews/hp-compaq-tablet-pc-tc1100-review/
1029	Acer TravelMate C110 review: Acer TravelMate C110, available at https://www.cnet.com/reviews/acer-travelmate-c110-review/
1030	OLPC XO-1 (One Laptop Per Child) review: OLPC XO-1 (One Laptop Per Child), available at https://www.cnet.com/reviews/olpc-xo-1-one-laptop-per-child-review/
1031	Microsoft Indemnity Request
1032	RESERVED
1033	RESERVED
1034	RealPlayer 7 Plus User Manual
1035	RESERVED
1036	Australia Patent Application Publication AU2001100022A4
1037	Apple Reinvents the Phone with iPhone, available at https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/
1038	Twist and Shoot: Nokia N90 makes it première, available at https://web.archive.org/web/20140714193817/http://company.nokia.com/en/news/press-releases/2005/04/27/twist-and-shoot-nokia-n90-makes-its-premiere
1039	Adobe Photoshop Elements 3.0 Getting Started Guide (2004)

Exhibit	Reference
1040	U.S. Patent 7,433,876 (“Spivack”)
1041	An Overview of HTML+, available at https://web.archive.org/web/19970605134644/https://www.w3.org/MarkUp/HTMLPlus/htmlplus_7.html

I have also considered any materials cited in this declaration even if not included in the list above.

V. LEGAL STANDARDS

24. I am not a lawyer and do not provide any legal opinions, but I have been advised that certain legal standards are to be applied by technical experts in forming opinions regarding meaning and validity of patent claims. I have applied the legal standards described below.

25. It is my understanding that assessing the validity of a U.S. patent based on a prior art analysis involves two steps. First, one must assess what meaning a POSITA would have given the terms. Second, after assessing the meaning of the claim terms, one may then assess validity by comparing a patent claim to the “prior art.” I understand that the teaching of the prior art is viewed through the eyes of a POSITA at the time the invention was made. My analysis as to what constitutes a relevant POSITA is set forth above.

A. Legal Standards for Prior Art

26. I understand that a patent or other publication must first qualify as prior art before it can be used to invalidate a patent claim. For purposes of this declaration,

counsel for Petitioner has instructed me to assume that each prior art reference cited in the combinations described below (Reavey, Martinez, Proctor, Aldrich, Pröll, Chao) qualify as prior art to the '888 Patent.

B. Legal Standards for Priority Date

27. I understand that the “priority date” (or “earliest effective filing date” or “Critical Date”) of a patent is the date on which it is filed, or the date on which an earlier application was filed if the patentee properly claims the benefit of the earlier application’s filing date. For purposes of my analysis in this declaration, I have assumed that the '888 Patent is entitled to a priority date of April 1, 2008.

C. Legal Standards for Obviousness

28. My understanding is that a patent claim is invalid as obvious only if the subject matter of the claimed invention “as a whole” would have been obvious to a POSITA at the time the invention was made. To determine the differences between a prior art reference (or a proposed combination of prior art references) and the claims, the question of obviousness is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. Also, obviousness grounds cannot be sustained by mere conclusory statements. Rather, it is necessary to provide some articulated reasoning with rational underpinning to support the legal conclusion of obviousness.

29. I understand that a patent claim that comprises several elements is not proved obvious by simply showing that each of its elements was independently known

in the prior art. In my evaluation of whether any claim of the '888 Patent would have been obvious, I considered whether the Petition, or any evidence submitted in this proceeding, presented an articulated reason with a rational basis that would have motivated a POSITA to combine the elements or concepts from the prior art in the same way as in the claimed invention.

30. It is my understanding that there is no single way to define the line between true inventiveness on one hand—which is patentable—and the application of common sense and ordinary skill to solve a problem on the other hand—which is not patentable. For instance, factors such as market forces or other design incentives may be the source of what produced a change, rather than true inventiveness.

31. I understand that the decision-maker may consider whether the change was merely the predictable result of using prior art elements according to their known functions, or whether it was the result of true inventiveness. And the decision-maker may also consider whether there is some teaching or suggestion in the prior art to make the modification or combination of elements recited in the claim at issue. Also, the decision-maker may consider whether the innovation applies a known technique that had been used to improve a similar device or method in a similar way. The decision-maker may also consider whether the claimed invention would have been obvious to try, meaning that the claimed innovation was one of a relatively small number of possible approaches to the problem with a reasonable expectation of success by those skilled in the art.

32. I have been instructed by counsel that if any of these considerations are relied upon to reach a conclusion of obviousness, the law requires that the analysis of such a consideration must be made explicit. I understand that the decision-maker must be careful not to determine obviousness using the benefit of hindsight and that many true inventions might seem obvious after the fact. I understand that the decision-maker should consider obviousness from the perspective of a POSITA at the time the claimed invention was made, and that the decision-maker should not consider what is known today or what is learned from the teaching of the patent.

33. I understand that in order to determine whether a patent claim is obvious, one must make certain factual findings regarding the claimed invention and the prior art. Specifically, I understand that the following factors must be evaluated to determine whether a claim is obvious: the scope and content of the prior art; the difference or differences, if any, between the claim of the patent and the prior art; the level of ordinary skill in the art at the time the claimed invention was made; and, if available, the objective indicia of non-obviousness, also known as “secondary considerations.”

34. I understand that the secondary considerations include: commercial success of a product due to the merits of the claimed invention; a long felt need for the solution provided by the claimed invention; unsuccessful attempts by others to find the solution provided by the claimed invention; copying of the claimed invention by others; unexpected and superior results from the claimed invention; acceptance by others of the claimed invention as shown by praise from others in the field or from the licensing of

the claimed invention; teaching away from the conventional wisdom in the art at the time of the invention; independent invention of the claimed invention by others before or at about the same time as the named inventor thought of it; and other evidence tending to show obviousness.

35. I understand that, to establish a secondary consideration, the evidence must demonstrate a nexus between that secondary consideration and the claimed invention.

36. I understand that a petition must identify, for any terms with means-plus-function limitations, the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function. I also understand a rebuttable presumption exists that without use of the term, “means,” a claim term is not interpreted as means-plus-function, but that other nonce words like “component” have been found to satisfy the rebuttable presumption and invoke a means-plus-function claim construction of such a claim term.

37. I also understand that a petitioner seeking to demonstrate that the prior art discloses a means-plus-function limitation must prove that the corresponding structure—or an equivalent—was present in the prior art and performing the same claimed function.

38. I understand that the standard for determining whether the prior art discloses the corresponding structure or an equivalent is whether there are insubstantial differences, which means that if the assertedly equivalent structure performs the claimed function in substantially the same way to achieve substantially the same result

as the corresponding structure described in the specification, it is equivalent.

39. I understand that proving structural equivalence does not require a component-by-component analysis, but rather that it is sufficient to show structure, materials, or acts that perform the claimed function in substantially the same way to achieve substantially the same result because the claim limitation is the overall structure corresponding to the claimed function and not individual components.

VI. SUMMARY OF OPINIONS

40. For the reasons I discuss below, it is my opinion that claims 1-9, 15-22, and 24-27 of the '888 patent are disclosed in the prior art, and are rendered obvious by the prior art.

VII. BRIEF DESCRIPTION OF THE TECHNOLOGY

41. Convertible notebook computers appeared in the early 2000s. For example, the Fujitsu Lifebook T3000 was introduced in 2003. The T3000 was able to convert from a notebook to a tablet by swiveling the screen, so that when it folded back down, the screen was on the outside and covered the keyboard. In particular, when converted to tablet mode, the screen automatically switched from landscape to portrait mode (EX-1027).¹ The T3000 ran Windows XP Tablet PC Edition. Other tablet PCs available in 2003 included the Acer TravelMate C110 Tablet, and the HP Compaq Tablet PC

¹ See <https://www.cnet.com/reviews/fujitsu-lifebook-t3000-tablet-pc-review/> (EX-1027)

TC1100, and they also ran Windows XP Tablet PC Edition. Both the C110 and the TC1100 also featured a swivel screen that could fold down (EX-1028, EX-1029).² This convertibility feature was also included in the low-cost “One Laptop Per Child” effort with its first release, the OLPC XO-1, in late 2007 (EX-1030).³

42. Early handheld computing devices included the Apple Newton, introduced in 1993. Handheld devices began more widespread adoption with the introduction of the PalmPilot in 1996. Microsoft introduced its Pocket PC in 2000. The iPhone was introduced in 2007, and the iPhone included the Safari web browser. With a diversity of screen sizes accessing web sites, the designers of web sites worked to adapt the presentation to the size of the screens. This was recognized by the W3C (the web’s standard-setting consortium) in the early days of the web in 1993 that the rendering of web pages should be guided by user preferences.⁴

² See <https://www.cnet.com/reviews/hp-compaq-tablet-pc-tc1100-review/> (EX-1028),

<https://www.youtube.com/watch?v=nQ0-PaKkHE4> ,

<https://www.cnet.com/reviews/acer-travelmate-c110-review/> (EX-1029),

<https://www.youtube.com/watch?v=yQguX29KDW0>

³ See <https://www.cnet.com/reviews/olpc-xo-1-one-laptop-per-child-review> (EX-1030)/

⁴ See

<https://web.archive.org/web/19970605134644/https://www.w3.org/MarkUp/HTMLPI>

43. Thus, by 2008, it was recognized and known that user interfaces would be customized based on the configuration of the computing devices.

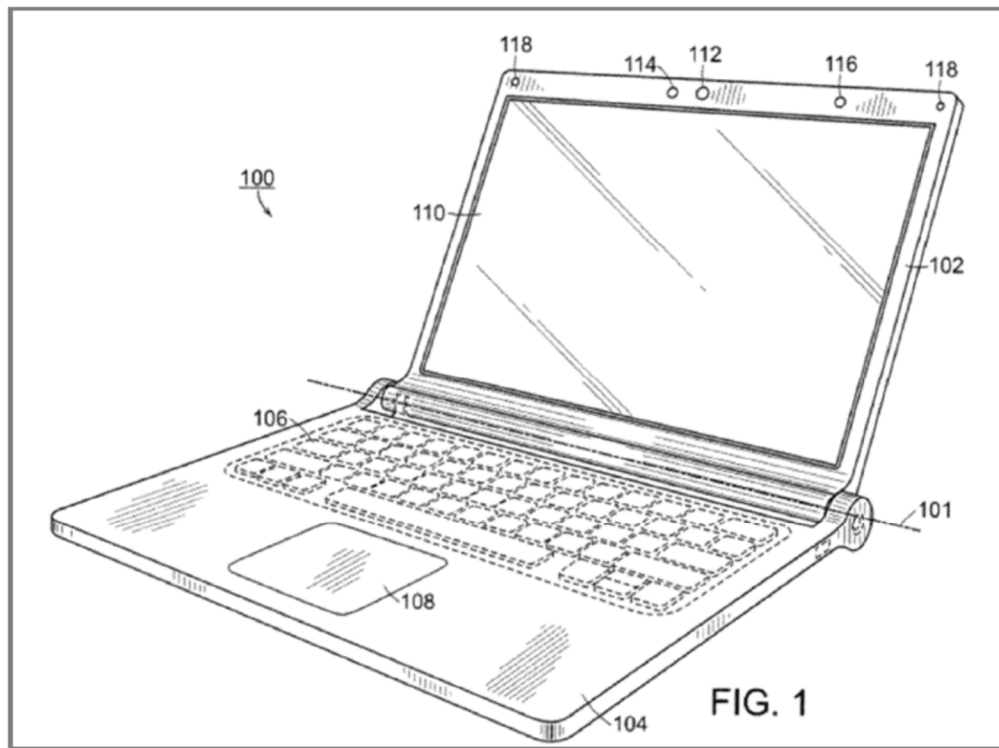
VIII. OVERVIEW OF THE '888 PATENT

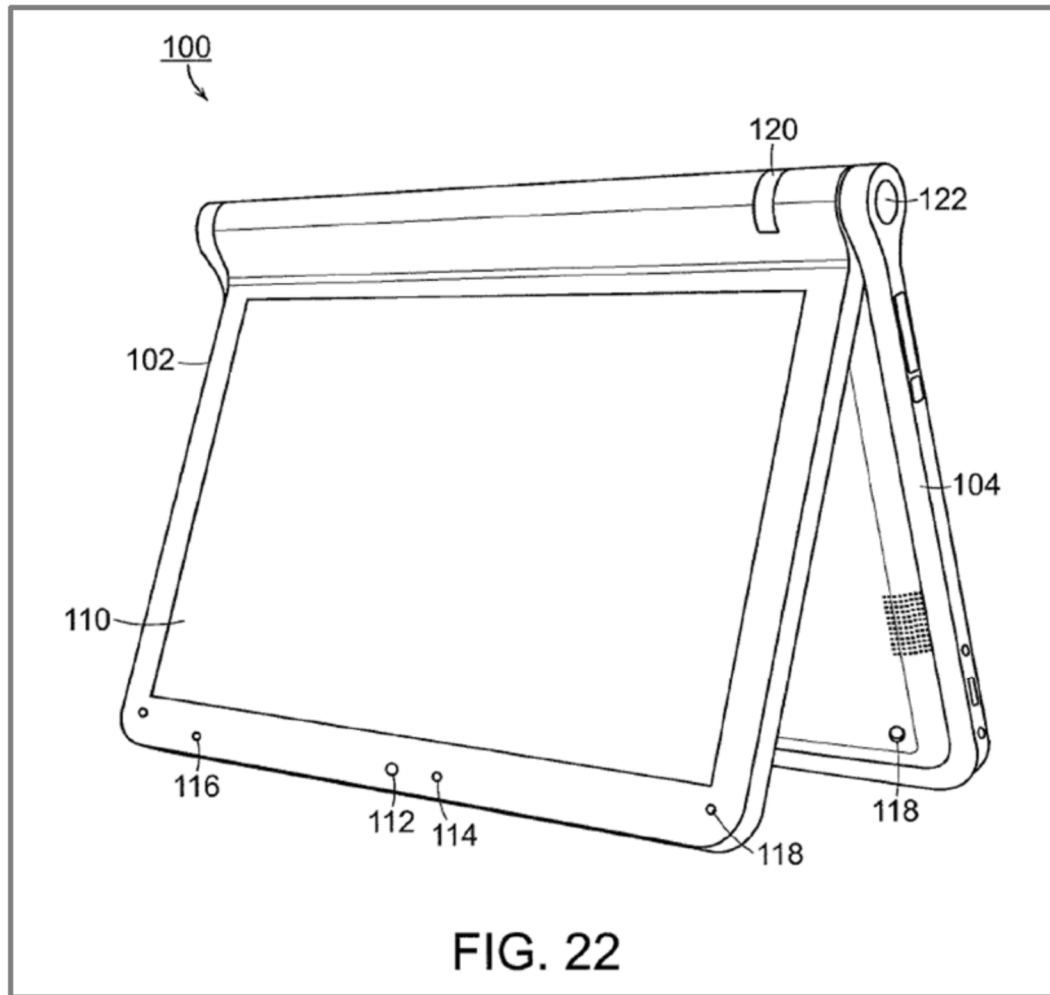
A. Subject Matter Overview of the '888 Patent

44. The '888 patent is titled “Method and Apparatus for Managing Digital Media Content” and issued from U.S. Application No. 12/611,282, filed November 3, 2009, which claims priority to a series of continuation and continuation-in-part applications, the earliest of which was filed July 10, 2008, and to a provisional application filed April 1, 2008.

45. The '888 patent relates to a “streamlined computer device...includ[ing] a plurality [of] selectable I/O profiles.” EX-1001, Abstract. The streamlined computer device can be configured into a plurality of display modes, such as a “laptop mode” (FIG. 1) and “easel mode” (FIG. 22). *Id.*, 14:56-61, 15:12-21, 36:41-50. As shown in FIGS. 1 and 22 below, the streamlined computer device is configured into one of the plurality of display modes by a hinge assembly rotatably coupling the display component 102 to the base 104 of the computer. *Id.*

[us/htmlplus_7.html](#) (EX-1041)



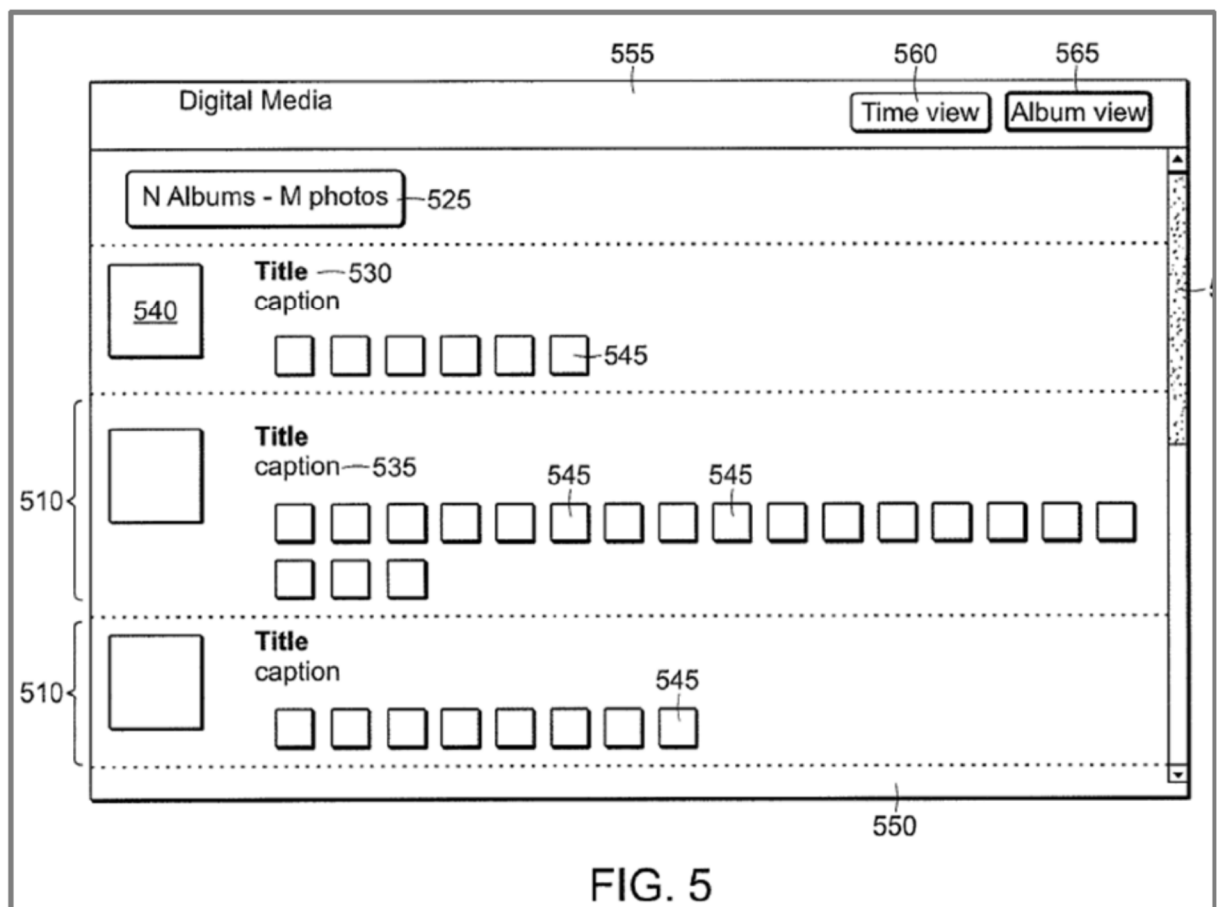


46. The '888 patent further describes that each display mode is associated with a corresponding "I/O profile." *Id.*, 38:44-56. In easel display mode, "[t]he first I/O profile ... may consist of a scroll wheel and a selector button." *Id.*, 37:19-21. In laptop display mode, the second I/O profile may include a keyboard. *Id.*, 38:51-52.

47. Each display mode may be associated with a corresponding I/O profile (e.g., an easel mode is associated with a first I/O profile and a laptop mode is associated with a second I/O profile). *Id.*, 38:44-56. "The first I/O profile in easel mode may consist of a scroll wheel and a selector button." *Id.*, 37:19-21. The second I/O profile in the

laptop mode may include a keyboard. *Id.*, 38:51-52. In different I/O profiles, the displayed content can be rotated by 180° so that the displayed content is properly oriented for an intended user. *Id.*, 37:29-41, 39:18-41. The 180° rotation of the displayed content may be manual or automated. *Id.*, 39:26-41.

48. With respect to the displayed content, the '888 Patent discloses “a graphical user interface that organizes interface elements into views of computer content for presentation to a user.” *Id.*, 2:48-50, FIG. 5.



49. “Various views of digital media content permits users to easily and efficiently access various digital media content. Different views are used to provide an

interface that is responsive to configurations of the device and responsive to activity being performed by the user.” *Id.*, 2:50-54. The computer content includes photos, some of which may be stored remotely. *Id.*, 20:31-35. “For example, digital content items added to the user’s account with any online hosting service (e.g., FLICKR, SHUTTERFLY, etc.) the user has registered with the portable computer 100 may be automatically added to the user’s digital media library.” *Id.*, 20:44-49. These remotely stored photos may be “a visual representation of digital content stored in the cloud, rather than a locally stored digital content item.” *Id.*, 26:25-26.

50. In FIG. 5 above, “in the album view, the albums 510 are displayed as a list in the body portion 550, with a scroll bar 515 that allows the user to scroll down to see additional albums that do not fit within the page view.” *Id.*, 21:38-42. “Each photograph in the album may be displayed as a thumbnail 545.” *Id.*, 21:59-60. “[U]ser-selectable ‘buttons’ 560, 565...allow the user to select between the time view and the album view.” *Id.*, 21:60-62.

B. Brief Summary of ’888 Patent Prosecution History

51. The application leading to the ’888 patent was filed on November 3, 2009, and the Examiner did not issue any office actions. EX-1002. On April 29, 2013, I understand that the Examiner issued a notice of allowability with an interview summary and an examiner’s amendment. EX-1002, 729. The interview summary indicates the applicant and examiner agreed on claim amendments to place the application in condition for allowance. *Id.*, 730. I understand that the Examiner added the following

limitations to independent claim 1 and similar limitations were also added to independent claims 26 and 27:

wherein providing for the transition between the plurality of views in response to selection of the I/O profile includes:

permitting the user to rotate a display component of the computing device about a longitudinal axis running along an interface between the display component and a base of the streamlined computing device;

wherein rotating the display component about the longitudinal axis from a closed mode to a first physical orientation configures the computing device into a laptop mode having a first physical configuration of the display component and the base, with one of the plurality of views as a default display; and

wherein rotating the display component about the longitudinal axis from the closed mode to a second physical orientation configures the computing device into another display mode having a second physical configuration of the display component and the base, with another one of the plurality of views as the default display.

Id., 731-735.

52. I also understand that in the Examiner's statements of reasons for allowance, the Examiner found that the closest prior art (Riley, US Publication 2009/0019383) taught all of the limitations of the independent claims except those added in the Examiner's amendment. *Id.*, 736. Thus, the Examiner found the prior art

taught “the graphical user interface comprises at least a plurality of views of digital media content,” a limitation not added in the Examiner’s amendment. *Id.* The ’888 patent issued on December 17, 2013. EX-1001.

C. Brief Summary of Prior Patent Office Proceedings Involving the ’888 Patent

53. It is my understanding that PO sued Lenovo alleging infringement of the ’888 patent in May 2020 (EX-1024), and Lenovo subsequently filed an IPR petition challenging claims 1-9, 15-22, and 24-27 of the ’888 Patent. *Lenovo (United States) Inc. v. LiTL LLC*, IPR2021-00821 (“-821 IPR”), Paper 1 (April 27, 2021). I had no involvement in that IPR. I understand that during that IPR, for purposes of its decision denying institution, the Board construed “plurality of views” as “referring to a plurality of ways of organizing visual representations of computer content” and found that limitation “is distinct from merely providing a plurality of ways of displaying content (by, for example, changing display orientation, color, resolution, etc.).” *Id.*, Paper 6, 7-9.

IX. CLAIM CONSTRUCTION

54. I have given all the claim terms of the Challenged Claims their plain and ordinary meaning, as would have been understood by a POSITA, at the time of the alleged invention, unless otherwise discussed below.

A. “plurality of views of digital media content”

55. As discussed above, in the -821 IPR, for purposes of its institution decision, the Board construed a “plurality of views of digital media content” as

“referring to a plurality of ways of organizing visual representations of computer content,” and the Board noted that this limitation does not encompass “merely changing the display’s orientation.” -821 IPR, Paper 6, 7-9. Because the Board denied institution, it is my understanding, it did not further consider that construction based on a full trial record. *See id.*

56. In forming my opinions, I have applied the Board’s construction of “plurality of views of digital media content.”

B. Means-Plus-Function (“MPF”)

57. Additionally, I have noted that several claim limitations appear to be expressed in means-plus-function form. I have identified means-plus-function constructions of several terms and have considered the function and corresponding disclosed structure in forming my opinions where applicable. The terms, function achieved, and corresponding structure of each function that I considered are as follows:

1. “view selector component”

Limitation (Function Underlined)	Corresponding Structure
Claims 1, 26: a view selector component configured to <u>permit a user to select one of the plurality of views</u>	a keyboard, touchpad, mouse, scroll wheel, or navigation buttons configured to allow a user to manually select an organization of the displayed content, and its equivalents. <i>See</i> , e.g., EX-1001, 6:18–23, 37:12–28, 39:23–41.
Claim 27: a view selector component configured to <u>transition between the plurality of views in response to activation</u>	

2. “aggregation component”

Limitation (Function Underlined)	Corresponding Structure
Claims 15: an aggregation component configured to <u>permit the user to select a</u>	an organization tool on a GUI (e.g., the “pick list” control) that gathers together a group of digital content items for a particular action,

<u>plurality of digital media content</u>	and its equivalents. <i>See</i> , e.g., EX-1001, 26:39-42, 28:26-29, 28:41-52, 28:59, Fig. 10.
---	--

3. “display component”

Limitation (Function Underlined)	Corresponding Structure
Claim 27: a display component configured to <u>display a graphical user interface on a computing device</u> ...the display component is configured to <u>display user digital media content and referenced digital media content in the view of the digital media content</u>	A display screen. <i>See</i> , e.g., EX-1001, 8:3-5, 8:23-27, 10:3-4, 11:37-39, 15:33-36, FIG. 1.

4. “storage component”

Limitation (Function Underlined)	Corresponding Structure
Claim 27: a storage component configured to <u>store an association between at least one of a plurality of visual representations and digital media content</u>	A local or remote storage device. <i>See</i> , e.g., EX-1001, 15:56-58, 16:27-33, 16:51-56, 16:63-67, 17:5-10, 17:16-22, 20:26-28, Fig. 2 (storage system 250).

5. “execution component”

Limitation (Function Underlined)	Corresponding Structure
Claim 27: an execution component configured to <u>transition the graphical user interface between the plurality of views in response to selection of an I/O profile</u> ...the execution component is further configured to <u>execute the association with the at least one of the plurality of visual representations with digital media content in response to selection and transition the display to a view of the digital media content in response to the act of executing the association</u>	A processor and related software configured to: (i) automatically reorganize the displayed content in response to a physical configuration of the computer device (<i>see</i> , e.g., EX-1001 at 6:18–23, 37:12–28, 38:5–11, 38:49–56, 39:4–5) and (ii)–(iii) implement GUI elements that allow a user to transition between different views of the digital media content (<i>see</i> , e.g., <i>id.</i> , Fig. 5, 6:18–23, 21:60–67, 37:12–28, 38:49–56, 39:4–5) and its equivalents.

X. DETAILED EXPLANATION OF GROUNDS

A. Ground 1: Obviousness Over Reavey, Martinez, and Proctor (Claims 1, 2, 24, 26-27)

1. Reavey (EX-1009)

58. Reavey is directed to “[a]ctivation and deactivation of [an] electronic display unit...responsive to opening, partially opening and closing” it. Reavey, Abstract. Reavey’s “electronic device” has three modes with three different physical configurations, including a side-by-side (“standard book like format”) mode, over-under (“laptop configuration”) mode, and over-under, flat panel mode with two screens acting as one. *Id.*, 3:28–41, 7:24–44. When opened, Reavey’s device determines a proper mode of operation in the process of Fig. 9, reproduced below:

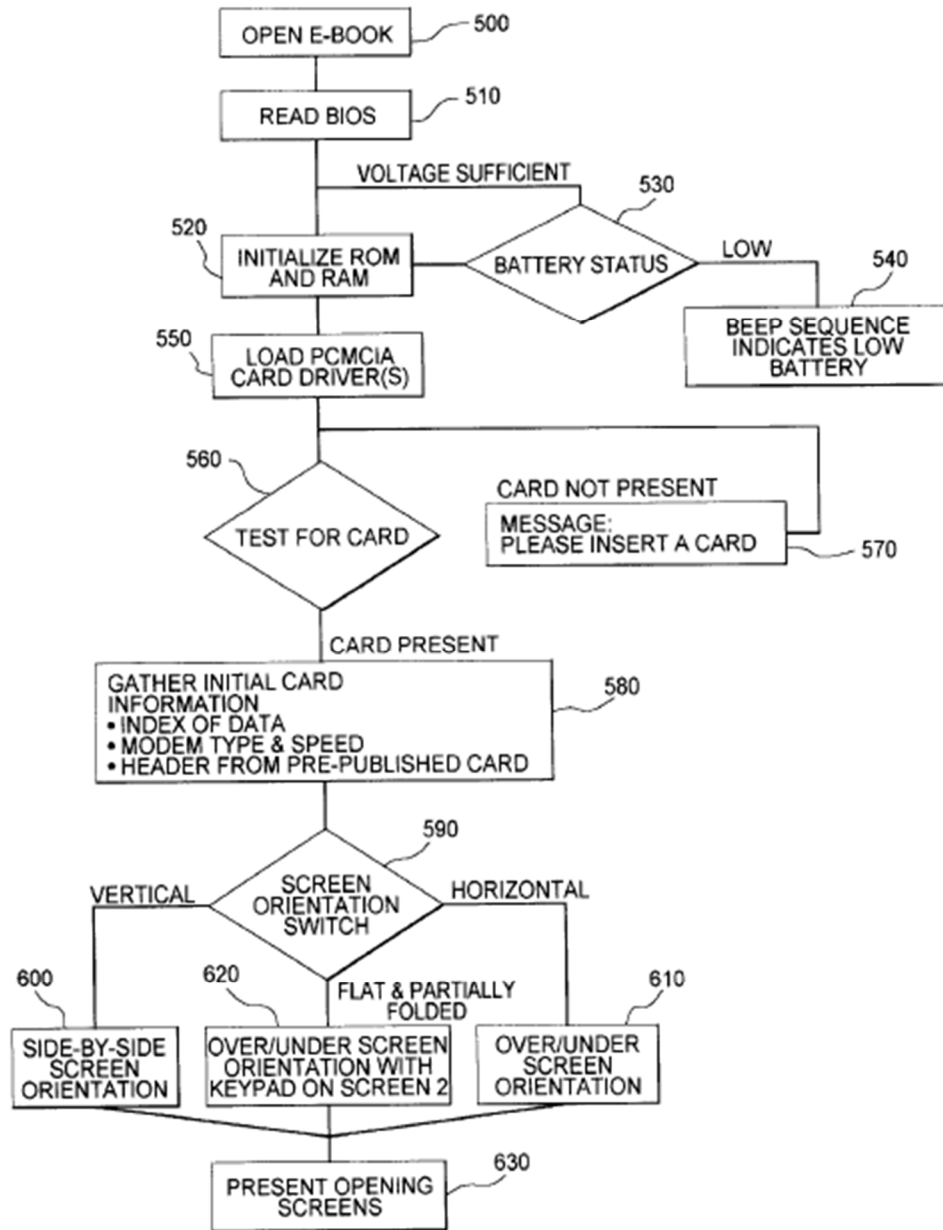


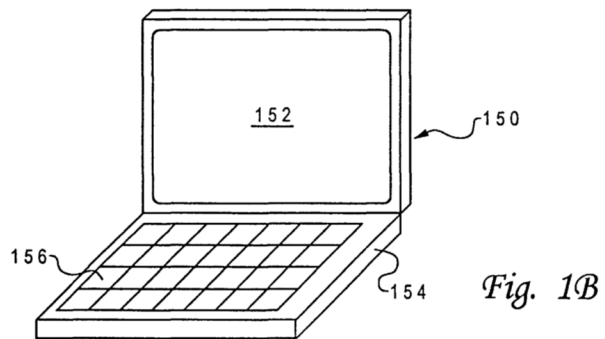
FIG. 9

59. This “[s]creen orientation processing” determines whether Reavey’s device should be operated in “mode 1...mode 2... or mode 3” before displaying the appropriate, respectively associated screens to a user. *Id.*, 8:42–9:6.

2. Martinez (EX-1007)

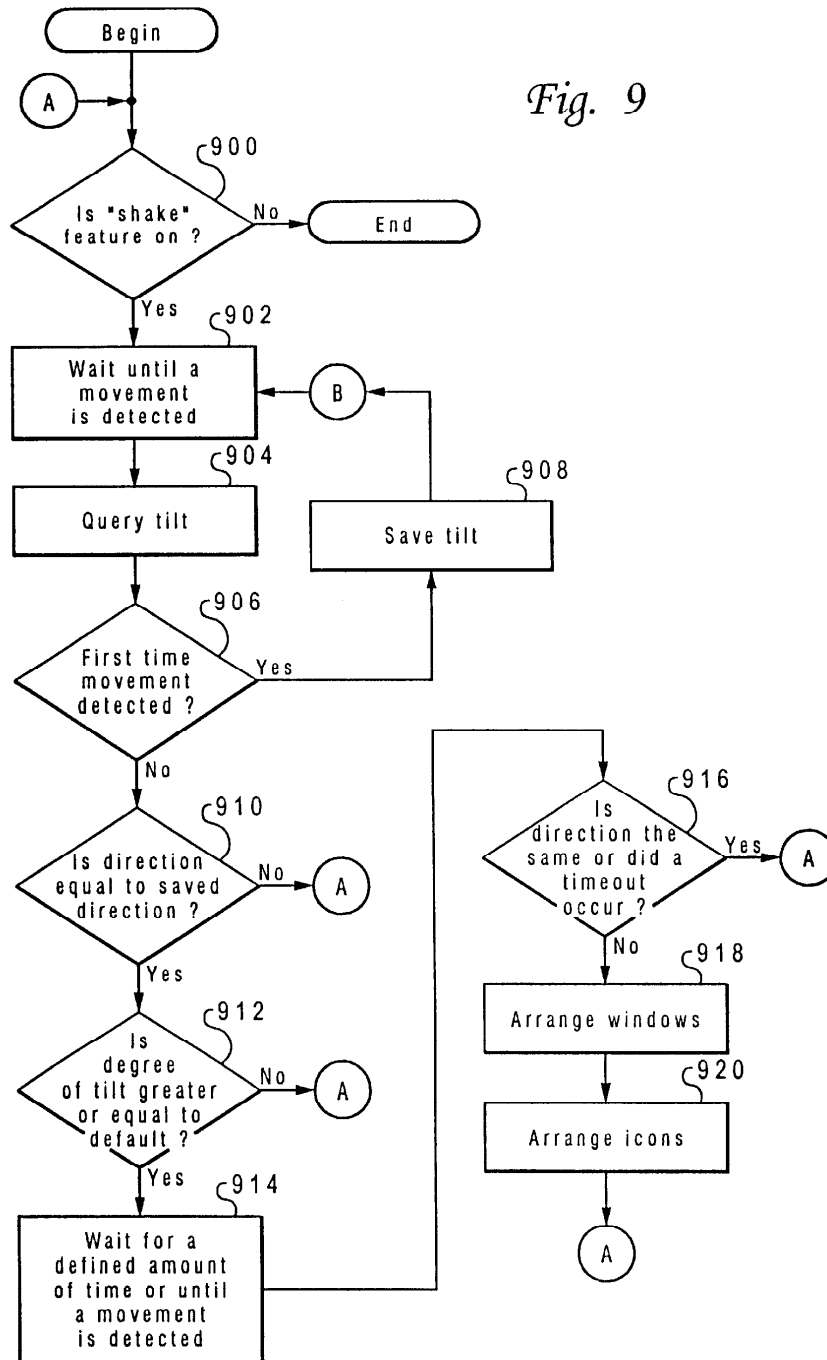
60. Martinez is directed to “altering the display of an object on a display device

in a data processing system.” Martinez, Abstract. Martinez’s Figure 1B is reproduced below:



61. Martinez describes numerous ways it adjusts its display based on sensor input, one of which is in response to a “shake.” *Id.*, 5:66-6:4. This process is depicted in Martinez’s Figure 9:

Fig. 9



62. In this process, Martinez detects a shake (i.e., shaking the device containing the sensor to the left and right relative to the user) in steps 902-916. *Id.*, 6:5-31. If a shake is detected, “the process then arranges the windows (step 918). For

example, the windows could be arranged in a tile or cascading fashion. Next, the icons are arranged (step 920). The icons can be arranged in any preselected manner the user or programmer desires.” *Id.*, 6:32-37.

3. Proctor (Ex. 1010)

63. Proctor is directed to an “electronic device” with “display panel that operates in multiple modes to support different display capabilities” including a “first mode” in which “the entire display panel is operational” and a “second” or “partial display mode” that turns off selected rows and columns of pixels to conserve power. Proctor, ¶[0008]. Figures depicting an example first mode, full display on panel 1002 and second mode, partial display 1102 are reproduced below. *Id.*, Figs. 10–11, ¶[0056].

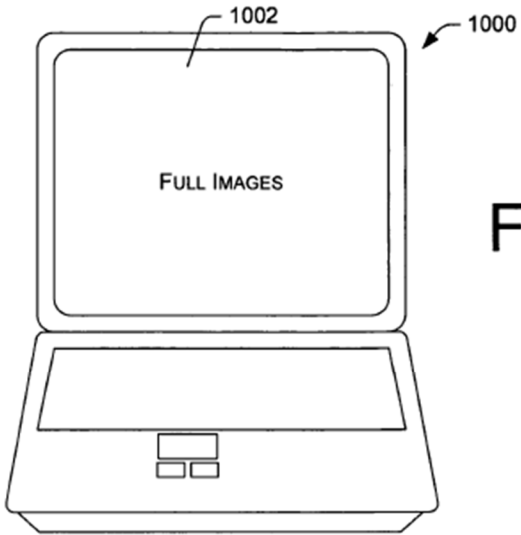
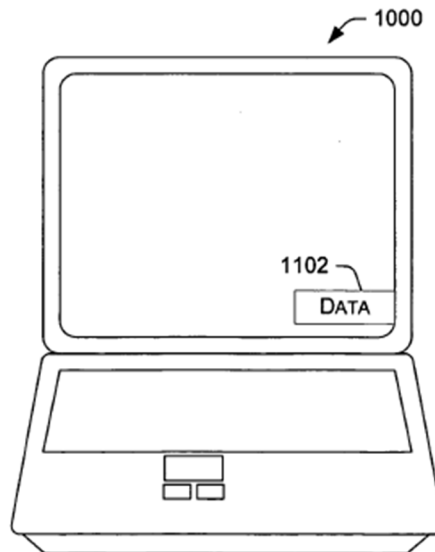


Fig. 10

Fig. 11



64. Using music media as an example, transitioning from the first, full display to a second, partial display reduces the organization and appearance of the same content as depicted in the figures reproduced below. EX-1010, Figs. 2–3; ¶¶[0028]–[0029].

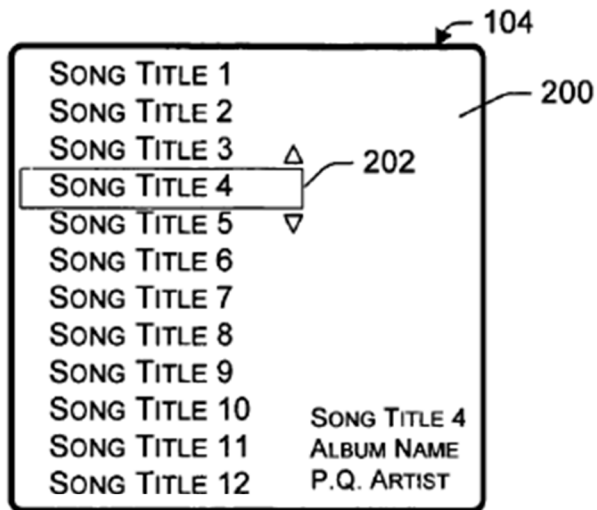


Fig. 2

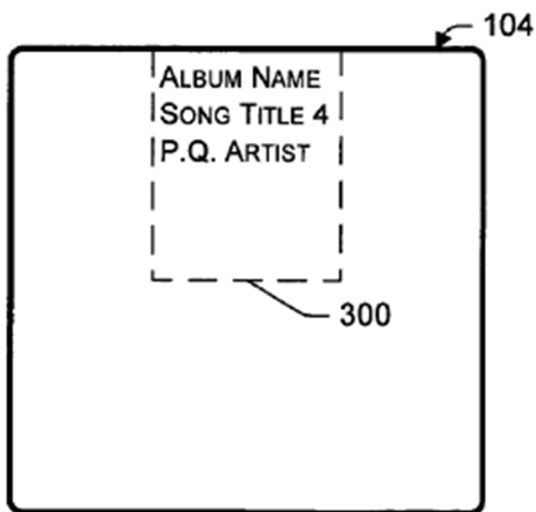


Fig. 3

65. Proctor's device accepts several types of inputs to transition between its two display modes, including mechanical triggers (e.g., sliding two media player covers open and closed) as depicted in the figures below. *Id.*, Figs. 6–7, ¶[0051].

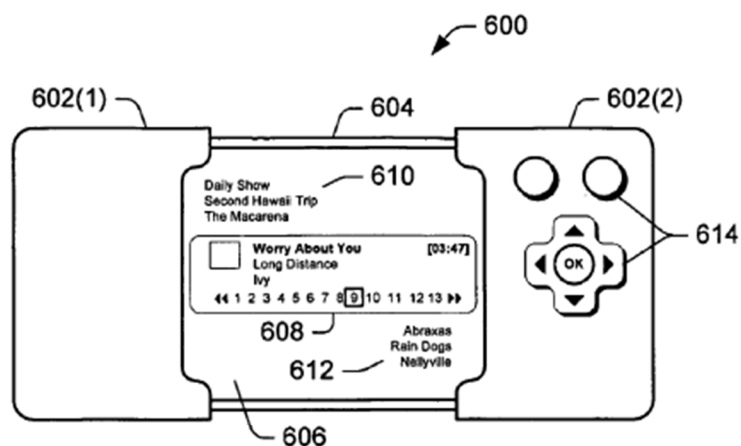


Fig. 6

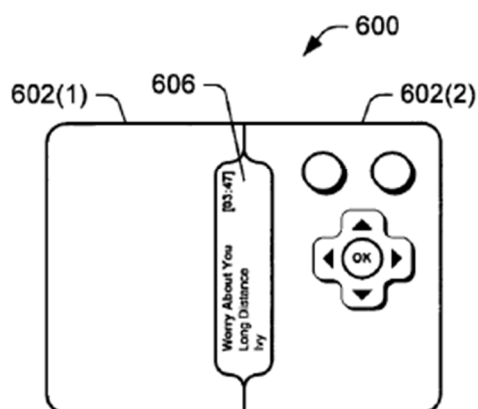


Fig. 7

66. Other triggers include “soft-keys or other visual controls” in a graphical user interface, and a manual, user-selectable switch 114 mounted on the side of device case 102 for a user to slide as depicted in the figure reproduced below. *Id.*, ¶[0030].

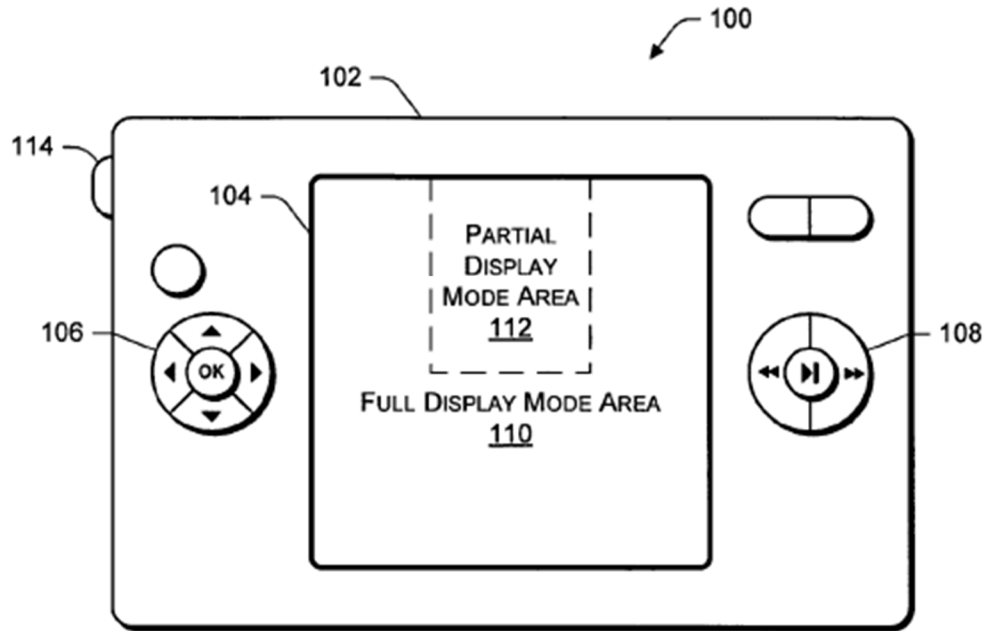


Fig. 1

4. Motivation to Combine

67. In my opinion, a POSITA would have been motivated to combine the multi-configuration device of Reavey with the GUI display changes of Martinez and display switching of Proctor. Reavey teaches that a user manipulates its device into different physical configurations, including a laptop configuration (Mode 3) and a flat configuration (Mode 2). EX-1009, 1:11-15, 7:24-62, Figs. 2-3. Reavey teaches that in the flat configuration (Mode 2), there are two screens 110/115 available for the display of content. *Id.*, 7:42-44, 7:51-53, 7:61-62, Fig. 2. In the laptop configuration (Mode 3), there is only one screen 110 available for the display of content, while the other screen 115 displays a touch-sensitive keyboard. *Id.*, 7:39-42, 7:53-58, Figs. 2, 3.

68. In my opinion, a POSITA would have recognized that the organization of

the GUI in Reavey's device necessarily changed when the user manipulated the device from the laptop configuration (Mode 3) to the flat configuration (Mode 2). *Id.*, 3:24-27 ("The ability to have multiple operational modes is facilitated by having a screen orientation feature which automatically adjusts the text and graphics to the desired mode."). Namely, in the laptop configuration, Reavey's device has a single horizontally-oriented display, whereas in the flat configuration, Reavey's device has a more vertically-oriented display with twice as much screen area. *Id.*, 7:24-62, Figs. 2-3. Furthermore, Reavey teaches that in the laptop configuration, a keyboard is available for manipulation of the GUI, while in the flat configuration no keyboard is available and the content in the GUI is accessible by scrolling up-and-down across the two screens. *Id.* In my opinion based on Reavey's teachings, a POSITA would have recognized that a change to the organization of the GUI would have been required because of (1) the change in available screen space, (2) the change in the aspect ratio of the screen space, and/or (3) the change in the input/output devices available for manipulating the GUI.

69. However, while a POSITA would have recognized that a change to the organization of the GUI was required between the laptop configuration (Mode 3) and flat configuration (Mode 2), Reavey itself does not explicitly disclose how the GUI should be organized. In my opinion, a POSITA would have instead looked to the disclosure of Martinez for how the GUI would have been organized. Further, in my opinion, a POSITA would have combined the GUI display changes taught by Martinez

triggered by the switches of Proctor with the device of Reavey for several reasons.

70. Martinez teaches its invention “can adjust visual components on a display device so that the components are level regardless of the position of the display device” including portrait or landscape orientations. EX-1007, 4:41–46. Martinez does so using a tilt sensor that reads x- and y-direction tilts with reference to a relative plane and adjusts the orientation of a display in “degree increments” responsive to pre-programmed tilt, shake, and rotate movements input by a user. *Id.*, 5:24–39, Figs. 8–10. In my opinion, a POSITA would have been motivated to integrate the sensor of Martinez into the hinge assembly alongside Reavey’s “spring and ball bearing mechanism” using “hinge detents” and “multi-function gravity switches” because Martinez taught that it would be “advantageous to have a method and apparatus to detect various changes in orientation of hardware associated with a data processing system in which the display is altered in response to various changes in orientation of hardware.” EX-1007, 1:62-67. Thus, in my opinion, Martinez provides the “how” to Reavey’s automatic orientation, and it would have been well within the skill of a POSITA to incorporate the mechanical and electrical components into the existing hinge of Reavey’s electronic book device to achieve a predictable improvement that would have a reasonable expectation of increasing the responsiveness and accuracy of Reavey’s display in relation to any degree of rotation of a laptop with respect to both its opening angle and its side-to-side movement.

71. Additionally, Martinez teaches using a sensor to detect movement (in

Martinez’s particular embodiment, a shake gesture) and based on that movement, to arrange (i.e., organize) windows and/or icons in a pre-selected manner, such as “a tile or cascading fashion.” EX-1007, Fig. 9, 5:66-6:37. Both cascading and tiling were well-known graphical arrangements, which are discussed in computer graphics textbooks, and used to organize computer content in different ways. *See* EX-1021, 366 (discussing a “cascading hierarchy”), 426-27 (discussing various icon layouts). Examples of cascading (top) and tile (bottom) arrangements are depicted below.

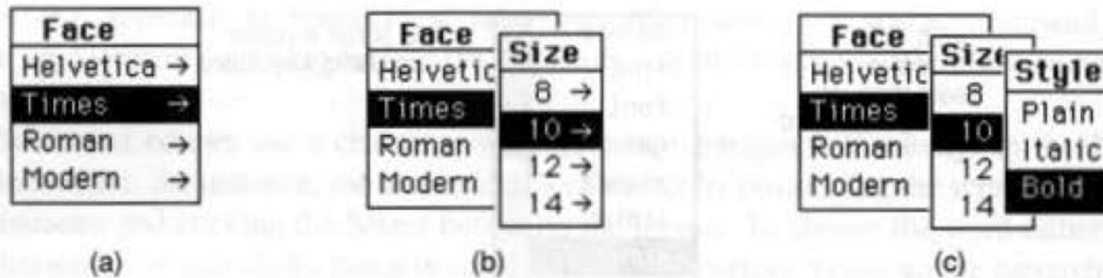


Fig. 8.10 A pop-up hierarchical menu. (a) The first menu appears where the cursor is, in response to a button-down action. The cursor can be moved up and down to select the desired typeface. (b) The cursor is then moved to the right to bring up the second menu. (c) The process is repeated for the third menu.

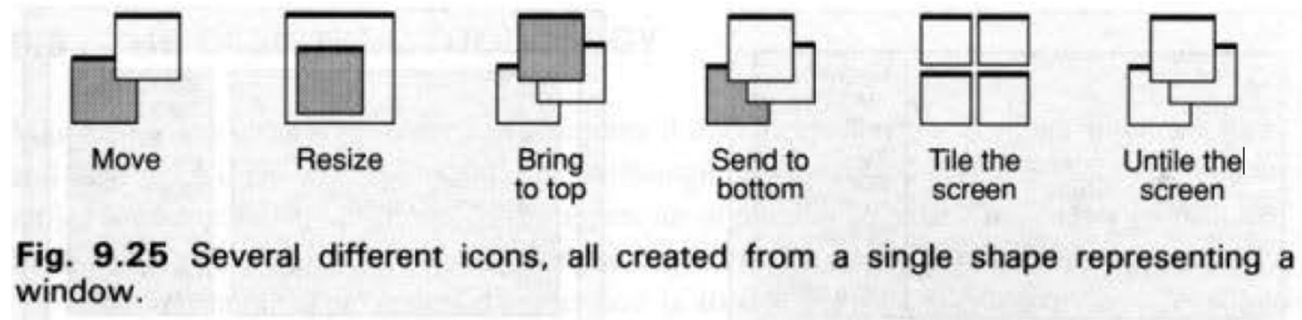


Fig. 9.25 Several different icons, all created from a single shape representing a window.

72. As evidenced by the above figures, in my opinion, a POSITA would have recognized tile and cascading as two different ways of organizing windows which would include “visual representations of computer content.” *See id.*, 366, 426-27. A

window is typically thought of as a rectangular screen area that “act[s] as [a] virtual graphics terminal . . . running an application.” *Id.*, 2. Graphical interfaces have long made use of windows and “almost all interactive application programs, even those for manipulating text (e.g., word processors) or numerical data (e.g., spreadsheet programs), use graphics extensively in the user interface and for visualizing and manipulating the application-specific objects.” *Id.* (emphasis added). Accordingly, in my opinion, Martinez organizes those visual representations into different arrangements when the windows are cascaded or tiled.

73. Similarly, Martinez discusses arranging icons “in any preselected manner.” EX-1007, 6:35-37. In my opinion, a POSITA would have also understood that Martinez’s icons are “visual representations of computer content.” *Id.*, 1:34-37 (“A GUI is an interface system . . . by which a user interacts with a data processing system, system components, and/or system applications via windows or via ports, icons, menus, pointing devices, etc.”).

74. In my opinion, a POSITA would have been motivated to combine the teachings of Martinez with Reavey because Martinez teaches that it would be “advantageous to have a method and apparatus to detect various changes in orientation of hardware associated with a data processing system in which the display is altered in response to various changes in orientation of the hardware.” *Id.*, 1:62-67. As Martinez explains, GUIs are used “to provide an intuitive” interface to users and help simplify users’ interactions with complex data processing systems. *Id.*, 1:23-33. In my opinion,

a POSITA would have understood that arranging the display to correspond to a new hardware configuration would ensure that the arrangement is best suited to the user's needs. Indeed, it was well-known that "[t]he visual design of a user-computer interface affects both the user's initial impression . . . and the system's longer-term usefulness." Foley, 418. In my opinion, a POSITA would have understood that organizing content to account for the manner in which a user interacts with the computer would increase the computer's usefulness to the user. *Id.* ("Visual design comprises all the graphic elements of an interface, including overall screen layout . . . [and] strives for clarity, consistency, and attractive appearance."). And, as discussed previously, Reavey already contemplates changing the organization of displayed content to simplify and improve the interface for a user. *See* EX-1009, 3:18-24, 7:26-44, 7:50-55 (describing two different organizations of content, one with a single screen of content and a second screen with a virtual keyboard, and the second with two screens of content in a tall, continuously scrolling display).

75. In addition, instead of Martinez's shake gesture, in my opinion, a POSITA would have been motivated to apply Martinez's views to be triggered based on Reavey's hardware-based trigger that detects rotational changes to the orientation of the device and responds to such changes with a different view. *See id.*, 7:24-44, 45-62. Reavey and Martinez disclose similar systems with a laptop configuration of a computing device with display, keyboard, and processing components containing a hardware-based trigger that detects rotational changes to the orientation of the device and responds to

such changes with a different GUI display. The switch in Reavey is a detection of a physical change to the device (e.g., the device is opened or partially opened) and Martinez teaches rearranging a GUI based on detecting a physical change to the device (i.e., a shake). EX-1007, 6:5-31. Thus, in my opinion, a POSITA would have been motivated to simply add the known technique of rearranging the display in response to detecting a rotational change in the orientation of a device to improve the usability of Reavey. In my opinion, such a modification would have been well within the programming skills of a POSITA because the combination would require only using a different physical change to the device (i.e., rotation rather than a shake) to trigger a change in display.

76. Proctor improves upon the Reavey-Martinez combination by further expanding the set of inputs that trigger a change in display. Like Reavey and Martinez, Proctor describes changing a view in response to detecting changes to a physical configuration or aspect of a computing device. *Compare* EX-1009, 7:24–62, Fig. 9, 8:61–65 (describing screen orientation switch processing to determine how to present opening screens in response to determining a side-by-side, over/under with keypad, or over-under screen orientation), *with* EX-1007, 5:40–7:20 (describing reorientation of windows, icons, and other objects with respect to a change in the rotation, tilt, or time-based shaking of a laptop), *with* EX-1010, ¶[0030] (describing mechanical and graphical user interface inputs for changing between full and partial displays).

5. Claim 1

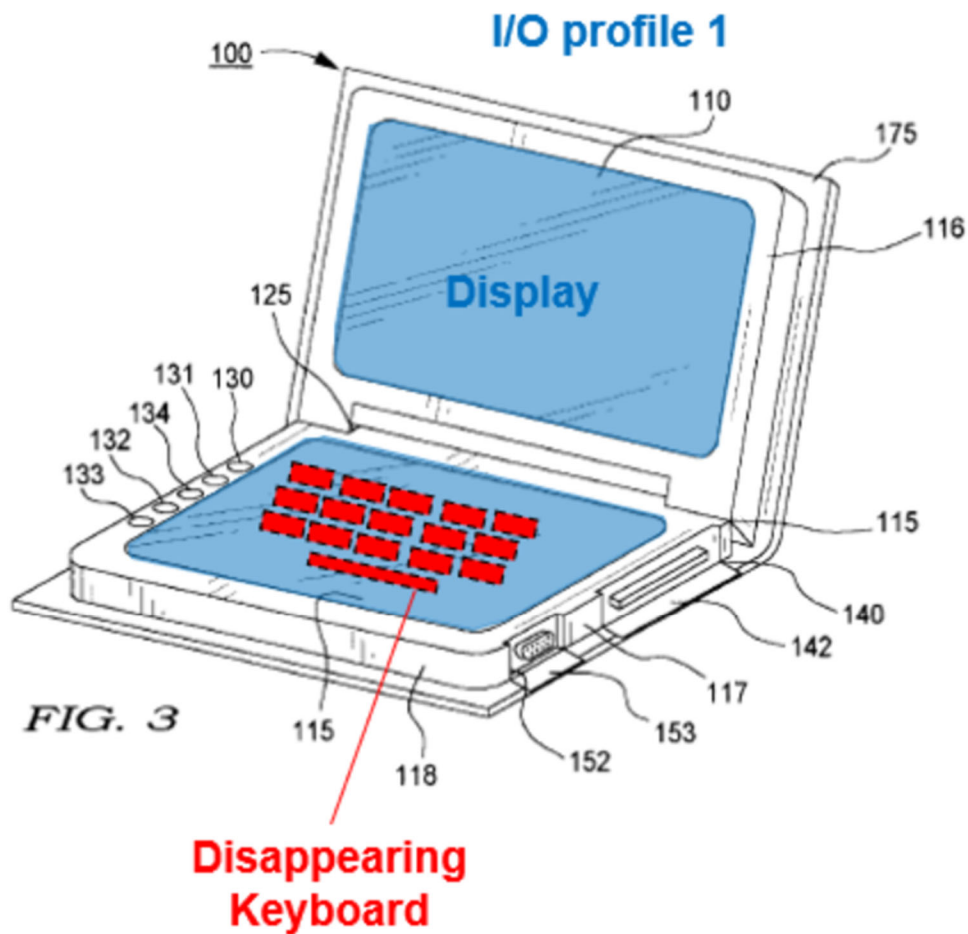
- a. ***“1/pre/: A method for accessing and managing digital media libraries on a streamlined computing device with a plurality of selectable I/O profiles, the method comprising:”***

77. To the extent it is limiting, in my opinion, Reavey discloses or suggests the preamble. Reavey discloses that its electronic book device connects to the internet and “various sources” to source, download, scroll and page through electronic periodicals, books, and “updates to books” (i.e., “access[] and manag[e] digital media libraries”) that are “of interest” to PCMCIA cards that store that content. EX-1009, 3:42-57, 8:11–36. In my opinion, a POSITA would have understood Reavey’s computing device is “streamlined” in the same way as taught in the ’888 patent. In my opinion, a POSITA would have understood that the electronic device in Reavey was “streamlined” to display information in a user-friendly format. *See* EX-1001, 2:44-50 (describing a “streamlined” organization of GUI elements to be user-friendly), 13:59-61 (describing “streamlined” access control and consistent user interface), 18:31-38 (“streamlined view”), 19:7-23 (“streamlined user interface, also referred to as a ‘map’ interface”).

78. Additionally, in my opinion, a user in Reavey accesses and manages its digital media libraries with the “plurality of selectable I/O profiles” disclosed by the ’888 patent. EX-1001, 47:55-56. As context, the ’888 patent describes a “first I/O profile in easel mode” that includes “a scroll wheel and a selector button” (EX-1001, 37:19–21, 38:44-50), and a “second I/O profile” that includes “a keyboard (e.g., laptop mode)” (*id.*, 38:51-52). These I/O profiles are “selectable” by the user manipulating the

device itself (e.g., from an easel orientation to a laptop orientation). *Id.*, 38:48-52. In other words, the intrinsic record of the '888 patent shows that “a plurality of selectable I/O profiles” encompasses the available user input platforms that are selected when a user manipulates the device into different physical configurations.

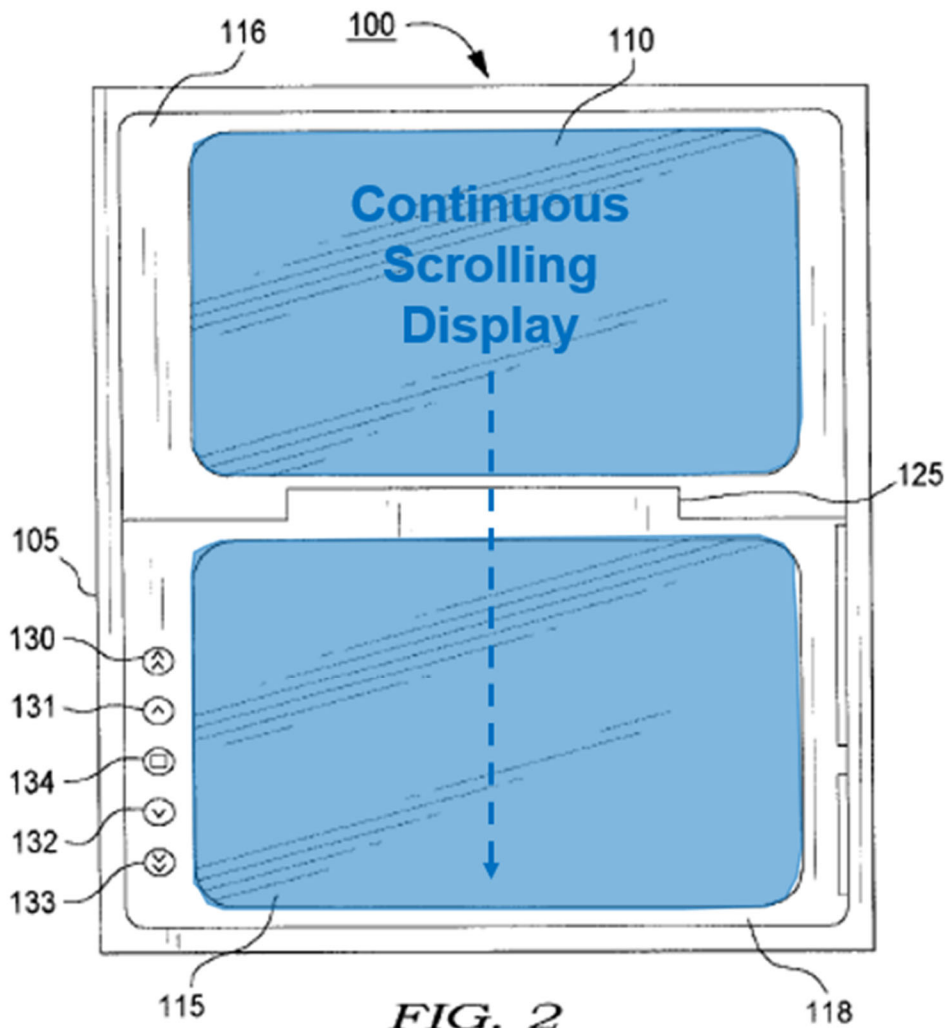
79. In my opinion, Reavey consistently discloses two or more such I/O profiles. *See* EX-1009, 3:12-28, 7:24-62. For example, for one selectable I/O profile, Reavey teaches a “third mode” or “mode 3” which it also calls an “over-under with touchscreen keyboard” mode for its electronic book device. *Id.*, 3:21-24, 7:26-44, 7:53-55. I have provided an annotated version of Reavey’s Figure 3 showing this mode below:



In this I/O profile, a top screen displays content (i.e., output) and a bottom touch screen displays a keyboard for manipulation (i.e., input) when the electronic book's two halves are rotated to a laptop-type configuration. *Id.*, Fig. 3, 7:24–62.

80. Reavey further teaches another selectable I/O profile, its “second [mode]” which it also calls “over-under” mode. *Id.*, 3:18-21, 7:42-44, 7:50-53. I have provided an annotated version of Reavey’s Figure 2 showing this mode below:

I/O profile 2



81. In this I/O profile, the electronic book device's two screen-holding panels are rotated to a flat position in which the two screens act as one, larger touch screen (i.e., input) that displays information scrolled from the top of the first screen to the bottom of the second screen (i.e., output). *Id.*, Fig. 2, 7:24–62.

82. Thus, it is my opinion that Reavey teaches or suggests 27[pre]. To the

extent Patent Owner contends a “plurality of I/O profiles” is synonymous with a “plurality of views,” as recited in 1[a], it is my opinion that the Reavey-Martinez combination teaches that limitation as discussed in X.A.5.b below.

b. “1[a]: displaying a graphical user interface on the computing device, wherein the graphical user interface comprises at least a plurality of views of digital media content;”

83. In my opinion, the Reavey-Martinez combination teaches this limitation. Specifically, it is my opinion that Reavey teaches or suggests “displaying a graphical user interface [GUI] on the computing device.” Reavey discloses an electronic book device with two displays operable as two touch screens to present digital media content (e.g., books and periodicals). EX-1009, Fig. 7 (items 331, 332), 5:32-38.

84. It is my opinion that a POSITA would have understood that Reavey would have included a GUI for a user to interact with the digital media displayed. Reavey discloses that its electronic book device displays “textual and graphical information” and “[i]n the over-under mode, the two screens could act as one screen, with the text and graphics scrolling downward from one to the other.” Reavey, 7:42-44, 1:7-11. A user can further download, scroll, and page through the displayed content. Reavey, 8:26:29. A POSITA would have understood that a GUI would allow a user in Reavey to easily scroll content from one screen to the other screen, as well as download specific media content.

85. Additionally, graphical user interfaces were known prior to the priority date of the ’888 patent and were commonly used to improve a user’s interaction with

computer content. For example, Microsoft released Windows XP in 2001, and it contained a graphical user interface that supported “a number of styles . . . [and] customization of those styles.” EX-1022 (New XP GUI), 1-2 (discussing new graphical interface features in Windows XP); EX-1023 (HP manual), 1-2 (listing Windows XP Home and Windows XP Professional as OS’s used in different laptop models). Accordingly, a POSITA would have understood that Reavey’s electronic book device would have included a GUI for the user to easily interact with the displayed content. *See* Reavey, 4:39-42 (“The electronic book device . . . create[s] an easy to use, multi-functional and versatile tool for viewing information in the form of text and graphics.”).

86. In my opinion, the Reavey-Martinez combination teaches “the graphical user interface comprises at least a plurality of views of digital media content.” As I discussed above, the Board previously construed a “plurality of views of digital media content” as “referring to a plurality of ways of organizing visual representations of computer content,” and the Board noted that this limitation does not encompass “merely changing the display’s orientation.” *See* IX.A.

87. As I discussed above in X.A.5.a (1[pre]), Reavey teaches an electronic book with a plurality of I/O profiles, which automatically adjusts the display to a desired mode. *See* EX-1009, Figs. 2-3, 3:12-28 (“The ability to have multiple operational modes is facilitated by having a screen orientation feature which automatically adjusts the text and graphics to the desired mode.”), 7:24-62. Specifically, as I discussed in that Section, Reavey teaches two very different organizations of content, one with a single screen of

content and the second screen with a virtual keyboard, and the second with two screens of content in a tall continuously scrolling display.

88. Although Reavey discloses different organizations of content on its GUI as I discussed above, Patent Owner may argue that Reavey is not sufficiently explicit in its teaching of a “plurality of ways of organizing visual representations of computer content.” To the extent Patent Owner argues or the Board finds Reavey’s teachings insufficient alone, in my opinion, a POSITA would have found it obvious to combine Reavey with Martinez’s teachings for this limitation.

89. Specifically, in its Figure 9 and associated description, Martinez teaches using a sensor to detect movement (in Martinez’s particular embodiment, a shake gesture) and based on that movement, to arrange (i.e., organize) windows and/or icons in a pre-selected manner, such as “a tile or cascading fashion.” EX-1007, Fig. 9, 5:66-6:37. Both cascading and tiling are well-known graphical arrangements, which are discussed in computer graphics textbooks, and used to organize computer content in different ways. *See* EX-1021, 366 (discussing a “cascading hierarchy”), 426-27 (discussing various icon layouts). Examples of cascading (top) and tile (bottom) arrangements are depicted below.

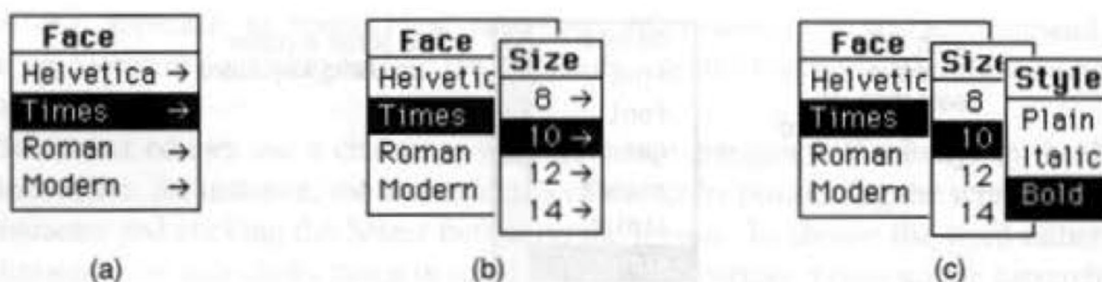


Fig. 8.10 A pop-up hierarchical menu. (a) The first menu appears where the cursor is, in response to a button-down action. The cursor can be moved up and down to select the desired typeface. (b) The cursor is then moved to the right to bring up the second menu. (c) The process is repeated for the third menu.

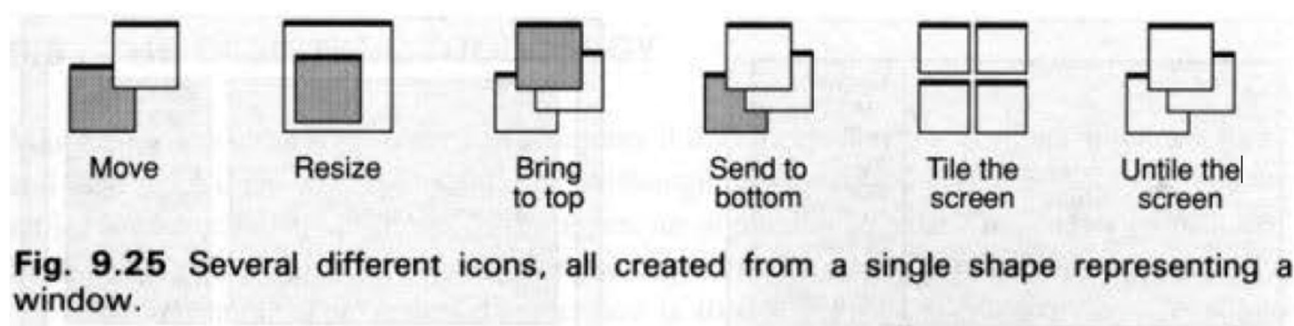


Fig. 9.25 Several different icons, all created from a single shape representing a window.

90. As evidenced by the above figures, in my opinion, a POSITA would have recognized tile and cascading as two different ways of organizing windows which would include “views of digital media content.” *See id.*, 366, 426-27. A window is typically thought of as a rectangular screen area that “act[s] as [a] virtual graphics terminal . . . running an application.” *Id.*, 2. Graphical interfaces have long made use of windows and “almost all interactive application programs, even those for manipulating text (e.g., word processors) or numerical data (e.g., spreadsheet programs), use graphics extensively in the user interface and for visualizing and manipulating the application-specific objects.” *Id.* (emphasis added). Accordingly, in my opinion, Martinez organizes those visual representations into different arrangements when the windows are cascaded or tiled.

91. In my opinion, a POSITA would have been motivated to combine the teachings of Martinez with Reavey because Martinez teaches that it would be “advantageous to have a method and apparatus to detect various changes in orientation of hardware associated with a data processing system in which the display is altered in response to various changes in orientation of the hardware.” EX-1007, 1:62-67. As Martinez explains, GUIs are used “to provide an intuitive” interface to users and help simplify users’ interactions with complex data processing systems. *Id.*, 1:23-33. In my opinion, a POSITA would have understood that arranging the display to correspond to a new hardware configuration would ensure that the arrangement is best suited to the user’s needs. Indeed, it was well-known that “[t]he visual design of a user-computer interface affects both the user’s initial impression . . . and the system’s longer-term usefulness.” EX-1021, 418. In my opinion, a POSITA would have understood that organizing content to account for the manner in which a user interacts with the computer would increase the computer’s usefulness to the user. *Id.* (“Visual design comprises all graphic elements of an interface, including overall screen layout . . . [and] strives for clarity, consistency, and attractive appearance.”). And, as discussed previously, Reavey already contemplates changing the organization of displayed content to simplify and improve the interface for a user. *See* EX-1009, 3:18-24, 7:26-44, 7:50-55 (describing two different organizations of content, one with a single screen of content and a second screen with a virtual keyboard, and the second with two screens of content in a tall, continuously scrolling display).

92. In addition, instead of Martinez’s shake gesture, in my opinion, a POSITA would have been motivated to apply Martinez’s views to be triggered based on Reavey’s hardware-based trigger that detects rotational changes between the halves of Reavey’s device and responds to such changes with a different view. Reavey and Martinez disclose similar systems with a display, keyboard, and processing components containing a sensor that detects changes to the device and responds to such changes with a different GUI display. The switch in Reavey is a detection of a physical change to the device (e.g., the device is opened or partially opened) and Martinez teaches rearranging a GUI based on detecting a physical change to the device (i.e., a shake). Martinez, 6:5-31. Thus, in my opinion, a POSITA would have been motivated to simply add the known technique of rearranging the display in response to detecting a physical change to the device to improve the usability of Reavey. In my opinion, such a modification would have been well within the programming skills of a POSITA because the combination would require only using a different physical change to the device (i.e., rotation rather than a shake) to trigger a change in display. In my opinion, a POSITA would have also found this modification desirable to allow for a more user-friendly GUI organization when Reavey’s keyboard is not in use.

c. 1[b]: “providing for transition between the plurality of views in response to selection of an I/O profile”

93. In my opinion, the Reavey-Martinez combination teaches this limitation. As I discussed previously in X.A.5.a for 1[pre], Reavey teaches selecting an I/O profile

when the user manipulates the device into a configuration (e.g., laptop, flat). As I discussed in X.A.5.b for 1[a], the Reavey-Martinez combination teaches transitioning between views in response to a detected change in device configuration (which results in I/O profile selection). In my opinion, a POSITA would have been motivated to combine the relied-upon teachings of Reavey and Martinez for the same reasons I explained in X.A.4 and X.A.5.b for 1[a].

d. 1[c]: “providing for transition between the plurality of views in response to activation of a view selector component configured to permit a user to select one of the plurality of views”

94. In my opinion, the Reavey-Martinez combination in further combination with Proctor teaches 1[c], under MPF or not. For MPF, this limitation requires a keyboard, touchpad, mouse, scroll wheel, or *navigation buttons* configured to allow a user to manually select an organization of the displayed content, and its equivalents. *See, e.g.,* EX-1001, 6:18–23, 37:12–28, 39:23–4.

95. As I discussed above in X.A.5.b, X.A.5.c for 1[a] and 1[b], the Reavey-Martinez combination teaches transitioning between the plurality of views in response to selection of an I/O profile (i.e., by changing the physical orientation of the device). In my opinion, a POSITA would have been motivated to also include functionality to allow a user to transition between views manually by using a view selector component, such as a navigation button. In my opinion, a POSITA would have found it obvious to take the automatic transition taught by the Reavey-Martinez combination and allow a user to perform that transition manually.

96. Using a computer interface element, such as a navigation button, to change the presentation of the GUI was well-known at the relevant time. *See* EX-1008, 46-51 (describing using the taskbar button to display a new window). For example, Proctor teaches a hardware-type view selector. EX-1010, [0030], Fig. 1. I have provided an annotated version of Proctor’s Figure 1 below.

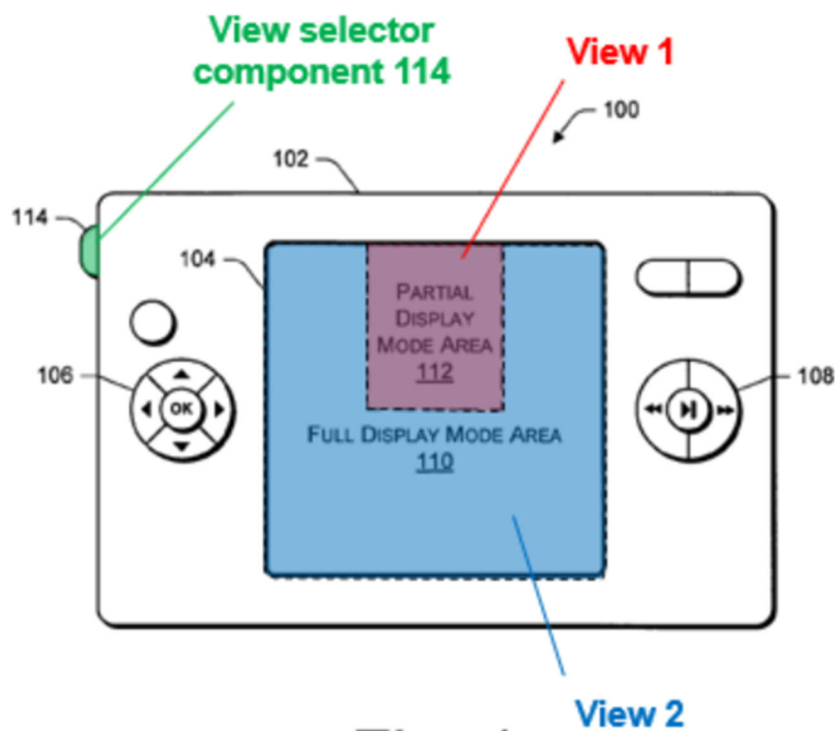
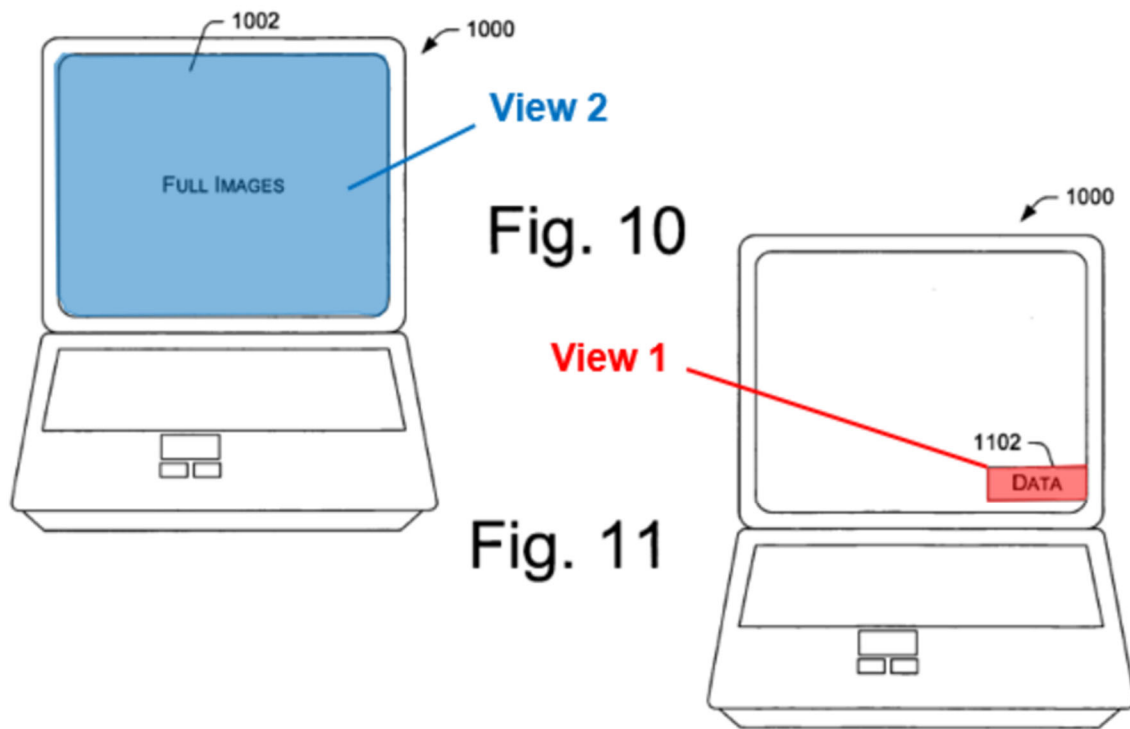


Fig. 1

97. Figure 1 depicts switch 114, which is a “mechanical switch that allows a user to physically choose a desired mode of operation” where “[p]ressing or sliding the switch 114 to a first operational position selects the full display mode, and movement to a second operational position chooses the partial display mode.” *Id.*, [0030]; *see also* [0049] (full and partial display modes in Proctor’s laptop embodiment), [0056] (“driver 420 toggles between the two modes in response to...a user command”).

98. In my opinion, a POSITA would have found it obvious to apply known navigation buttons, such as Proctor's switch, to the Reavey-Martinez combination to allow the additional functionality of the user being able to manually switch between views. Doing so would have amounted to no more than applying a known technique (i.e., Proctor's mechanical switch) to a known device (Reavey-Martinez's computing device with a plurality of views) to achieve a predictable result (a manual transition



between views). Although Proctor expressly discloses its switch in its portable entertainment device embodiment (EX-1010, [0010], Fig. 1), in my opinion a POSITA would have recognized that such a switch was equally applicable to a laptop configuration, such as in the Reavey-Martinez combination or in Proctor's Figures 10 and 11 (annotated and reproduced below). EX-1010, Figs. 10-11, [0056].

99. Thus, in my opinion, a POSITA would have understood that incorporating

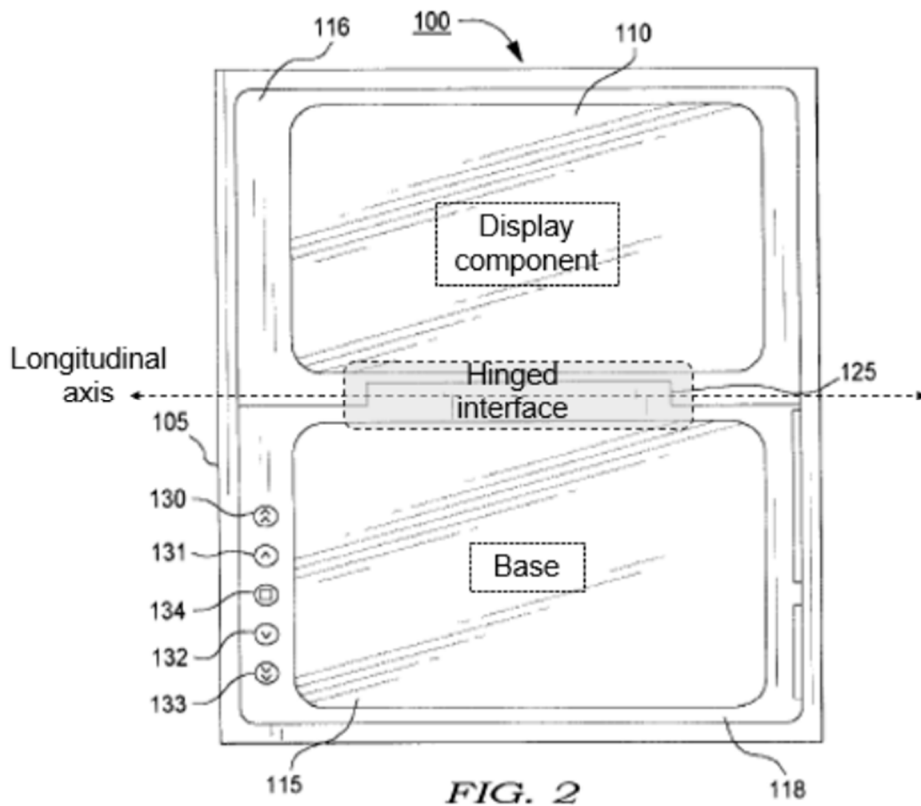
a switch to manually transition between views would have improved the usability of such a laptop configuration by providing greater user control. *See id.*, [0056] (describing the ability to toggle between views in response to user command), '888 patent, 11:27-32 (describing a scroll wheel to allow the user to control the content displayed on the display screen).

- e. ***1[d]: “wherein providing for the transition between the plurality of views in response to selection of the I/O profile includes:”***

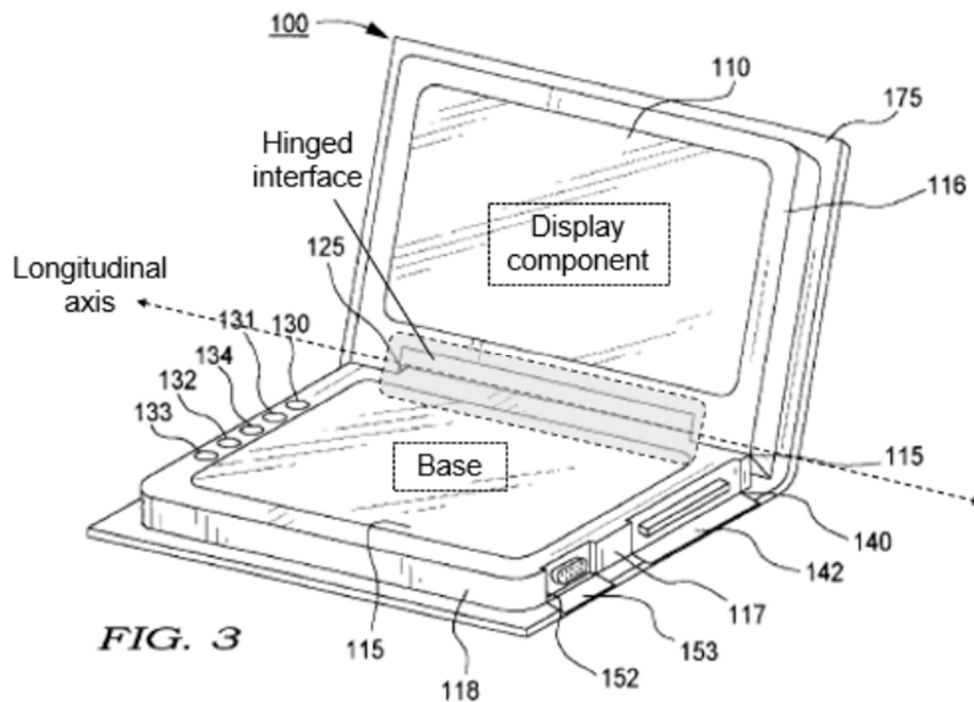
100. *See* Section X.A.5.c for 1[b].

- f. ***1[e1]: “permitting the user to rotate a display component of the computing device about a longitudinal axis running along an interface between the display component and a base of the streamlined computing device”***

101. In my opinion, Reavey discloses or suggests 1[e1]. As I discussed above in X.A.5.a for 1[pre], Reavey teaches a number of modes where a user can rotate the display and base relative to one another about a longitudinal axis. EX-1009, Abstract (“The device features a means for orientating the material on the electronic display unit responsive to an opening position of the electronic book device.”), 1:5-16, 3:13-27, 5:32-37. I have provided an annotated version of Reavey’s Figure 2 below to show the hinged interface and longitudinal axis about which the display component and base rotate:

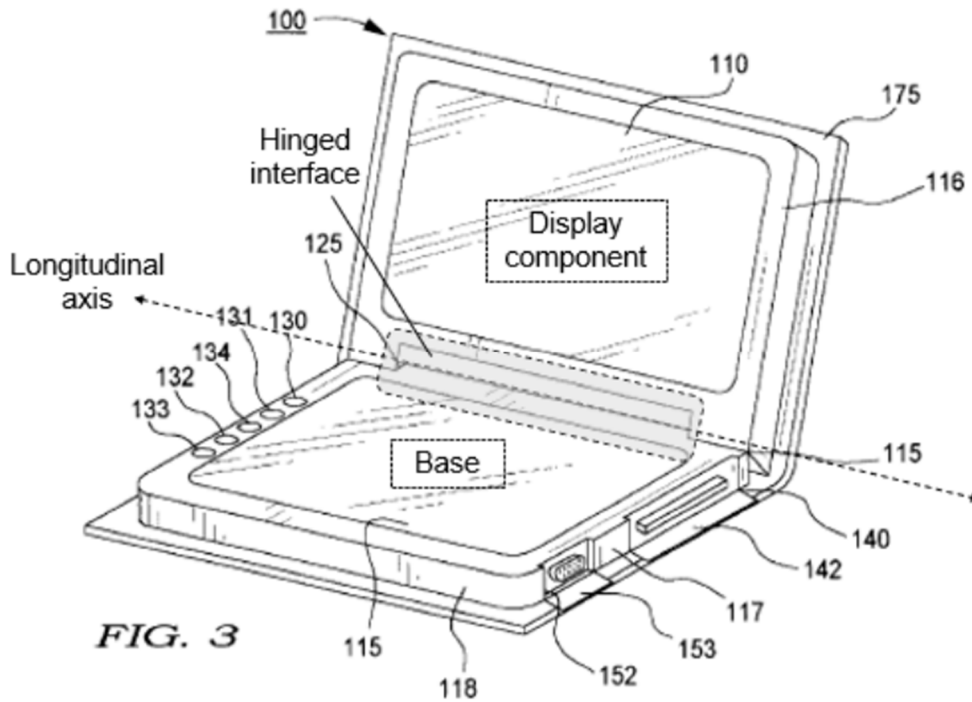


I have provided an annotated version of Reavey's Figure 3 to show those same components when the base and display components are rotated a different amount:



- g. *1[e2]: “wherein rotating the display component about the longitudinal axis from a closed mode to a first physical orientation configures the computing device into a laptop mode having a first physical configuration of the display component and the base, with one of the plurality of views as a default display; and”*

102. In my opinion, the Reavey-Martinez combination teaches this limitation. Reavey discloses “rotating the display component about the longitudinal axis from a closed mode to a first physical orientation configures the computing device into a laptop mode having a first physical configuration of the display component and the base.” EX-1009, Abstract (“responsive to an opening position of the electronic book device”), 1:5-16 (“in an over/under fashion, i.e. like a laptop computer”), 3:13-27 (“In the third mode, the panels are in an over-under position, but with the bottom panel as a touch screen for data and text entry. This latter mode is the laptop configuration.”), 3:28-29 (“Activation and deactivation is accomplished by the opening and closing of the device, respectively.”), 4:1-6 (“The electronic book device features a means for orientating the material on the electronic display unit responsive to an opening position of the electronic book device.”). Reavey’s Figure 3 demonstrates the device in laptop mode, and I have provided an annotated version of that figure below.



103. Figure 9 depicts a flowchart of the operation of Reavey's device, and I have produced an annotated version of that figure which is reproduced below. As shown below, after Reavey's device is opened from closed to laptop mode in step 500, the screen orientation switch determines in step 590 that the device is flat and partially folded (i.e., in laptop mode). The device then presents the opening screen with an over/under orientations and a keyboard on the base. *Id.*, 8:43-46, 61-66, Fig. 9.

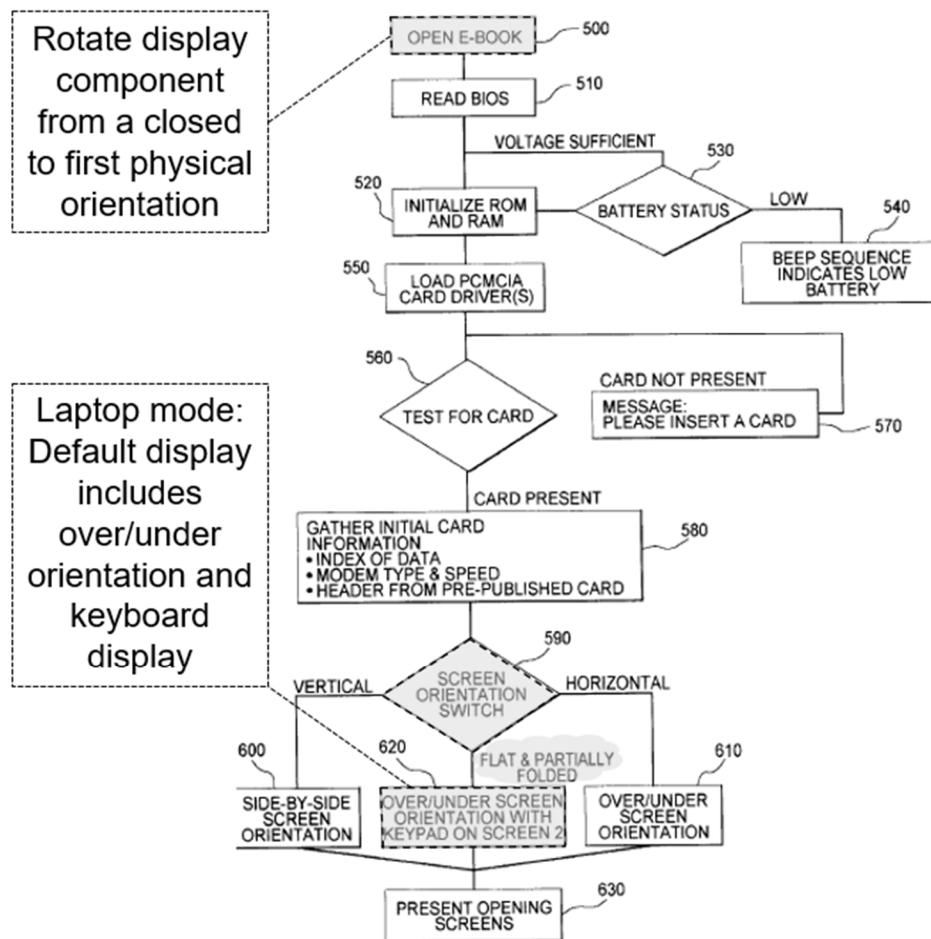


FIG. 9

104. In addition, in my opinion, a POSITA would have been motivated to organize windows in a cascading view as taught in Martinez as the default for Reavey's laptop configuration. Specifically, in my opinion, a POSITA would have recognized that known view as beneficial for Reavey's laptop configuration to conserve screen real estate when one of the screens is dedicated to the virtual keyboard and so only one screen is available for keeping multiple computer application windows open and running. *See* EX-1007, 1:38-50 (describing the display of "simultaneously active" application programs in a multi-tasking system).

- h. 1[e3]: “wherein rotating the display component about the longitudinal axis from the closed mode to a second physical orientation configures the computing device into another display mode having a second physical configuration of the display component and the base, with another one of the plurality of views as the default display;”**

105. In my opinion, the Reavey-Martinez combination teaches 1[e3]. Reavey discloses “rotating the display component about the longitudinal axis from the closed mode to a second physical orientation configures the computing device into another display mode having a second physical configuration of the display component and the base.” EX-1009, Abstract (“responsive to an opening position of the electronic book device”), 3:13-27 (“In the second book,⁵ the panels are in an over-under placement and can function as one panel with text and graphics scrolling downward from one to the other.”), 3:28-29 (“Activation and deactivation is accomplished by the opening and closing of the device, respectively.”), 4:1-6 (“The electronic book device features a means for orientating the material on the electronic display unit responsive to an opening position of the electronic book device.”). Figure 2 as annotated and reproduced above shows Reavey’s device in a second physical configuration (i.e., horizontal, flat, and not folded). As shown in Figure 9 above, when going from closed to this mode, the device presents the opening screen with an over/under orientation but with no keyboard on the base (instead the base serves as another screen).

⁵ In my opinion, this appears to be a typographical error and should instead read “second mode.”

106. In my opinion, a POSITA would have been motivated to organize windows in a tile view as taught in Martinez as the default view for Reavey's Figure 2 configuration. Specifically, in my opinion, a POSITA would have recognized that known view as beneficial for Reavey's Figure 2 configuration with two touchscreens available for content to allow more windows to be displayed and more gestures to be used to navigate them in an environment with more available screen real estate.

i. 1[f]: “associating at least one of a plurality of visual representations with digital media content”

107. In my opinion, the Reavey-Martinez combination teaches 1[f]. Associating a visual representation (such as a thumbnail or icon) with digital media content (such as a picture or application) was well-known prior to the priority date of the '888 patent and was commonly used in user interfaces. *See* EX-1021, 395-96 (describing iconic interfaces as a common style for user-computer interfaces), 399 (describing icons as “visual representation[s]”), 400-401 (discussing icons that represent Macintosh programs), Fig. 9.6 (“What does each icon represent? In most cases, the icons suggest the type of information that is operated on or created”). An example of icons associated with computer programs is depicted below.

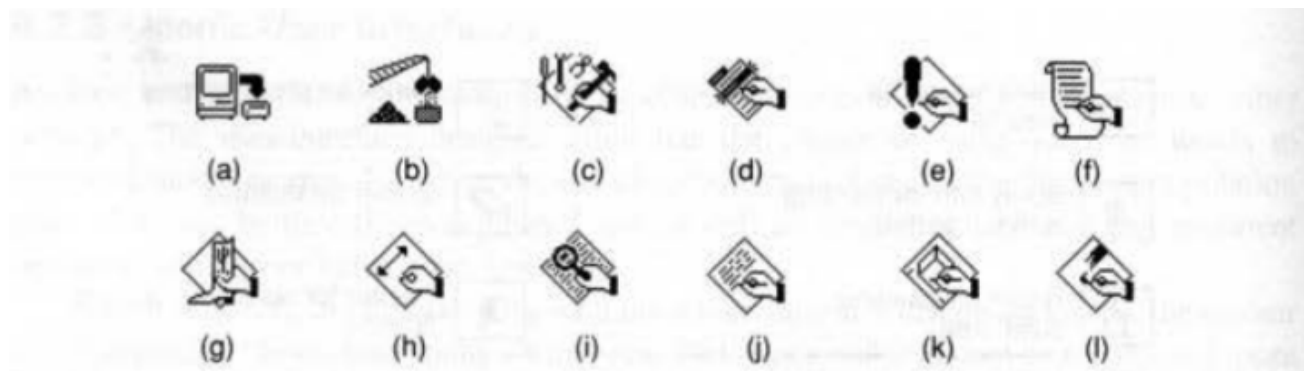


Fig. 9.6 Icons that represent Macintosh programs. What does each icon represent? In most cases, the icons suggest the type of information that is operated on or created. See Exercise 9.14 for the answers.

108. As evidenced by the above figures, in my opinion, a POSITA would have understood that the icons organized in Martinez’s views were “visual representations associated with digital media content.” *See id.*, 395-96, 400-401. Graphical user interfaces, like used in Martinez, have long used graphics “extensively in the user interface and for *visualizing and manipulating the application-specific objects*. *Id.*, 1-2 (emphasis added). Specifically, displays of icons were recognized to represent “not just data files and application programs, but also common office objects, such as file cabinets, mailboxes, printers, and trashcans, that performed the computer-operation equivalents of their real-life counterparts.” *Id.* A user could thus “select icons to activate the *corresponding programs or objects*.” *Id.* (emphasis added). It was also conventional to organize such icons in windows. In my opinion, a POSITA would have understood that windows organized in Martinez’s views were associated with digital media content (such as applications). Martinez, 1:34-37 (“A GUI is an interface system . . . by which a user interacts with a data processing system, system components, and/or system applications via . . . icons”).

j. ***1[g]: “executing the association with the at least one of the plurality of visual representations with digital media content in response to selection”***

109. In my opinion, the Reavey-Martinez-Proctor combination teaches or suggests 1[g]. Executing the association between a visual representation (such as a thumbnail or icon) and the digital media content (such as a picture or application) was well-known prior to the priority date of the '888 patent and was commonly used in user interfaces. *See* X.A.5.i (1[f]); *see also* EX-1021, 395-96 (describing iconic interfaces as a common style for user-computer interfaces) Fig. 9.6 (“What does each icon represent? In most cases, the icons suggest the type of information that is *operated on* or created”) (emphasis added), 2 (explaining that users could “select icons *to activate* the corresponding programs or objects”) (emphasis added), 397 (describing direct manipulation of icons as visual representations). Thus, in my opinion, a POSITA would have understood that a user could click on any of the icons or windows organized in Martinez’s views, and then the software in Reavey would execute the association with digital media content so that the user could view the associated content.

110. To the extent PO argues or the Board finds the Reavey-Martinez combination is insufficient to teach this limitation, in my opinion this limitation would have been obvious in further view of Proctor. Proctor teaches that a user “browses the audio library” of titles and selects a song while the device is in full display mode. EX-1010, Fig. 2, [0028]. Upon selection, Proctor’s hardware and software transition to a partial display showing only the selected song title. *Id.*, Fig. 3, [0029]. Proctor’s audio

player embodiment discloses this expressly, in which a user picks a song (“digital media content”) from a menu of songs (“plurality of visual representations”) and displays the song in partial display (“transitioning a display on the computing device to a view of the digital media content in response to the act of executing the association”). *Id.*, Figs. 6–7,[0050]-[0051]. Proctor discloses the selection of digital media content and transition to another view of it as shown in the annotated figures reproduced below. *Id.*, Figs. 2–3, 6–7.

Digital media content selected from visual representations displayed in view 1

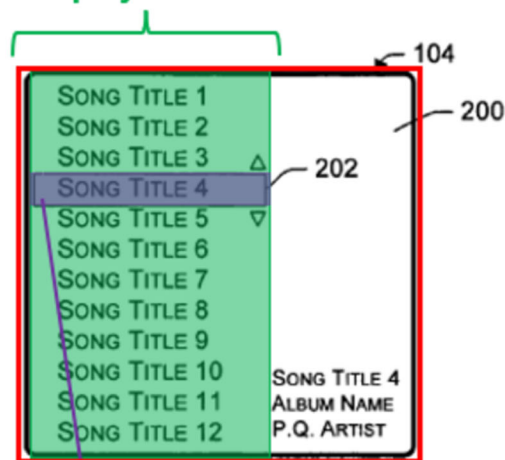


Fig. 2 View 1 (200)

Selection component (202); executes association

Digital media content displayed in view 2

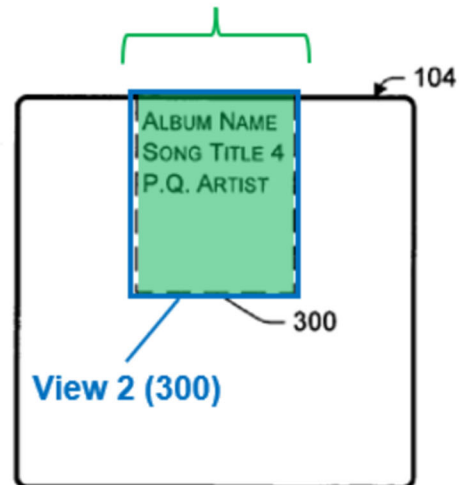
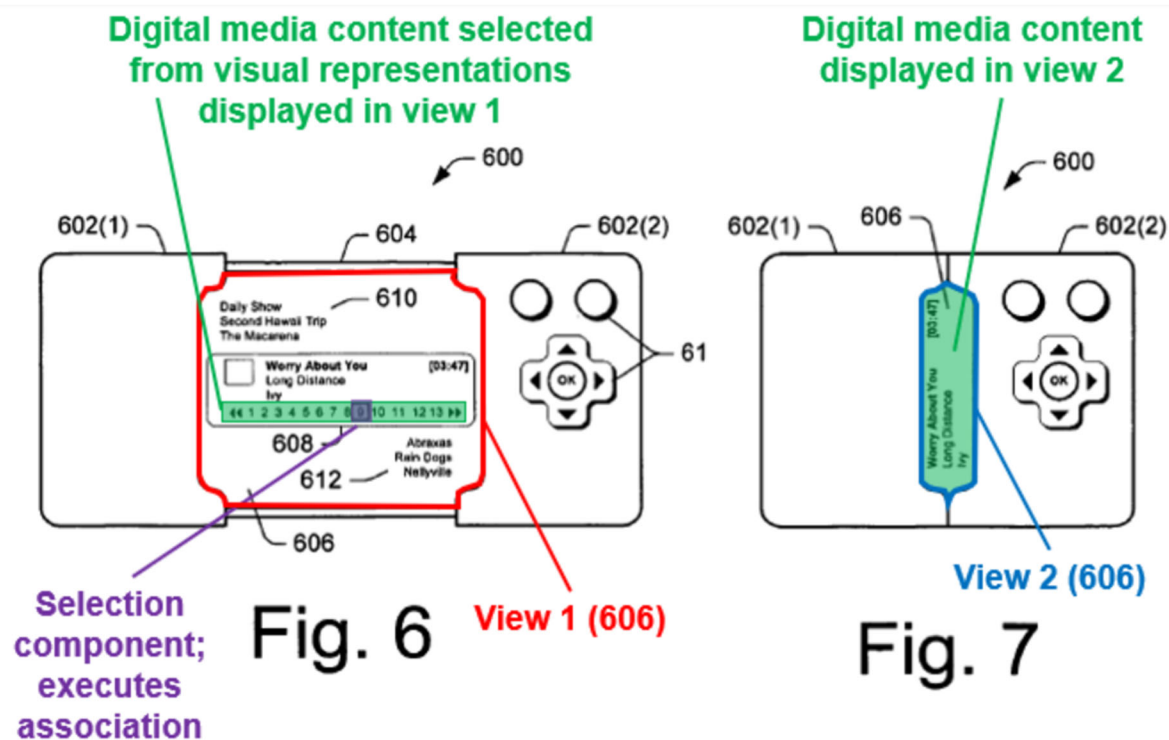


Fig. 3



111. In my opinion, a POSITA would have been motivated to apply this teaching to the Reavey-Martinez combination, so that the user achieves the expected operation of selecting a visual representation (i.e., executing the association between a visual representation (such as a window, thumbnail, or icon)) associated with the digital media content (such as a picture or application).

k. *1/h): “transitioning a display on the computing device to a view of the digital media content in response to the act of executing the association; and”*

112. Section X.A.5.j explains Reavey-Martinez combination teaches or suggests 1[g]. In my opinion, for the same reasons described in X.A.5.j (1[g]), a POSITA would have understood that combination teaches or suggests 1[h] (i.e., after the association is executed, the display transitions to a view of the associated digital

media content, so the user can view the content they selected).

1. *1[i]*⁶: “providing for display of user digital media content and referenced digital media content in the view of the digital media content”

113. In my opinion, the Reavey-Martinez-Proctor combination teaches or suggests 1[i]. This limitation allows for the display of “user digital media content” and “referenced digital media content” in response to the execution of the association of a visual representation and digital media content. First, in my opinion, a POSITA would have understood that, in the context of the ’888 patent, “referenced digital media content” encompasses digital media content that is stored remotely and to which the user’s device has stored only a reference and that “user digital media content” encompasses digital media content stored locally on the user’s device. EX-1001, 3:34-36, 29:40-44.

114. Additionally, in my opinion, displaying either user digital media content or referenced media content was well-known prior to the priority date of the ’888 patent. For example, the RealPlayer media player was well known at the relevant time and allowed a user to view digital media content that was stored remotely on the internet by streaming the content on the user’s local device. Ex. 1034 (RealPlayer 7 Plus Manual), 49-50. To do so, a user would click on an internet link to access the digital media content

⁶ For purposes of my opinions here, I address “the view” in 1[i] as having antecedent basis in “a view” in 1[h].

the user would like to stream. *Id.*, 49. The internet would then provide a “reference” to the digital media content by sending a pointer file (containing the name and location of the remote digital media content) that is stored and then loaded onto the user’s local device. *Id.*, 50; *see also* EX-1012, ¶[0046] (describing embedded files that are visually represented in an email as a thumbnail image and which correspond to a full image file stored on a remote server).

115. As another example, Reavey discusses both books that are locally stored and downloading books from the internet to read on its electronic book device. EX-1009, 8:11-24, (“electronic book device 100 will use PC cards to store pre-recorded information storage . . . the PC cards may have enough storage capability to hold several books or periodicals”), 25-36 (“The software will allow any type of computer to download pages of information to PC cards in the electronic book device for future reading.”).

116. In my opinion, a POSITA would have understood that in the Reavey-Martinez combination, Martinez’s windows and icons (visual representations) would be associated with either user digital media content or referenced digital media content, and that whichever type was associated with the executed association would be displayed. Martinez discloses a GUI that allows the user to interact with system applications via icons. EX-1007, 1:34-41. As I discussed above in X.A.5.i and X.A.5.j, it was well known that icons were associated with digital media content and that users could select the icons to activate the digital media content. Foley, 400-01, Fig. 9.6

(describing icons used to represent digital media content such as Macintosh programs). Additionally, as I discussed above, it was also well known that a user could view digital media content that was stored remotely on the user's local device. *See* EX. 1034 (RealPlayer 7 Plus Manual), 49-50. Thus, in my opinion, a POSITA would have understood that Martinez's windows or icons (visual representations) would be associated with either user digital media content or referenced digital media content.

117. In my opinion, a POSITA would have also understood a user of the Reavey-Martinez-Proctor device would have had the capability and need to load a specific digital media application on the device to access digital media content stored remotely through an internet-supported connection to a music-streaming type of service (e.g., Real Player Plus 7). *Id.*, 50 (describing how the RealPlayer contacts an internet server for the user to stream media). In my opinion, a POSITA would also have recognized music streaming was a well-known and conventional technique used by general computing devices, such as the Reavey-Martinez-Proctor combination, at the time of the invention. Specifically, a POSITA would have recognized that the Reavey-Martinez-Proctor combination would have included an internet connection, web browser, operating system, processor, RAM, modem, sound card, and speakers – all which were conventional features required for streaming digital media using the Real Player Plus 7 application. *Id.*, 3, 19; Reavey, 6:3-32; Martinez 3:27-4:8, 5:24-29, 7:22-40; Proctor, [0023], [0032]-[0039].

118. Further, in my opinion, a POSITA would have been motivated to install

the Real Player Plus 7 application on the portable device of the Reavey-Martinez-Proctor combination. For example, a POSITA would have recognized that the portable device described would have allowed only a finite number of downloaded songs in local storage. *See* Reavey 8:15-24 (describing memory cards with limited storage capability that a user can use to “playback pages of information” that was previously downloaded). However, using the Real Player Plus 7 to stream content via the internet would have predictably increased the amount of media content available to user because the amount of content would no longer be confined to the device’s local storage capacity. *See* Ex. 10034 (RealPlayer 7 Plus Manual), 15 (“RealPlayer 7 Plus gives you access to multimedia both on the Internet and locally on your computer”) Additionally, in my opinion the Real Player Plus 7 would have also increased the amount of relevant content available for user enjoyment (i.e. newly released albums, daily news). *Id.*, 55-56 (explaining how a user can search for relevant content to stream from the Internet).

6. Claim 2: “*The method according to claim 1, further comprising an act of displaying in the view user digital media content and referenced digital media content in response to the act of executing the association with the at least one of the plurality of visual representations.*”

119. Section X.A.5 explains my opinion that the Reavey-Martinez-Proctor combination teaches the “method according to claim 1,” and X.A.5.1 for 1[i] explains my opinion that the combination teaches “providing for display of user digital media content and referenced digital media content in the view of the digital media content.” Claim 2 explicitly recites that such display occurs in response to executing the recited

association. In my opinion, for the same reasons I discussed in X.A.5.1 for 1[i], the additional limitation of claim 2 is taught by the Reavey-Martinez-Proctor combination.

7. Claim 24

- a. ***24[a]⁷: “The method according to claim 1, wherein the act of displaying the user interface includes: providing a plurality of views of the plurality of visual representations of computer content; and”***

120. In my opinion, the Reavey-Martinez-Proctor combination teaches the “method according to claim 1” (X.A.5) and X.A.5.b and X.A.5.i–X.A.5.l for 1[a] and 1[f]–[i] specifically explain my opinion that the combination of references teach a plurality of views of the plurality of representations of computer content are displayed in response to changes in physical configuration.

- b. ***24[b]: “associating the plurality of visual representations of computer content with at least one of the plurality of views, and”***

121. As I discussed in X.A.5.i–X.A.5.l for claims 1[f]–[i], in my opinion, the Reavey-Martinez-Proctor combination teaches a plurality of visual representations are

⁷ “[T]he act of displaying the user interface” refers to the “displaying” limitation in claim 1, i.e., “displaying a graphical user interface on the computing device, wherein the graphical user interface comprises at least a plurality of views of digital media content[.]” Thus, claim 24 specifies additional requirements for the “wherein” clause in that “displaying” limitation of claim 1 (and does not require displaying an additional/distinct “plurality of views”).

associated with a plurality of digital media content views that transition responsive to changes in physical configuration. Specifically, as to 24[b]’s additional limitations, Sections X.A.5.i–X.A.5.l discuss that when a user selects the visual representation (thumbnail, icon or window), software would then transition the display so the user could view the associated content, thus creating an association between the visual representation and associated view. *Id.*

c. 24[c]: “wherein the each of the plurality of visual representations is responsive to focus and execution, wherein execution includes selection of the visual representation.”

122. As I discussed in X.A.5.i–X.A.5.j for claims 1[f]–[g], in my opinion, a POSITA would have understood the Reavey-Martinez-Proctor combination teaches displaying thumbnails, windows, and icons (“visual representations”) of, e.g., an “audio library” for a user to browse, highlight a specific song (“focus”), then choose to play by clicking on it (“execution” by “selection”) as illustrated in the annotated figures shown below. EX-1010, Figs. 2–3, 6–7 (combined and annotated), ¶¶[0028–0029], [0050–0051].

Digital media content selected from visual representations displayed in view 1

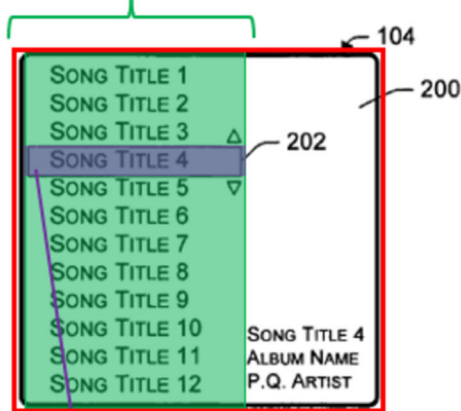


Fig. 2 View 1 (200)

Selection component (202); executes association

Digital media content displayed in view 2

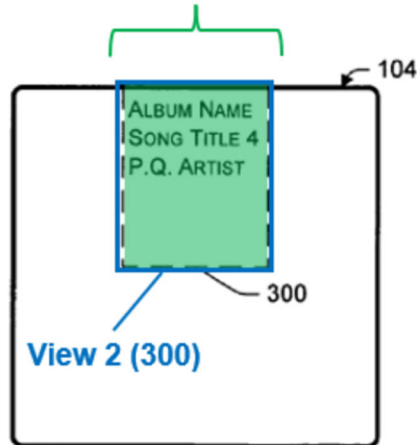


Fig. 3

Digital media content selected from visual representations displayed in view 1

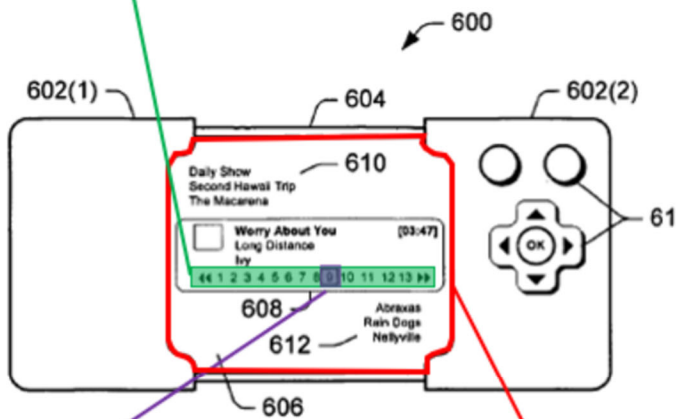


Fig. 6 View 1 (606)

Selection component; executes association

Digital media content displayed in view 2

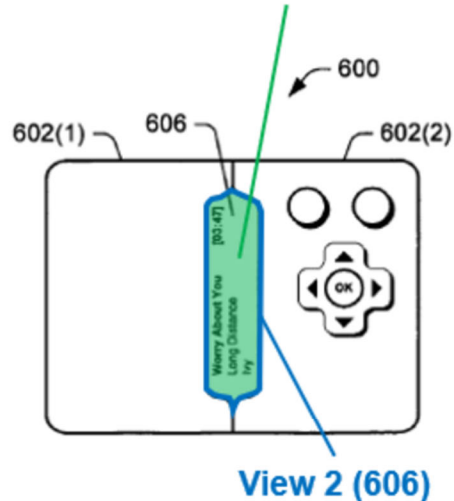


Fig. 7

123. In my opinion, as I discussed in X.A.5.i–X.A.5.j for claims 1[f]–[g], it would have been obvious to combine Reavey, Martinez, and Proctor. Additionally, in my opinion, a POSITA would have been further motivated to implement Proctor's

highlighting and selection process in the Reavey-Martinez device so that the user achieves the expected operation of selecting a visual representation (i.e., executing the association between a visual representation (such as a window, thumbnail, or icon) and the digital media content (such as a song)). Doing so would have been predictable to a POSITA. For example, the Macintosh used a similar highlight and selection scheme to open files as shown in Figure 9.14 below. See EX-1021, 411 (describing interactive graphics systems designed for a spectrum of users), Fig. 9.14.

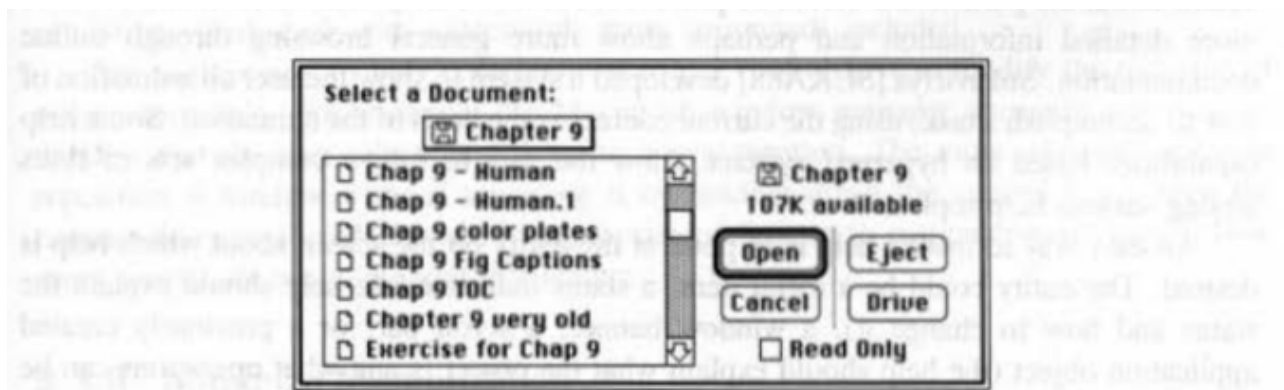


Fig. 9.14 Opening files from within a Macintosh program. The user enters the Open command, either by menu selection or with a two-key chord, causing the dialogue box to appear. The highlighted file can be opened with the "open" button or with the carriage-return key. The user can highlight a new file by selecting it with the cursor or by typing some or all of its name. Therefore, the user can open a file using only the keyboard, by entering the two-key chord, a partial file name, and the return key. (Computer screen graphics © Apple Computer, Inc.)

8. Claim 26

- a. *26[pre]: "A non-transitory computer-readable medium having computer-readable instructions stored thereon that as a result of being executed by a computer, instruct the computer to perform the method for accessing and managing digital media libraries on a streamlined computing device with a plurality of selectable I/O profiles, wherein the method comprises:"*

124. 26[pre] recites a similar limitation to 1[pre], which I discuss in Section X.A.5.a. In my opinion, 26[pre] is taught in the prior art for the same reasons discussed in that Section. Additionally, a POSITA would have understood that Reavey's device has a processor connected to a memory ("non-transitory computer-readable storage medium"). Reavey discloses that its electronic book device contains a "central processing unit (CPU) 300, a read only memory (ROM) 310, a random access memory (RAM) 315, a static RAM with battery 320, a video controller 330, a cache RAM 340 and a PCMCIA controller 345." EX-1009, 6:6-10. In my opinion, a POSITA would have understood that the computing unit in Reavey is a processor. The computing unit is responsible for processing data and must execute instructions to do so, which is what a processor does. *See* EX-1001, 16:3-54 (explaining that the processor executes programs and reads data from memory); EX-1009, 6:6-10. Additionally, having such a computer system with a processor connected to a memory was well-known at the relevant time. *See* EX-1007, Fig. 2 (item 202 (Pentium, i.e., processor), 206, 208, 210 (memory), connected through item 200 (system bus)), 3:34-59 (describing Direct Memory access controller for managing large input/output transfers from input/output devices—e.g., a keyboard—by "appropriat[ing] cycles from microprocessor 202" and reliance upon read only memory (ROM) and Random Access Memory (RAM) for controlling hardware operations according to system configuration information).

- b. 26[a]: “displaying a graphical user interface on the computing device, wherein the graphical user interface comprises at least a plurality of views of digital media content;”**

125. 26[a] recites a similar limitation to 1[a], which I discuss in Section X.A.5.b. In my opinion, 26[a] is taught in the prior art for the same reasons discussed in that Section.

- c. 26[b]: “providing for transition between the plurality of views in response to selection of an I/O profile, wherein providing for the transition between the plurality of views in response to selection of the I/O profile includes:”**

126. 26[b] recites a similar limitation to 1[b] and 1[d], which I discuss in Sections X.A.5.c and X.A.5.e. In my opinion, 26[b] is taught in the prior art for the same reasons discussed in those Sections.

- d. 26[c1]: “permitting the user to rotate a display component of the computing device about a longitudinal axis running along an interface between the display component and a base of the streamlined computing device;”**

127. 26[c1] recites a similar limitation to 1[e1], which I discuss in Section X.A.5.f. In my opinion, 26[c1] is taught in the prior art for the same reasons discussed in that Section.

- e. 26[c2]: “wherein rotating the display component about the longitudinal axis from a closed mode to a first physical orientation configures the computing device into a laptop mode having a first physical configuration of the display component and the base with one of the plurality of views as a default display; and”**

128. 26[c2] recites a similar limitation to 1[e2], which I discuss in X.A.5.g. In my opinion, 26[c2] is taught in the prior art for the same reasons discussed in that

Section.

- f. ***26[c3]: “wherein rotating the display component about the longitudinal axis from the closed mode to a second physical orientation configures the computing device into another display mode having a second physical configuration of the display component and the base with another one of the plurality of views as the default display;”***

129. 26[c3] recites a similar limitation to 1[e3], which I discuss in Section X.A.5.h. In my opinion, 26[c3] is taught in the prior art for the same reasons discussed in that Section.

- g. ***26[d]: “providing for transition between the plurality of views in response to activation of a view selector component configured to permit a user to select one of the plurality of views;”***

130. 26[d] recites a similar limitation to 1[c], which I discuss in Section X.A.5.d. In my opinion, 26[d] is taught in the prior art for the same reasons discussed in that Section.

- h. ***26[e]: “associating at least one of a plurality of visual representations with digital media content;”***

131. 26[e] recites a similar limitation to 1[f], which I discuss in Section X.A.5.i. In my opinion, 26[e] is taught in the prior art for the same reasons discussed in that Section.

- i. ***26[f]: “executing the association with the at least one of the plurality of visual representations with digital media content in response to selection;”***

132. 26[f] recites a similar limitation to 1[g], which I discuss in Section X.A.5.j. In my opinion, 26[f] is taught in the prior art for the same reasons discussed in that Section.

- j. ***26[g]: “transitioning a display on the computing device to a view of the digital media content in response to the act of executing the association; and”***

133. 26[g] recites a similar limitation to 1[h], which I discuss in Section X.A.5.k. In my opinion, 26[g] is taught in the prior art for the same reasons discussed in that Section.

- k. ***26[h]: “providing for display of user digital media content and referenced digital media content in the view of the digital media content.”***

134. 26[h] recites a similar limitation to 1[i], which I discuss in Section X.A.5.l. In my opinion, 26[h] is taught in the prior art for the same reasons discussed in that Section.

9. Claim 27

- a. ***27[pre]: “A system for accessing and managing digital media libraries with a plurality of selectable I/O profiles, the system comprising”***

135. 27[pre] recites a similar limitation to 1[pre], which I discuss in Section X.A.5.a. In my opinion, 27[pre] is taught in the prior art for the same reasons discussed in that Section.

- b. ***27[a]: “a display component configured to display a graphical user interface on a computing device, wherein the graphical user interface comprises at least a plurality of views of digital media content, wherein the plurality of views include at least one of a plurality of visual representations”***

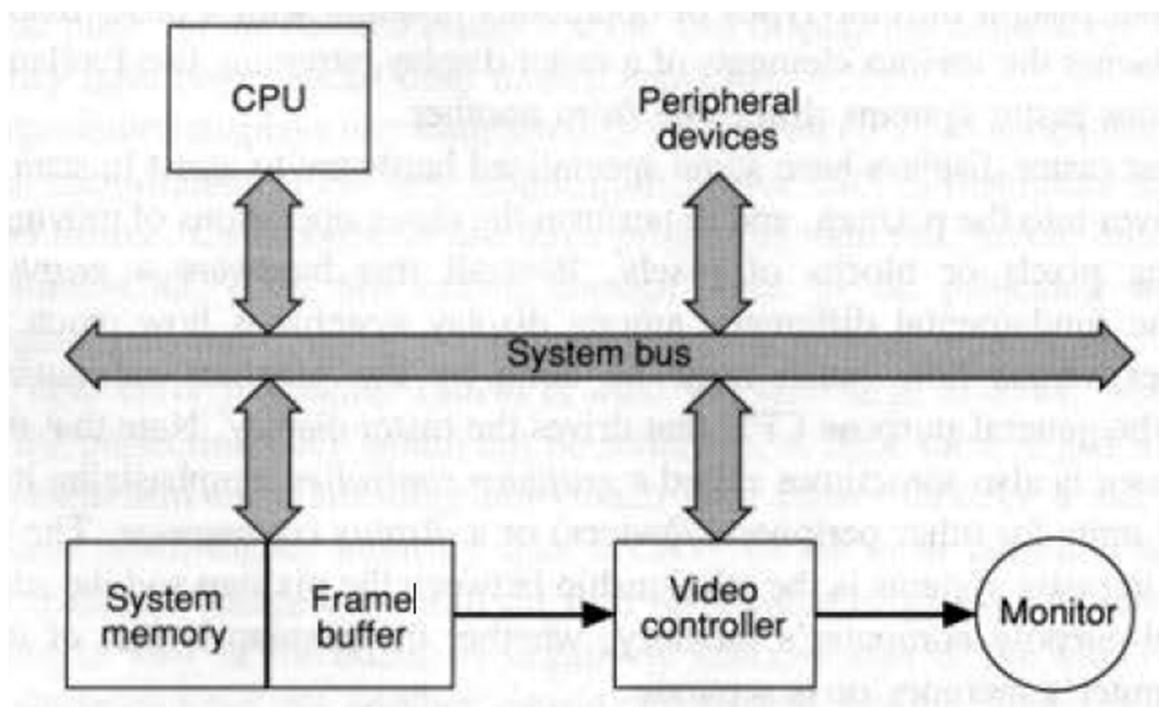
136. As I discussed above in X.A.5.b for 1[a], in my opinion, the Reavey-Martinez combination teaches “display[ing] a graphical user interface on a computing device, wherein the graphical user interface comprises at least a plurality of views of digital media content.” As I discuss above, under MPF, the display component must be

a display screen. *See* IX.B.3. Reavey’s screen teaches the “display component,” under MPF or not. *E.g.*, EX-1009, Fig. 2, 3:18-21 (single screen display 110), Figs. 2-4, 3:21-24, 7:26-44, 7:53-55 (dual screen display 110, 115). Additionally, in my opinion, the Reavey-Martinez combination teaches “the plurality of views include at least one of a plurality of visual representations.” The ’888 patent makes clear that “visual representations” can include cards (EX-1001, 18:10-30), preview images, such as thumbnails (*id.*, 23:53-58). As I discussed in X.A.5.b for 1[a], Martinez teaches using a sensor to detect movement (in Martinez’s particular embodiment, a shake gesture) and based on that movement, to arrange (i.e., organize) windows and/or icons in a pre-selected manner, such as “a tile or cascading fashion.” EX-1007, Fig. 9, 5:66-6:37. As I discussed in that Section, a POSITA would have recognized tile and cascading as two different ways of organizing icons or windows (“visual representations of computer content”). *See* X.A.5.b (1[a]). In that Section, I also explain a POSITA would have been motivated to combine that teaching with Reavey’s device.

c. 27[b]: “an execution component configured to transition the graphical user interface between the plurality of views in response to selection of an I/O profile, wherein selecting the I/O profile includes”

137. *See* Section X.A.5.c for 1[b], under MPF or not. Under MPF, 27[b] requires a processor and related software that is configured to: automatically reorganize the displayed content in response to a physical configuration of the computer device. *See*, e.g., EX-1001 at 6:18–23, 37:12–28, 38:5–11, 38:49–56, 39:4–5. Reavey teaches the use of a “central processing unit (CPU) 300.” EX-1009, 5:66-6:32, Fig. 7. In my

opinion, a POSITA would have recognized that, in order to perform the GUI functionality (e.g., virtual keyboard) and configuration switching functionality (e.g., changing screen 115 functionality in switch from Mode 3 to Mode 2) disclosed in Reavey, and the GUI functionality disclosed in Martinez, Reavey's device would execute hardware and/or software instructions on a processor. It was well known that a processor, such as a CPU, made use of memory to execute instructions and was connected to a video controller via a system bus, which then displayed content on a monitor. *See* EX-1021, 166-167, Fig. 4.18 (reproduced below).



138. Thus, in my opinion, Reavey and Martinez teach or at least suggest executing instructions. *See*, e.g., EX-1009, 7:24-62, 8:61-9:6, Fig. 9. Additionally, Sections X.A.5.b and X.A.5.i–X.A.5.l for 1[a] and 1[f]–[i] explain my opinions as to how the Reavey-Martinez-Proctor combination, operated via its CPU, teaches a

plurality of views of the plurality of representations of computer content are displayed in response to changes in physical configuration (i.e., the GUI is transitioned between views in response to selection of an I/O profile).

d. 27[b][i]: “responding to user rotation of a display component of the computing device about a longitudinal axis running along an interface between the display component and a base of the streamlined computing device”

139. As I discussed in Section X.A.5.f for 1[e1], in my opinion Reavey teaches “user rotation of a display component of the computing device about a longitudinal axis running along an interface between the display component and a base of the streamlined computing device.” Additionally, as I explained in Section X.A.5.c for 1[b], in my opinion the Reavey-Martinez combination teaches “responding” to such user rotation by transitioning between a plurality of views. Section X.A.5.a for 1[pre] explains that Reavey teaches a “streamlined computing device.”⁸

e. 27[b][ii]: “responding to rotation of the display component about the longitudinal from a closed mode to a first physical orientation configures the computing device into a laptop mode having a first physical configuration of the display component and the base with one of the plurality of views as a default display; and”

140. 27[b(ii)] recites a similar limitation to 1[e2], which I discuss in Section X.A.5.g. In my opinion, 27[b(ii)] is taught in the prior art for the same reasons discussed

⁸ 27[b(i)] refers to both “the computing device” and “the streamlined computing device.” In the context of claim 27, it appears that both are intended to refer to “a computing device” in 27[a].

in that Section.

- f. 27[b]/iii]: “responding to rotation of the display component about the longitudinal axis from the closed mode to a second physical orientation configures the computing device into another display mode having a second physical configuration of the display component and the base with another one of the plurality of views as the default display; and”**

141. 27[b(iii)] recites a similar limitation to 1[e3], which I discuss in Section X.A.5.h. In my opinion, 27[b(iii)] is taught in the prior art for the same reasons discussed in that Section.

- g. 27[c]: “a view selector component configured to transition between the plurality of views in response to activation”**

142. 27[c] recites a similar limitation to 1[c], which I discuss in Section X.A.5.d. In my opinion, 27[c] is taught in the prior art for the same reasons discussed in that Section.

- h. 27[d]: “a storage component configured to store an association between at least one of a plurality of visual representations and digital media content”**

143. As I discussed in X.A.5.i for 1[f], in my opinion the Reavey-Martinez combination teaches or suggests “associating at least one of a plurality of visual representations with digital media content.” In my opinion, under MPF, 27[d] requires the storage component to be a local or remote storage device. *See*, e.g., EX-1001, 15:56–58, 16:27–33, 16:51–56, 16:63–67, 17:5–10, 17:16–22, 20:26–28, Fig. 2 (storage system 250).

144. In my opinion, a POSITA would have found it obvious to store that association in a storage component based on the combination’s teachings, under MPF,

or not. Reavey discloses that its electronic device includes Flash ROM for storage (“local storage device”). EX-1009, 5:66-6:18, Fig. 7. Further, it was well known that in typical display architecture, a CPU would make use of memory to execute instructions and was connected to the memory via a system bus (“store an association between at least one of a plurality of visual representations and digital media content”) that would be then executed on. *See* EX-1021, 166-167, Fig. 4.18. Thus, in my opinion, a POSITA would have understood, and found it obvious, that in the Reavey-Martinez-combination, Reavey’s device stores the association between the organized icons in Martinez’s views and the underlying digital media content so that, for example, a user could select the icon to access the desired (associated) content.

- i. ***27[e]: “wherein the execution component is further configured to execute the association with the at least one of the plurality of visual representations with digital media content in response to selection and transition the display to a view of the digital media content in response to the act of executing the association; and”***

145. *See* X.A.5.j and X.A.5.k for 1[g] and 1[h], under MPF or not. In my opinion, under MPF, 27[e] requires a processor and related software that is configured to: implement GUI elements that allow a user to transition between different views of the digital media content. *See*, e.g., EX-1001, Fig. 5, 6:18–23, 21:60–67, 37:12–28, 38:49–56, 39:4–5. As I discussed above, Reavey discloses the use of a “central processing unit (CPU) 300,” (EX-1009, 6:5–10), and Sections X.A.5.j and X.A.5.k for 1[g] and 1[h] explain how the Reavey-Martinez-Proctor combination uses that processor (and software related thereto) to execute the association in response to a

selection and transition the display according to 27[e].

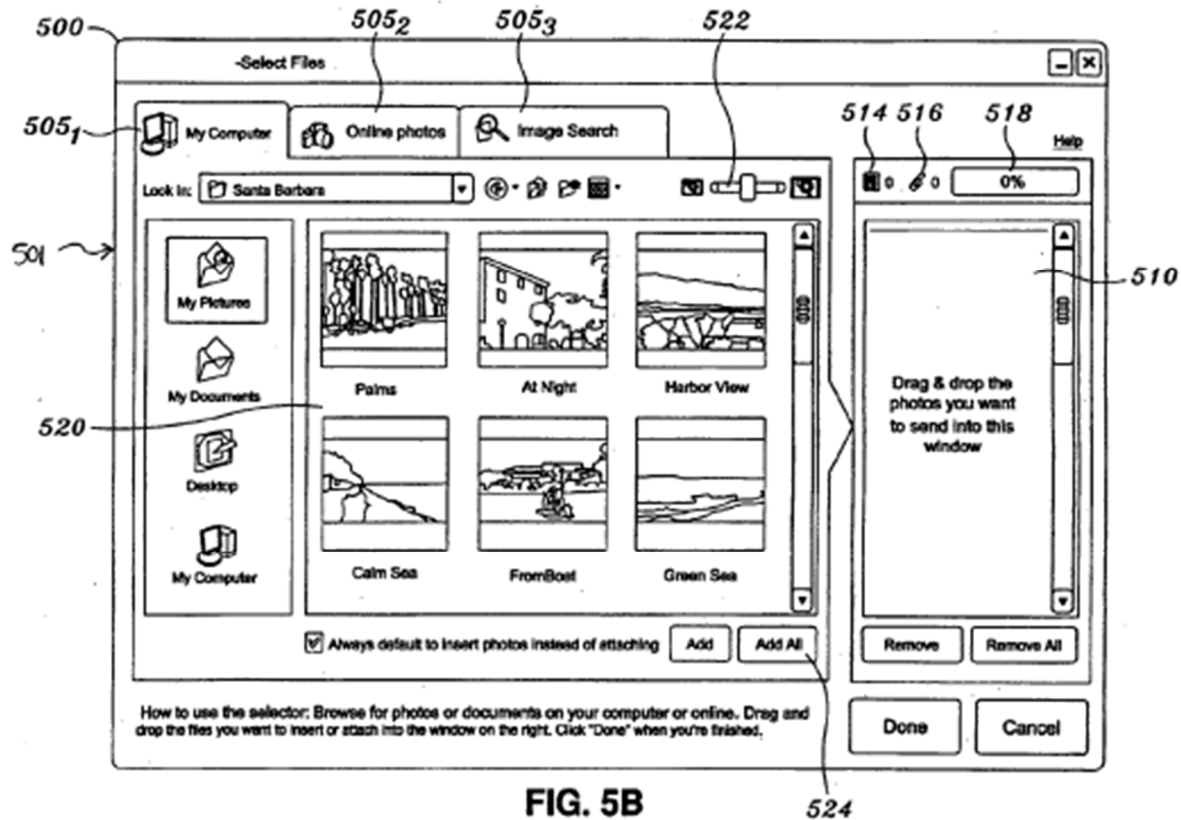
- j. ***27[f]: “wherein the display component is configured to display user digital media content and referenced digital media content in the view of the digital media content”***

146. 27[f] recites a similar limitation to 1[i] and claim 2, which I discuss in Sections X.A.5.1 and X.A.6. In my opinion, 27[f] is taught in the prior art for the same reasons discussed in that Section.

B. Ground 2: Obviousness over Reavey, Martinez, Proctor, and Aldrich (Claims 3-8, 15-17, 20, 21, 24)

1. Aldrich

147. Aldrich is directed to file sharing using a file selection interface system for, e.g., photos or video files. EX-1012, Abstract. “The file selection interface may be integrated with the operating system and/or the Internet browser,” and includes GUI 500 as depicted in the figure reproduced below. *Id.*, ¶¶ [0021][0051], FIG. 5B.



148. GUI 500 includes My Computer tab (505₁), Online Photos tab (505₂), Image Search tab (505₃), queue 510, and display panel 520 as depicted in Figure 5G reproduced below. *Id.*, ¶[0047]–[0048].

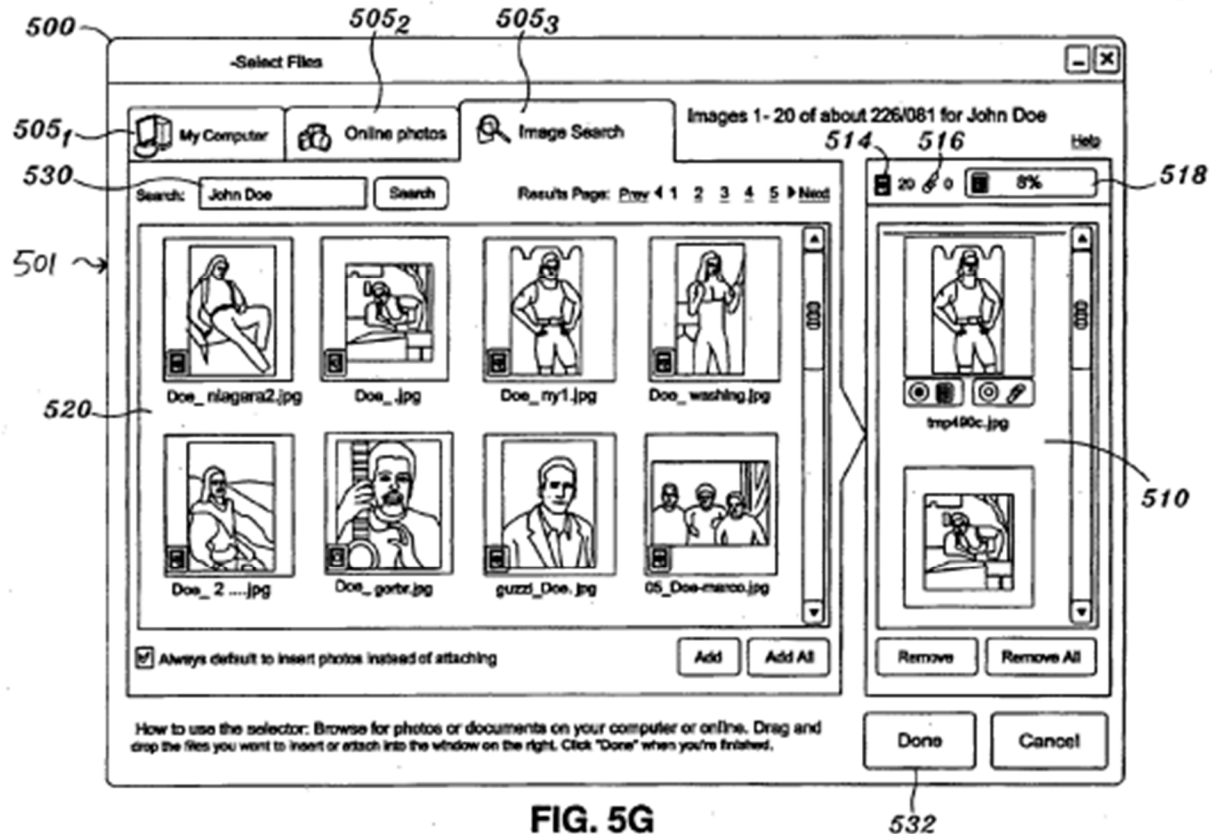


FIG. 5G

149. GUI 500 “is operable to attach and/or embed files into webmail correspondence.” *Id.*, ¶[0047]. This provides “a single interface which enables users to select image files from both local, as well as remote source such as an online storage account or the like.” *Id.*, ¶[0048]. When tab 505 is selected, display panel 520 is populated with files associated with My Computer (local computer), Online Photos (remote storage account), or Image Search (online third-party image sources). *Id.* In My Computer tab (505₁) and Online Photos tab (505₂), a user is presented with tree-structured folders where a user can “drill down through the tree-structured arrangement to select image files.” *Id.*

150. To access photos from Online Photos tab (505₂), a user may log in with a username and/or password, though “cookies or another authentication mechanism ...

used to automatically log the user into their account.” *Id.*, ¶[0056]. The photos may be organized into albums, “which function essentially the same as a tree-structured foldering system” as shown in Figure 5E reproduced below. *Id.*, ¶[0057].

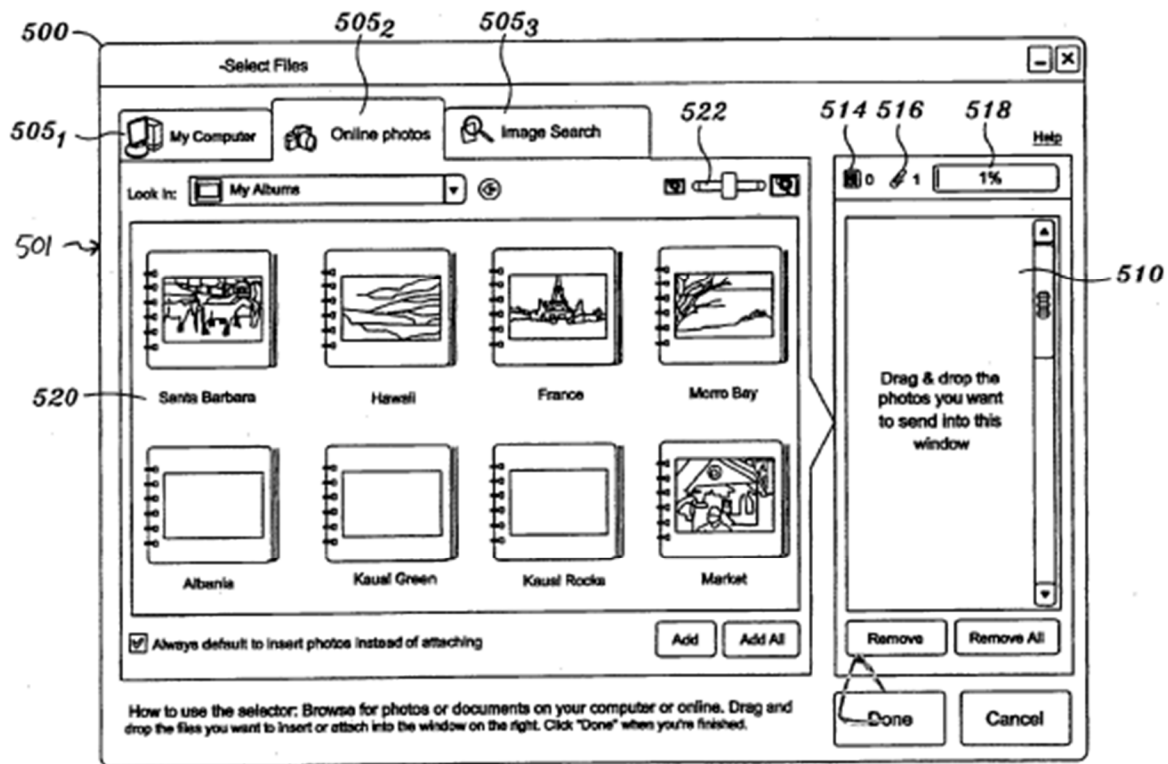


FIG. 5E

151. By clicking on any of the albums in display panel 520, the user can access the individual image files contained therein as shown in the Figures 5A, F reproduced below. *Id.*, ¶¶[0057]–[0058].

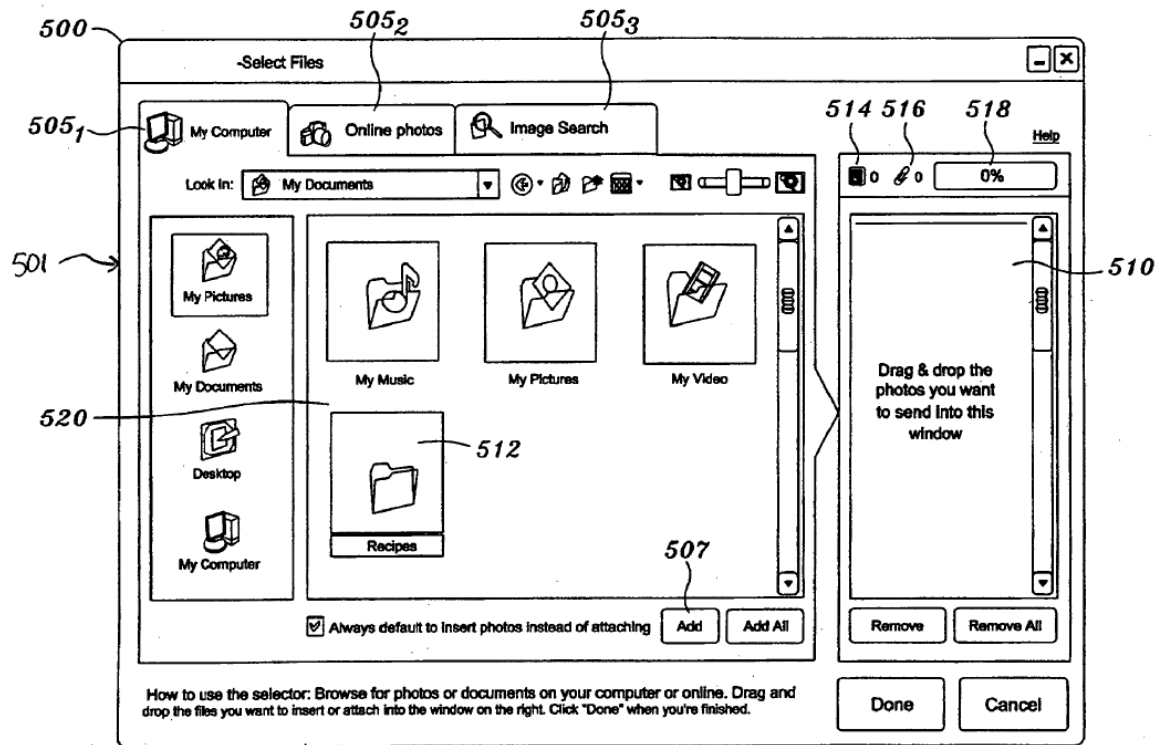


FIG. 5A

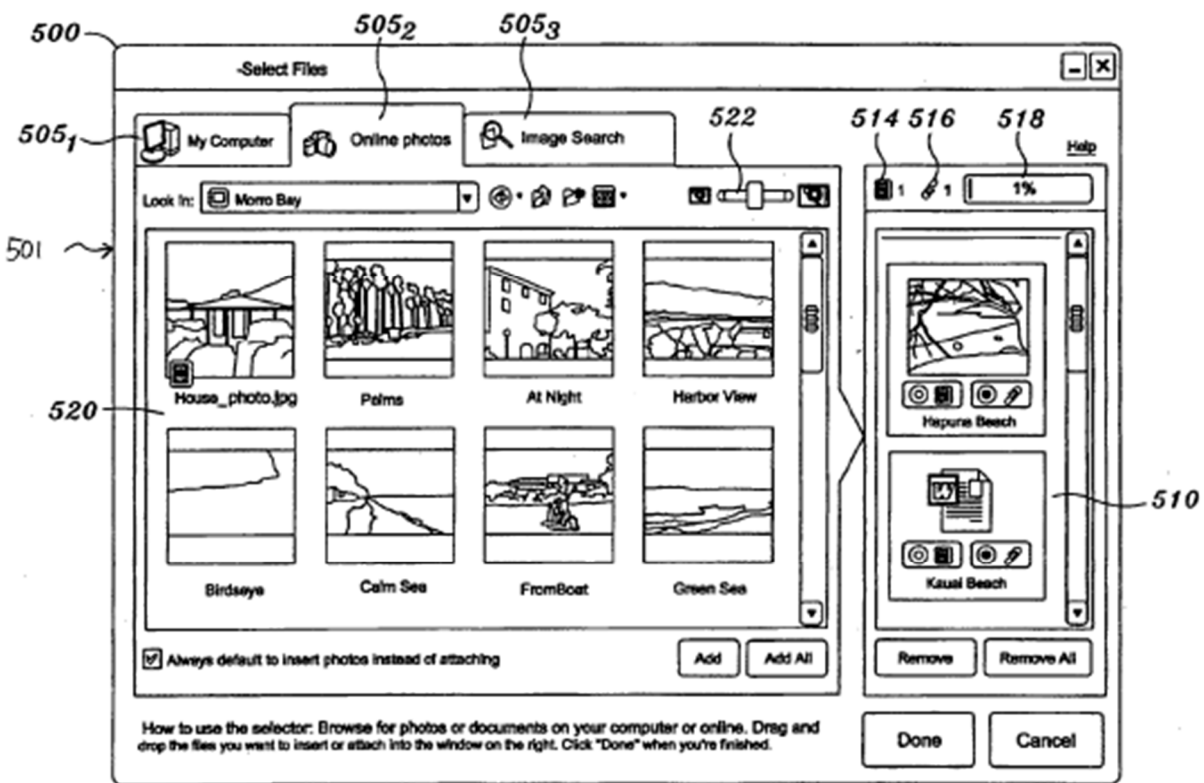


FIG. 5F

152. The files populating display panel 520 may be selected item by item to be

added to queue 510 using “add” button 507 or all files in the current folder may be added to queue 510 by selecting the “add all” button 524. *Id.*, ¶¶[0049], [0051]. Alternatively, items may be selected and dragged into queue 510. *Id.* Items in queue 510 are items that will be embedded and/or attached into the webmail. *Id.*, ¶[0052]. The embedded file may be in the form of an ActiveX control reference to a remote email account. *Id.*, ¶[0050]. The “ActiveX [control] reference is visually represented in an email as a thumbnailed image which corresponds to a full image file stored on a remote server.” *Id.*, ¶[0046].

2. Motivation to Combine

153. As I described above in X.A.4, in my opinion a POSITA would have found it obvious to combine Reavey, Martinez, and Proctor.

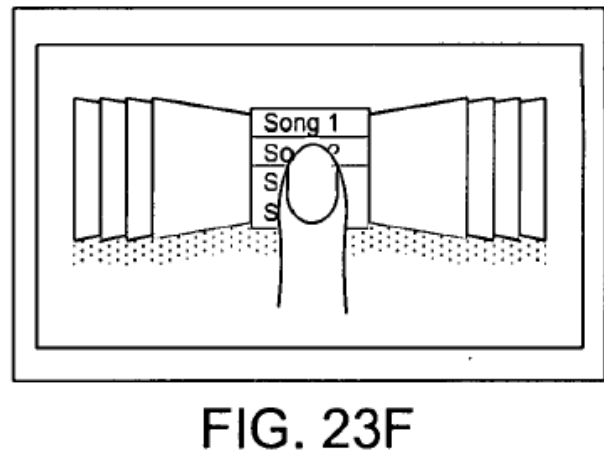
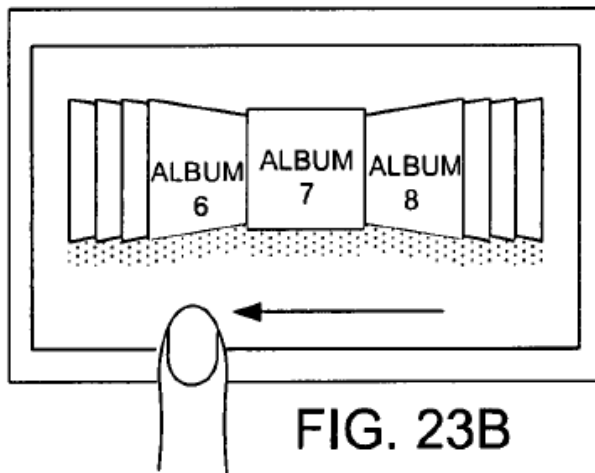
154. In my opinion, a POSITA would have been motivated to modify the Reavey-Martinez-Proctor combination with Aldrich for several reasons. Specifically, the Reavey-Martinez-Proctor combination does not expressly disclose certain features of the associated software to accomplish known functions for the combination’s device; Aldrich discloses a file selection interface, which is a software component providing computer functionality that can “be integrated with the operating system and/or the Internet browser.” EX-1012, ¶¶[0021], [0044]-[0048]. Aldrich further describes that its file selection interface can be implemented in a variety of computing devices, including a laptop (i.e., portable computer). *Id.*, [0027].

155. Aldrich discloses a GUI 500 of its file selection interface. *Id.*, ¶[0058]. GUI

500 includes tabs 505₁-505₃, queue 510, and display panel 520. *Id.*, ¶¶[0048]-[0050], Figs. 5A, 5B. In my opinion, a POSITA would have been motivated to implement the file selection interface and the related GUI of Aldrich (“the Aldrich software”) in the Reavey-Martinez-Proctor computer to allow users to share photos with other users with the benefits of the Aldrich software (i.e., additional features and functionality for photo sharing). Specifically, a POSITA would have been motivated to incorporate Aldrich’s teachings to improve the utility of the Reavey-Martinez-Proctor computing device by more efficiently navigating and sharing both locally stored and remotely hosted, large data photo files of that device (i.e., the content of the device) with the ease and responsiveness as if both sources of photos “were a local directory.” *Id.*, [0056]. Aldrich recognized the need to improve the “integration between electronic mail and file selection and management” because typical webmail applications at the time only permitted local sharing of files rather than sharing remotely located image files. *Id.*, [0006].

156. Further, a POSITA would have understood that in the different display modes of the Reavey-Martinez-Proctor computer (e.g., at least laptop and easel modes), the orientation of Aldrich’s displayed content, such as GUI 500, would be controlled using all the available inputs from at least Reavey’s mode-based screen orientation processing software (EX-1009, 6:3–36), the shake, tilt, and rotate processing flows of Martinez (EX-1007, Figs. 8–10, 5:40–7:20), and manual or automated view selection operations of Proctor (EX-1010, ¶¶[0030], [0058], [0060]).

157. Aldrich also disclosed an album view which was a well-known way to organize digital content, particularly images. *See* EX-1011, [0006], [0182]; EX-1008, 257-259 (describing displaying a photo in the Photo gallery and adding the folder (album) in which the photo is stored to the gallery). For example, as shown below, it was known that a user could navigate through an image browser configured to present album images to view a list of songs associated within that album. EX-1011, [0182]-[0186], Figs. 23B, 23F. As another example shown below, an album view could be used to organize and display music files. EX-1008, 274.



EX-1011, Figs. 23B, 23F.



EX-1011, 274.

158. As evidenced by the above figures, in my opinion, a POSITA would have recognized an album view as an obvious way to organize digital content, particularly images. Incorporating Aldrich's album view would thus improve the user's ability to organize photos stored locally and remotely, as well as improve the user's selection and management of images that would be shared with a recipient user. EX-1012, [0006] ("Accordingly there is a need for an improved system and method . . . by improving the integration between electronic mail and file selection and management.").

159. Aldrich's file sharing elements also would have improved the way a user interacts with the Reavey-Martinez-Proctor combination. Specifically, Aldrich

recognized that one of the drawbacks to file sharing was the “inability or difficulty of the recipient to select which files to download” and the recipient did not have “options as to which image files are to view and/or retrieve.” *Id.*, [0005]. Aldrich teaches that its invention overcomes this drawback by “improving the integration between electronic mail and file selection and management.” *Id.*, [0006]. In my opinion, a POSITA would have understood that incorporating Aldrich’s “aggregation component[s]” (“Add” button, “Add All” button, “Drag & drop” feature) would have provided more options for a user to select a wider amount of digital content, thus improving the usability of the Reavey-Martinez-Proctor combination.

160. Furthermore, in my opinion, a POSITA would have had a reasonable expectation of success in combining Aldrich with the Reavey-Martinez-Proctor computer. Aldrich teaches one example of computer software (i.e., photo sharing software), which was well understood to be suitable and desirable for integration in an operating system and/or an internet browser, and a POSITA would have recognized that application of this teaching to the Reavey-Martinez-Proctor computer would have yielded a predictable computing system capable of running software to select and manage image files and share those image files with other computer users.

3. Claim 3: “*The method according to claim 2, wherein the act of displaying in the view user digital media content and referenced digital media content includes an act of accessing a reference to remote digital content not controlled by the user in order to display referenced digital content.*”

161. In my opinion, the Reavey-Martinez-Proctor combination teaches “the

method according to claim 2,” including the display of two types of digital content (“digital media content,” “referenced digital media content”). *See* Sections X.A.5.1 and X.A.6 for claims 1[i] and 2. Claim 3 explicitly recites the action of displaying that content in the view, which “includes an act of accessing a reference to remote digital content not controlled by the user.” In my opinion, Aldrich teaches claim 3’s additional limitations.

162. Aldrich teaches a GUI 500 of a Windows-based photo module that “enables users to select image files from...**remote source[s]** such as an **online storage account** or the like.” EX-1012, [0048] (emphasis added). Aldrich Fig. 5E (shown below), teaches that a user will select the “Online photos” tab 505₂ of GUI 500 to access a remote storage account (e.g., Yahoo! Photos) using a username, password, cookies, or other authentication methods. *Id.*, [0056]. Using the third-party photos hosting service allows users to populate display panel 520 with, e.g., Yahoo! Photos account images as if those remote images “were [in] a local directory.” *Id.*, ¶[0048], ¶¶[0056]–[0057]. A POSITA would have understood the remote storage account service is managed by a third party—Yahoo!—and not the user because the user is an end-user of the client device that is provided access to, but not control of, content on the host server system.

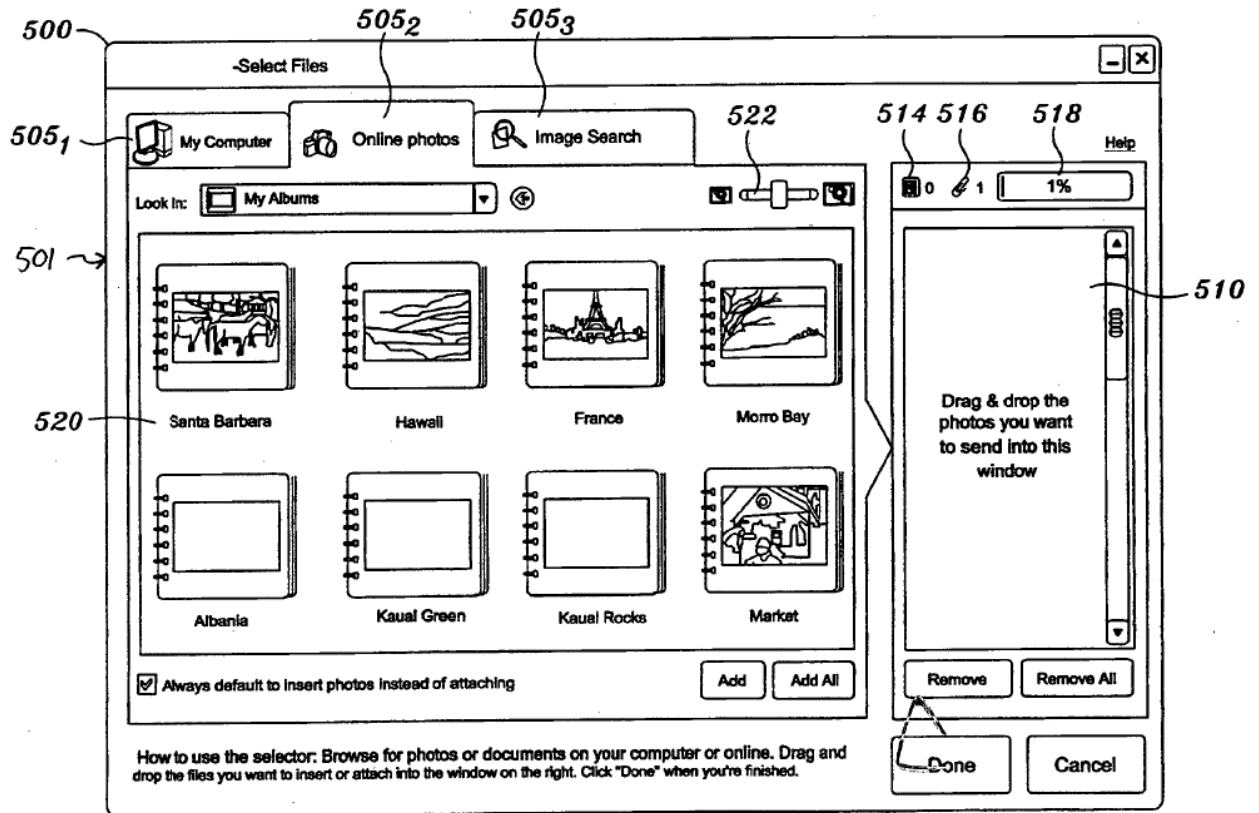


FIG. 5E

163. Additionally, in my opinion, a POSITA would have understood the remote storage account *service* is managed by a third party, and not the user. For example, Aldrich discloses that the remote storage account may be specifically a Yahoo! Photos account and include “any server that is accessible to the user’s computer” via a network or communication link. *Id.*, [0057]. Thus, a POSITA would have understood that the user did not control the content on the remote storage account because the user’s device *accessed* the remote storage account via a separate server system. *Id.*, [0037], [0048], [0056]-[0057].

164. It is unclear whether “an act of accessing a reference to remote digital content not controlled by the user” means (1) the content or (2) the reference to the

content must not be “controlled by the user.” Regardless, Aldrich discloses both interpretations of claim 3. First, as I discussed above, a POSITA would have understood the remote storage account service is managed by a third party and not the user, meaning the user has access to, but not control of, the content on the host server system. Second, Aldrich discloses that users access the remote content, then add selected images to a queue, which embeds an “**ActiveX control reference** to the [sending user’s] online account” in thumbnail images. *Id.*, [0057] (emphasis added), [0046]. In my opinion, a POSITA would have understood Aldrich teaches that users *sending* emails (“User Computer 1”) thus reference remote digital media content controlled by the sending user, but *recipient* users (“User Computer N”) of the embedded ActiveX references thus access that ActiveX reference to remote digital content not under that recipient user’s control. *Id.*, Figs. 1, 3C.

165. In my opinion, a POSITA would have understood this configuration allows users *sending* images to other users (“sharing”) to comply with conventional email attachment size limits and further allows the email recipient (“User Computer N”) to view thumbnail images and decide which full-size, full-data images to proceed to download. *Id.*, ¶[0050] (“ActiveX control reference to a remote online account...may be useful...where an email attachment size limit is being imposed”), ¶[0057] (“The recipient of the email may then view and/or download the full image file from the remote online account”). I have provided an annotated Figure 3C showing a recipient’s email populated with the email sender’s ActiveX thumbnail photos below. *Id.*, ¶[0037].

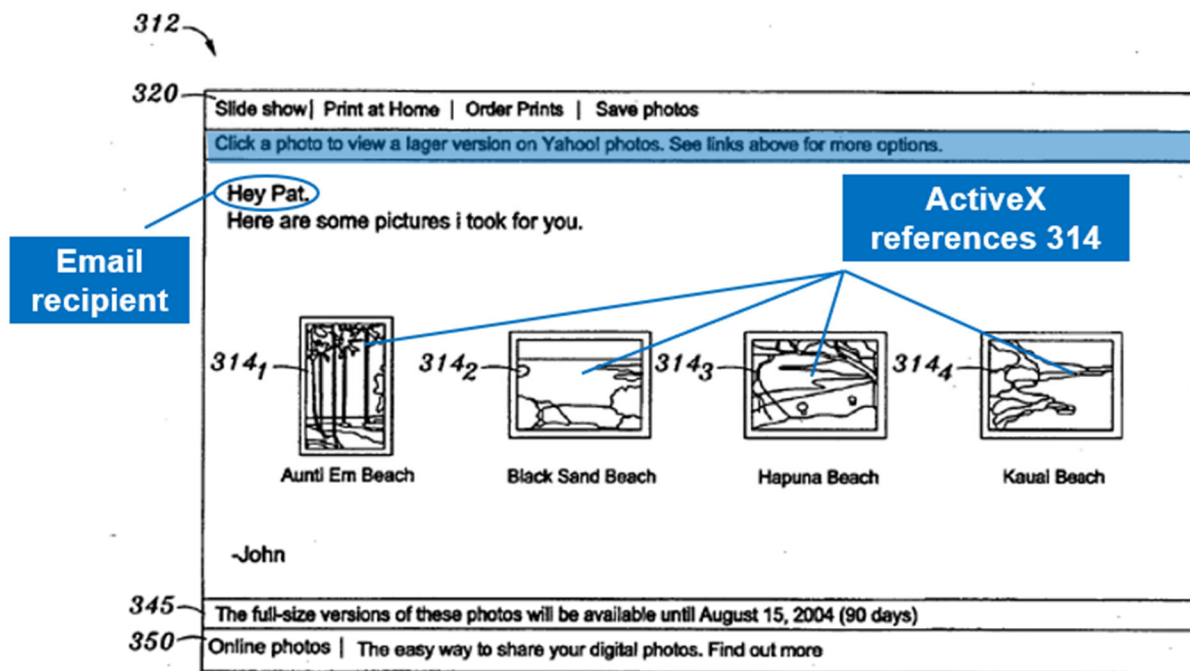


FIG. 3C

166. Aldrich also discloses that a user may search for online-hosted and sourced images by selecting tab 505₃ of the GUI as shown in the figure (annotated) reproduced below. *Id.*, [0048] (“when tab 505₃ is selected, a search dialog box may be presented to the user for searching from available online third-party image sources (e.g., Internet picture search). Accordingly, from a single file selection interface 501, e.g., of GUI 500, a user may select files from local and remote sources for attachment or embedding within an email message.”), [0059], Fig. 5G (annotated).

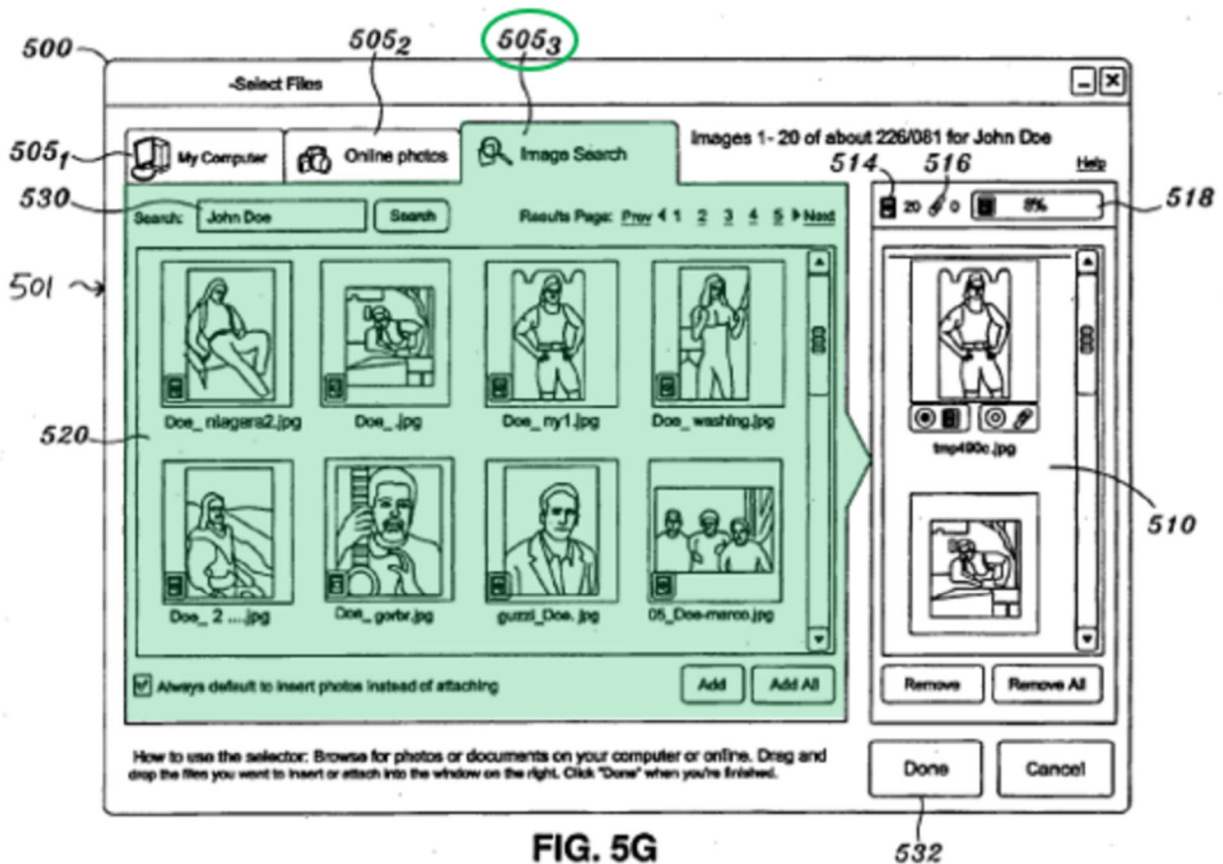


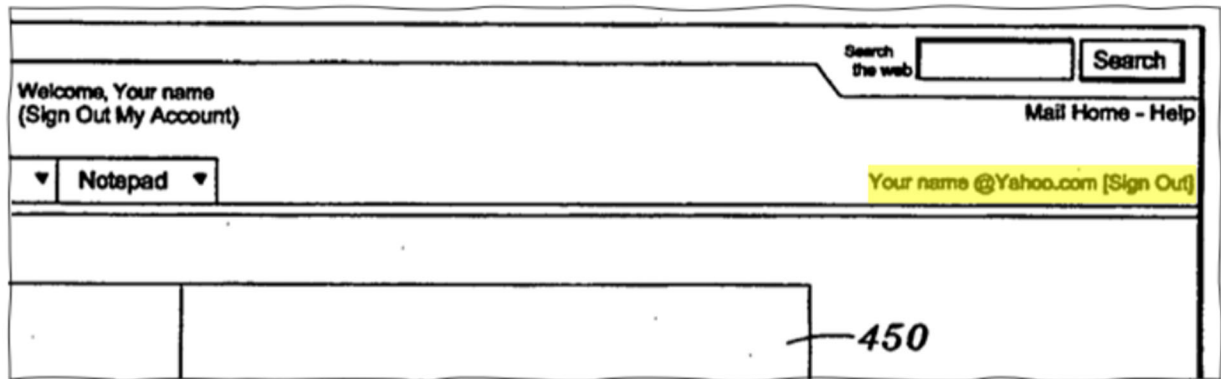
FIG. 5G

167. In my opinion, a POSITA would have been motivated to incorporate software such as Aldrich's Windows-based photo module in the Reavey-Martinez-Proctor device for the reasons I discussed in Section X.B.2, including, for example, to improve the utility of that device by more efficiently navigating and sharing both locally-stored and remotely-hosted, large data photo files. *Id.*, [0003], [0020], [0027], [0057].

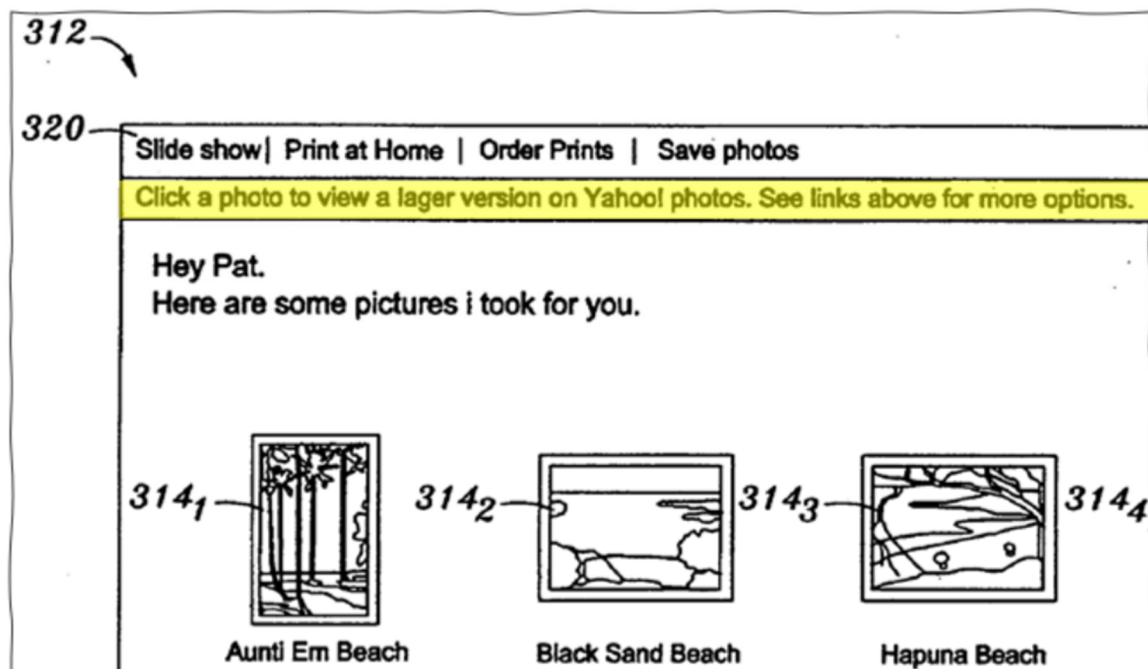
4. **Claim 4:** *"The method according to claim 1, further comprising an act of associating the at least one of the plurality of visual representations with a remote service provider."*

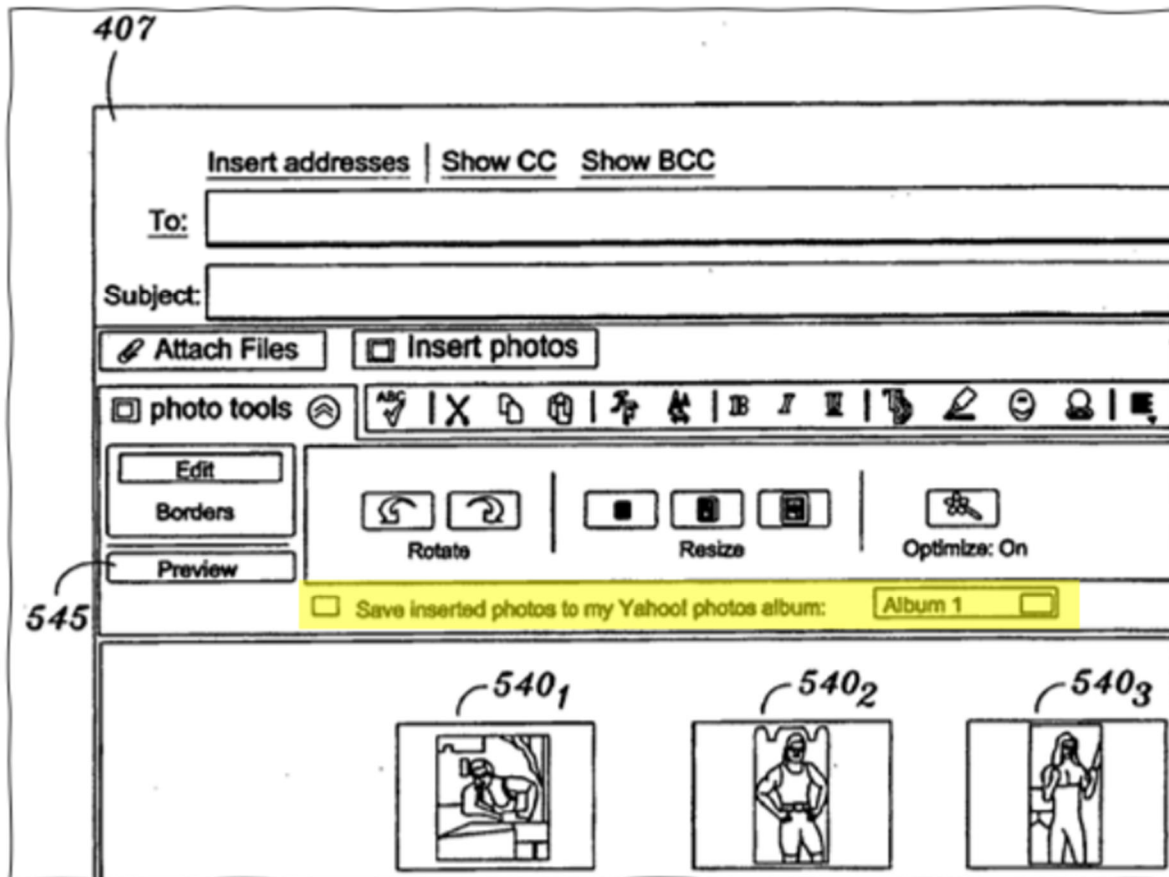
168. In my opinion, the Reavey-Martinez-Proctor combination teaches "the method according to claim 1" (X.A.5), and Aldrich teaches claim 4's additional limitations. Aldrich discloses that users may save image files to a Yahoo! Photos

account (“Your name@Yahoo.com”) as depicted in annotated and excerpted Figure 4C below. EX-1012, [0061].



169. A user may also access, view, download and/or print any image files uploaded—i.e., saved—to that user’s account. *Id.*, [0039], Figs. 3C, 6 (both annotated and excerpted). Examples of these actions are depicted in the figures reproduced below:





170. In my opinion, a POSITA would have recognized uploading, saving, accessing, downloading, and printing images *from* the Yahoo! Photos account as associating visual representations with a remote service provider because these all actions digitally connect the images to the remote provider (Yahoo! Photos). *Id.*, [0039], [0041], [0061]. Additionally, a POSITA would have been motivated to incorporate this teaching of Aldrich into the Reavey-Martinez-Proctor combination for the same reasons I discussed in Section X.B.3 for claim 3.

5. Claim 5⁹: “*The method of claim 4, further comprising an act storing the association between the at least one visual representation with the remote service provider in at least one of a device profile and a user profile.*”

171. In my opinion, the Reavey-Martinez-Proctor-Aldrich combination teaches the “method of claim 4” (X.B.4) and Aldrich teaches claim 5’s additional limitations. In my opinion, POSITA would have understood that Aldrich teaches thumbnails of a user’s images (“visual representations”) which are maintained by Yahoo! Photos (“remote service provider”) in conjunction with a specific user’s account (“user profile”), and a POSITA would understand that associations between the user’s images and the service are stored in the user’s account. In addition, such an association is also stored with respect to the user when the user creates the email and a draft is saved or the email is sent. For example, Aldrich discloses in Figure 3C below that thumbnails 314₁ and 314₂ correspond to the displayed image files. *Id.*, [0037], [0039], claim 13 (“the visual representation is a thumbnail image of the image file”).

⁹ I understand “at least one of” in claim 5 is disjunctive and so only a user profile or a device profile is required (not both). As support for this understanding, the ’888 patent which discusses identifying local storage requests and transforming them into a storage request to an online service provider identified in a “user and/or device profile.” EX-1001, 17:18-22 (emphasis added).

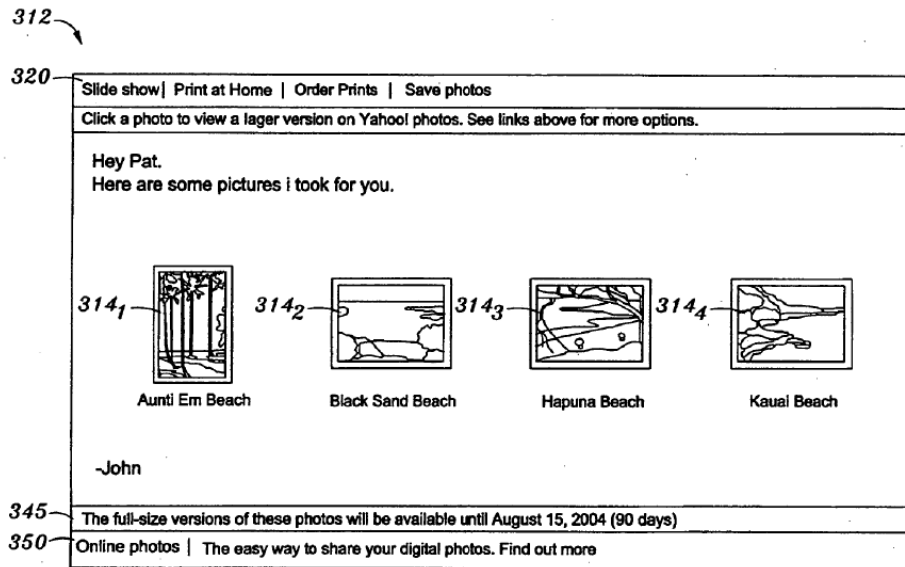


FIG. 3C

172. After a user logs into their Yahoo! Photos account (user profile), the user can then view, upload, download, or print image files that were sent to them. *Id.*, [0039]. Thus, in my opinion, a POSITA would have understood the image files, which are visually represented by thumbnails, were stored by a remote service provider. *Id.* (describing the option to store full image files on a remote location, such as Yahoo! Photos). Additionally, a POSITA would have been motivated to incorporate this teaching of Aldrich into the Reavey-Martinez-Proctor combination for the same reasons I discussed in X.B.3 for claim 3.

6. Claim 6

a. **6[a]: “The method according to claim 1 further comprising acts of: configuring access to a remote service; and**

173. In my opinion, the Reavey-Martinez-Proctor combination teaches “the method according to claim 1” (X.A.5) and Aldrich teaches claim 6[a]. As I discussed in

X.B.3 for claim 3, Aldrich teaches “accessing a reference to remote digital content...to display referenced digital content” by logging in to a Yahoo! Photos account and selecting tab 505₂ of Aldrich’s GUI. *Id.*, [0056]. In my opinion, a POSITA would have understood and found it obvious that logging into a Yahoo! Photos account configures access to Yahoo! Photos (“a remote service”). Aldrich teaches that “a determination is made as to whether the user is logged in” and once the user is properly logged in, “display panel 520 may be populated with the contents of the remote storage account (e.g. Yahoo! Photos account).” *Id.*, [0040], [0057]. The logged in user is then permitted to select photos to save to the remote storage account. *Id.*, [0040]. Thus, Aldrich makes clear that a user has access to Yahoo! Photos content only *after* logging into the user’s account. *Id.*, Fig. 3A, [0039], [0040]. In my opinion, a POSITA would have been motivated to incorporate this teaching of Aldrich into the Reavey-Martinez-Proctor combination for the same reasons I discussed in X.B.3for claim 3.

b. 6[b]: “integrating operations provided by the remote service provider into the view of the digital media content.”

174. In my opinion, Aldrich also teaches 6[b]. The ’888 patent describes various operations of a remote service provider, such as “organiz[ing],” “view[ing],” and “shar[ing] digital photograph collections.” EX-1001, 20:6-16. Aldrich also teaches viewing and sharing digital media content through the remote service provider (Yahoo! Photos). EX-1012, ¶[0039]. In annotated Figure 5E below, Aldrich depicts access, view,

tree-structured album organization, and drag-and-drop file sharing operations.

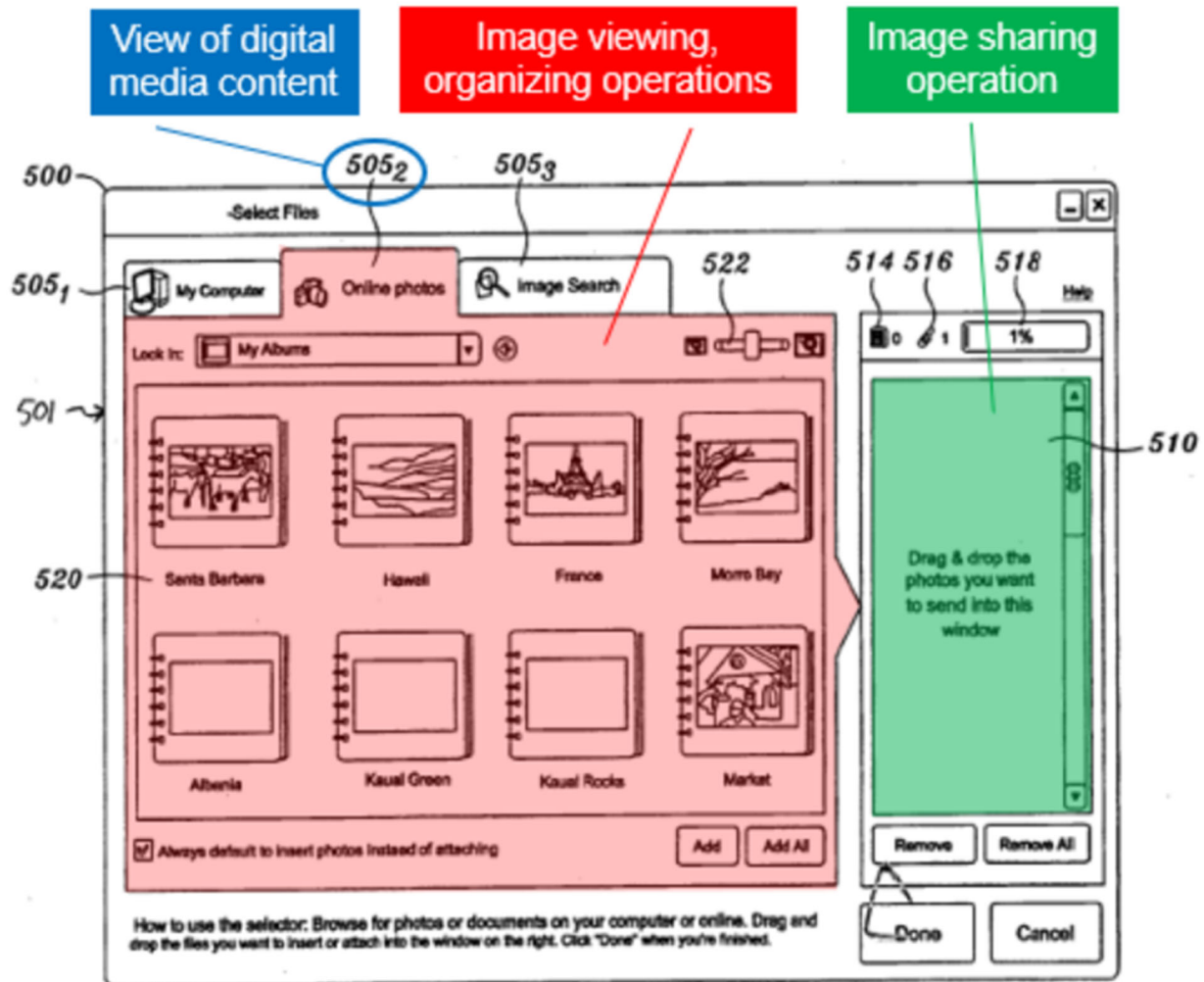


FIG. 5E

175. In my opinion, a POSITA would have been motivated to incorporate this teaching of Aldrich into the Reavey-Martinez-Proctor combination for the same reasons I discussed in X.B.3 for claim 3. Additionally, in my opinion, a POSITA would have been motivated to apply this teaching of Aldrich into the Reavey-Martinez-Proctor combination because it would predictably allow the user to perform the operations offered by that service provider (e.g., sharing photos) while viewing their photos, and would have been motivated to do so to simplify the needed steps to interact with and perform operations for that content. *Id.*, [0039], Fig. 5E.

7. Claim 7¹⁰: “*The method according to claim 1, wherein the view comprises at least one of an album view and a timeline view.*”

176. In my opinion, as I discussed in Section X.A.5 the Reavey-Martinez-Proctor combination teaches “the method according to claim 1.” In claim 7, “the view” refers to “the view of digital media content” in 1[i] to which the display transitions in 1[h] in response to executing the association of a visual representation with digital media content in 1[g]. *See* Sections X.A.5.j–X.A.5.l. In my opinion, Aldrich teaches the “album view” in additional limitation of claim 7.

177. In the annotated figures below, Aldrich discloses that display panel 520

¹⁰ In my opinion, “at least one of” in claim 7 is disjunctive and so only an album view or a timeline view is required (not both). As support for this understanding, claim 18 (which depends from claim 7) recites a “time[line] view” and would not need to do so if such view was already required by claim 7.

organizes the available content into “albums” for the user and Tab 505₂ includes a view of a user’s albums (“My Albums”). *Id.*, [0057], [0058]. Selecting one of the albums transitions to a more detailed view of the images within that specific album as shown in Figure 5F (annotated) above. *Id.*, [0058]. Thus, in my opinion, Aldrich teaches an “album view.”

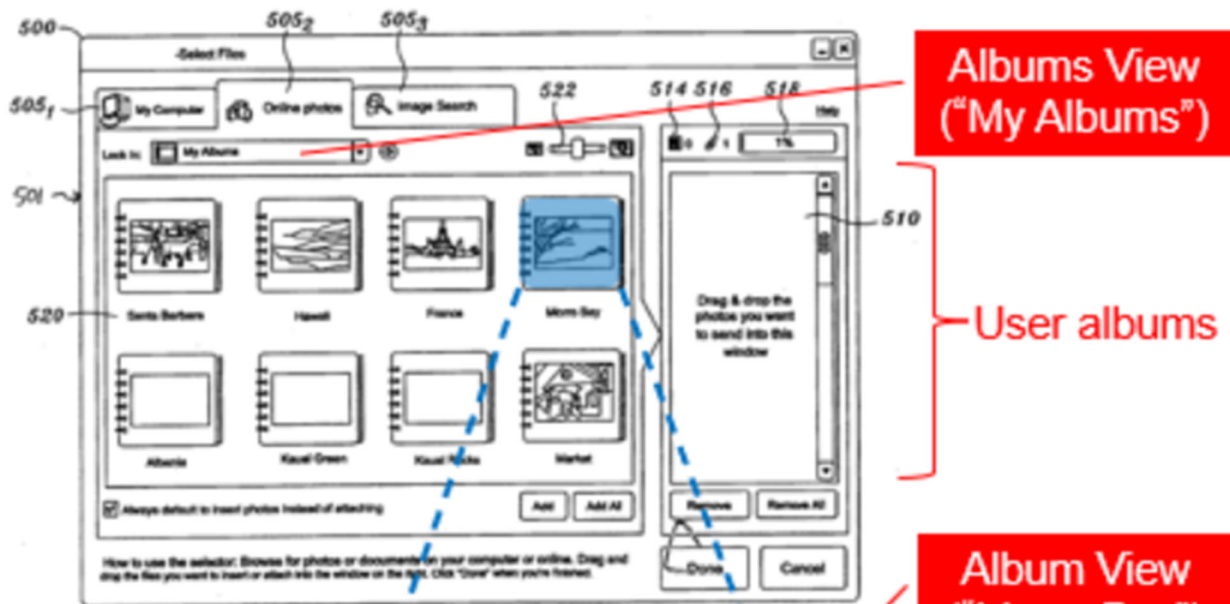


FIG. 5E

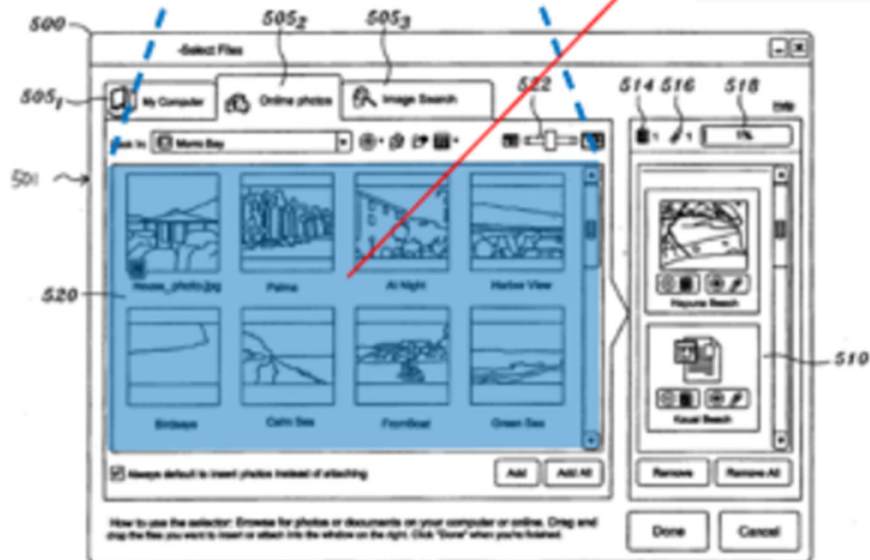
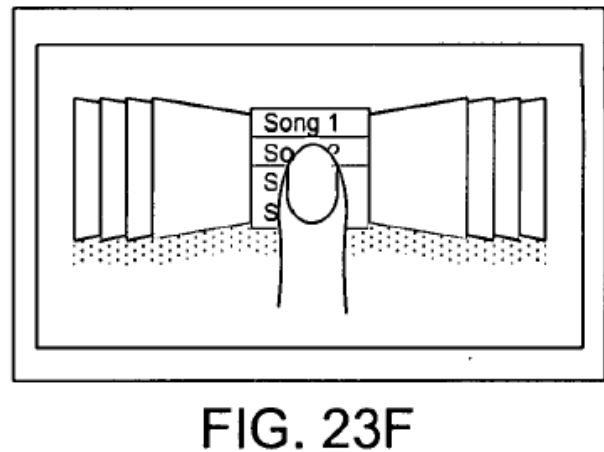
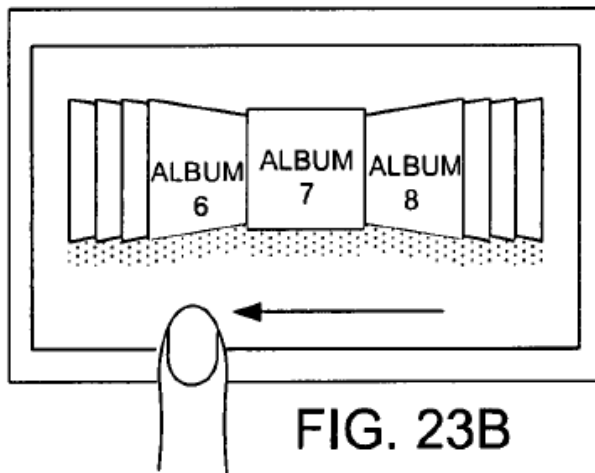


FIG. 5F

178. In my opinion, a POSITA would have been motivated to use Aldrich’s

album view in the Reavey-Martinez-Proctor combination because such a view was a well-known way to organize digital content, particularly images. *See* EX-1011, [0006], [0182]; EX-1008 (Preppernau), 257-259 (describing displaying a photo in the Photo gallery and adding the folder (album) in which the photo is stored to the gallery). For example, as shown below, it was known that a user could navigate through an image browser configured to present album images to view a list of songs associated within that album. EX-1011, [00182]-[00186], Figs. 23B, 23F. As another example shown below, an album view could be used to organize and display music files. EX-1008, 274.



EX-1011, Figs. 23B, 23F.



EX-1008, 274.

179. As evidenced by the above figures, in my opinion, a POSITA would have recognized an album view as an obvious way to organize digital content, particularly images. Incorporating Aldrich's album view would thus improve the user's ability to organize photos stored locally and remotely, as well as improve the user's selection and management of images that would be shared with a recipient user. Aldrich, [0006] ("Accordingly there is a need for an improved system and method . . . by improving the integration between electronic mail and file selection and management.").

8. **Claim 8:** “*The method according to claim 7, further comprising an act of displaying digital media content in a body portion of the view.*”

180. In my opinion, the Reavey-Martinez-Proctor-Aldrich combination teaches the “method according to claim 7” (X.B.7) and Aldrich discloses the additional limitation of claim 8. Specifically, annotated Figure 5E below demonstrates that Aldrich’s album view displays GUI 500 with tab 505₂ (purple), a header portion (red), and body portion (blue). Aldrich, Fig. 5E (annotated), [0056]-[0057].

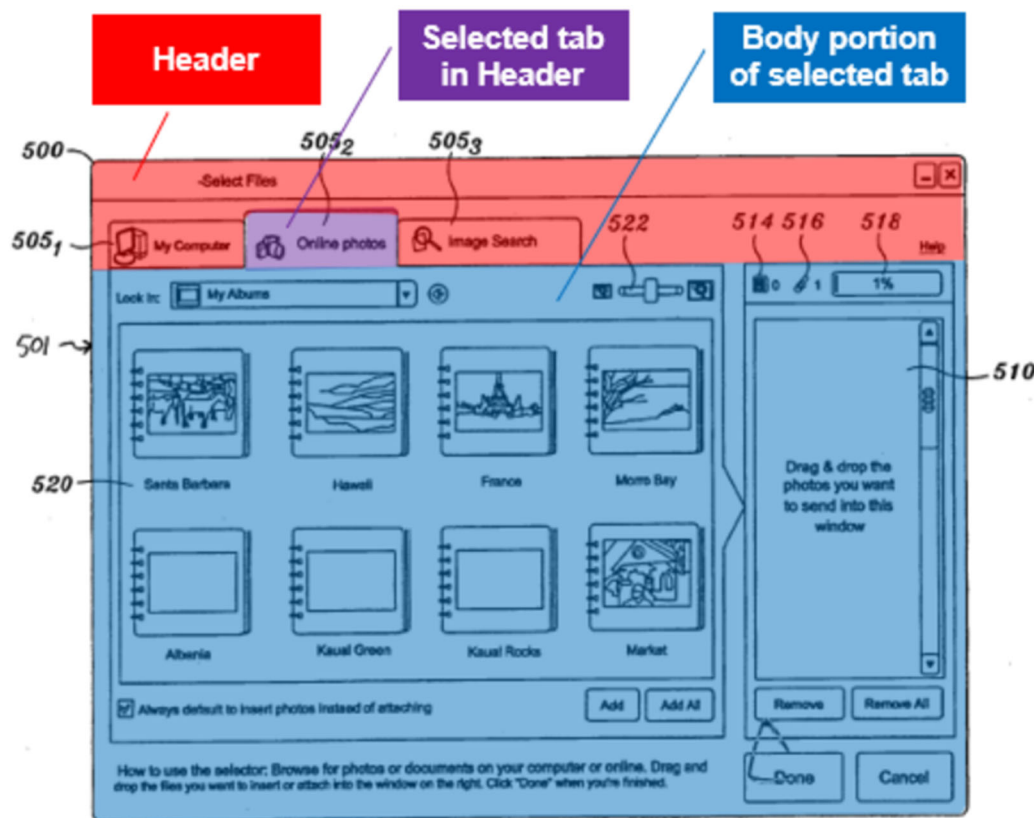


FIG. 5E

181. As I discussed in Section X.B.7 for claim 7, in my opinion a POSITA would have been motivated to use an album view as taught in Aldrich in the Reavey-Martinez-Proctor combination. Additionally, in my opinion a POSITA would have understood that having the album view include digital media content in a body portion

would have increased the attractiveness of the interface and would have improved the user's ability to access and manage images for email transmission. *See* EX-1021, 418 (“Visual design comprises all graphic elements of an interface, including overall screen layout . . . [and] strives for clarity, consistency, and attractive appearance.”); EX-1012 [0006] (“Accordingly there is a need for an improved system and method . . . by improving the integration between electronic mail and file selection and management.”).

9. Claim 15

- a. ***15[a]: “The method according to claim 7, further comprising acts of: providing an aggregation component configured to permit the user to select a plurality of digital media content”***

182. As I discussed above, in my opinion, the Reavey-Martinez-Proctor-Aldrich combination teaches the “method according to claim 7.” *See* Section X.B.7. In my opinion, Aldrich teaches 15[a]’s additional limitations under MPF or not. For MPF, the aggregation component must be an organization tool on a GUI (e.g., the “pick list” control) that gathers together a group of digital content items for a particular action and equivalents. *See* IX.B.2.

183. Specifically, Aldrich’s graphical user interface 500 allows users to select a folder or file (“select a plurality of digital media content”). EX-1012, [0047], [0049]–[0051]. The user can then select any of (i) “Add” button 507, (ii) “Add All” button 524, or (iii) “Drag & drop” feature 510 (organizational tools which are “aggregation component[s]”) to add images or files to emails. *Id.*, Fig. 5A (“Add” button), 5B (“Add

All” button), [0047], [0049]–[0051]. As shown in representative Figure 5E (annotated), these functions are present in tabs 505₁₋₃ of Aldrich’s “file selection interface 501” which is part of graphical user interface 500. *Id.*, Figs. 5E, 5A–G.

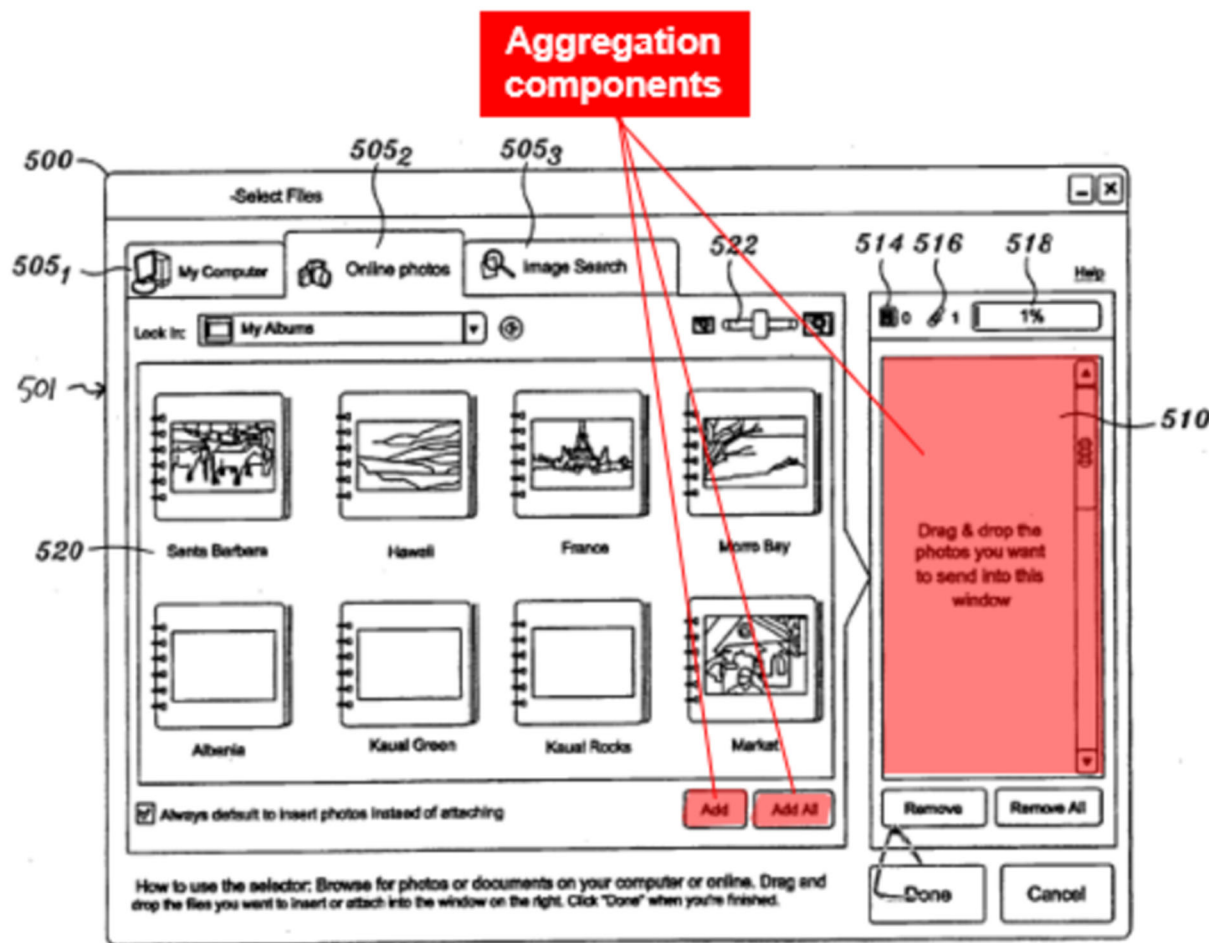


FIG. 5E

184. In addition to the reasons to combine the Reavey-Martinez-Proctor device with Aldrich as I discussed in Section X.B.2, a POSITA would have been motivated to implement Aldrich’s add operations on that computer because they were predictable and well-known GUI elements that a POSITA would have understood as user friendly to interact with and efficiently select content. An example of an add operation is shown

below. EX-1008, 258 (displaying an “Add Folder to Gallery” toolbar).



185. In my opinion, a POSITA also would have been motivated to include teachings from Aldrich that further improved the way a user interacts with the Reavey-Martinez-Proctor combination. Specifically, Aldrich recognized that one of the drawbacks to file sharing was the “inability or difficulty of the recipient to select which files to download” and the recipient did not have “options as to which image files are to view and/or retrieve.” *Id.*, [0005]. Aldrich teaches that its invention overcomes this drawback by “improving the integration between electronic mail and file selection and management.” *Id.*, [0006]. In my opinion, a POSITA would have understood that

incorporating Aldrich's "aggregation component[s]" ("Add" button, "Add All" button, "Drag & drop" feature) would have provided more options for a user to select a wider amount of digital content, thus improving the usability of the Reavey-Martinez-Proctor combination.

b. 15[b]: “displaying the plurality of digital media content in the body of the view; and”

186. As I discussed in Section X.B.8 for claim 8, in my opinion Aldrich teaches “displaying digital media content in a body portion of the view.” In my opinion, Aldrich also teaches displaying “the plurality of digital media content,” as recited in 15[b]. In annotated Figure 5E below, the images or photos (the same “plurality of digital media content” in 15[a]) are displayed in a body portion of the GUI 500. *Id.*, Fig. 5E (annotated), [0056]-[0057]. As I discussed above in 15[a], a user can select these images or photos and select an “Add”, “Add All,” or “Drag & drop” button to add the images to email. *Id.* ¶[0047], ¶¶[0049]–[0051].

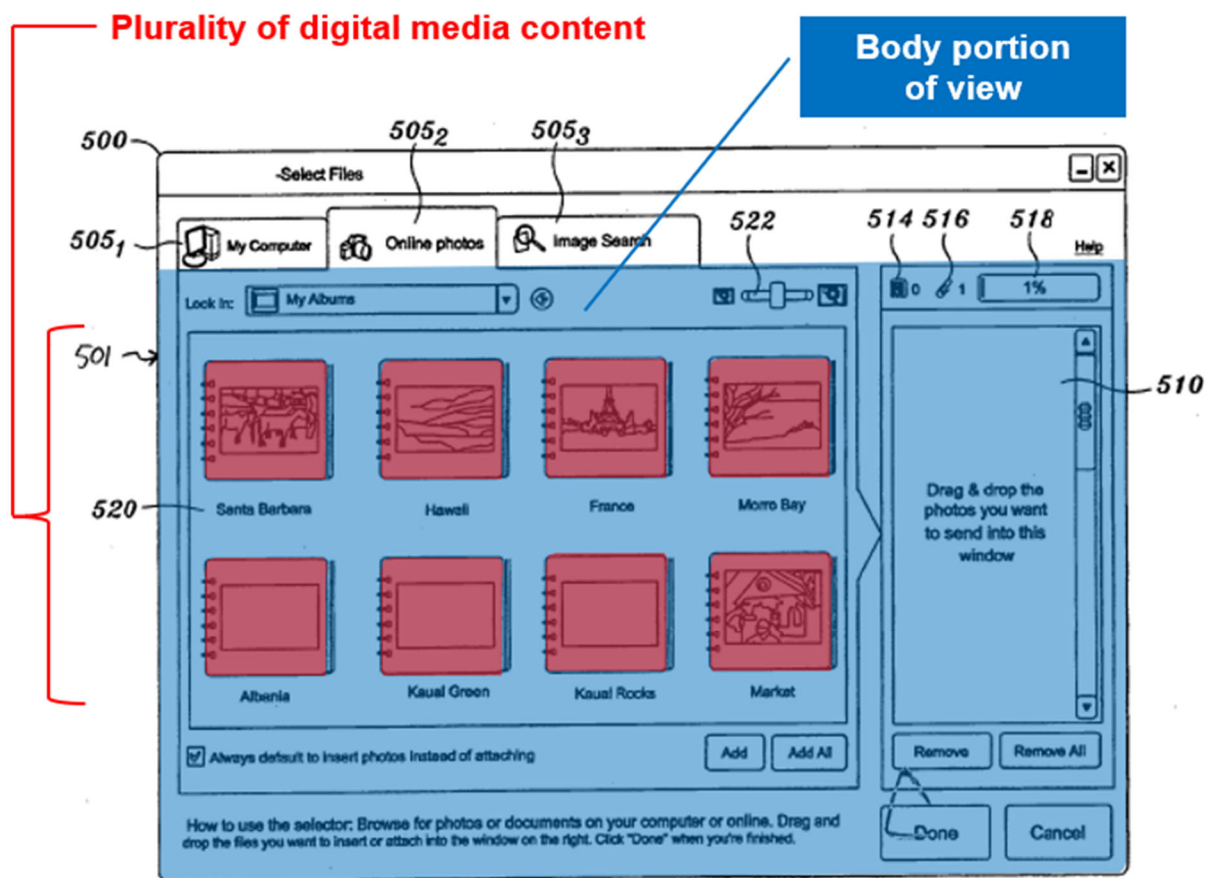


FIG. 5E

187. As shown above, the “available content used to populate the display panel 520 has been organized into ‘albums’” and “[b]y clicking on any of the albums in the display panel 520, the user would be able to access the individual image files contained therein.” *Id.*, [0057]. In my opinion, a POSITA would have been motivated to incorporate this teaching of Aldrich into the Reavey-Martinez-Proctor combination for the same reasons discussed in X.B.2. Additionally, a POSITA would have also been motivated to implement Aldrich’s album view to facilitate photo sharing operations on that computer because they were predictable and well-known GUI elements organized by conventional categorization that a POSITA would have understood as user friendly

to browse content using the expanded input detection processes of the Reavey-Martinez-Proctor device. *See* Section X.B.7 for claim 7. Additionally, a POSITA would have recognized that displaying a “plurality of digital media content” would have allowed a user to view, select, and share an increased amount of image files, thus improving the usability of the Reavey-Martinez-Proctor combination. EX-1012., [0005].

c. 15[c]: “*permitting the user to perform operations on the plurality of digital media content.*”

188. As I discussed in X.B.5.b for 6[b], in my opinion, Aldrich teaches “integrating operations provided by the remote service provider into the view of the digital media content.” In my opinion, Aldrich also teaches “permitting the user to perform operations” for the same reasons discussed in that Section.

189. As shown in Figure 5E (annotated) below, Aldrich discloses that the performed operations all occur in the same tab 505₂ of the graphical user interface. *Id.*, [0048], [0056]-[0059]. A user may add or drag and drop images into queue 510 to have the selected image attached or embedded in email 407 (shown below in annotated Figure 4B). *Id.*, [0057]. For example, dragging and dropping a selected image into the queue 510 while tab 505₂ is selected will embed a thumbnail of the image along with an ActiveX control reference to the user’s online account. *Id.* The recipient of the email can then view and/or download that image (“perform operations” including sharing, viewing, downloading images). *Id.*, [0043], [0057].

Add images or image ActiveX reference to queue

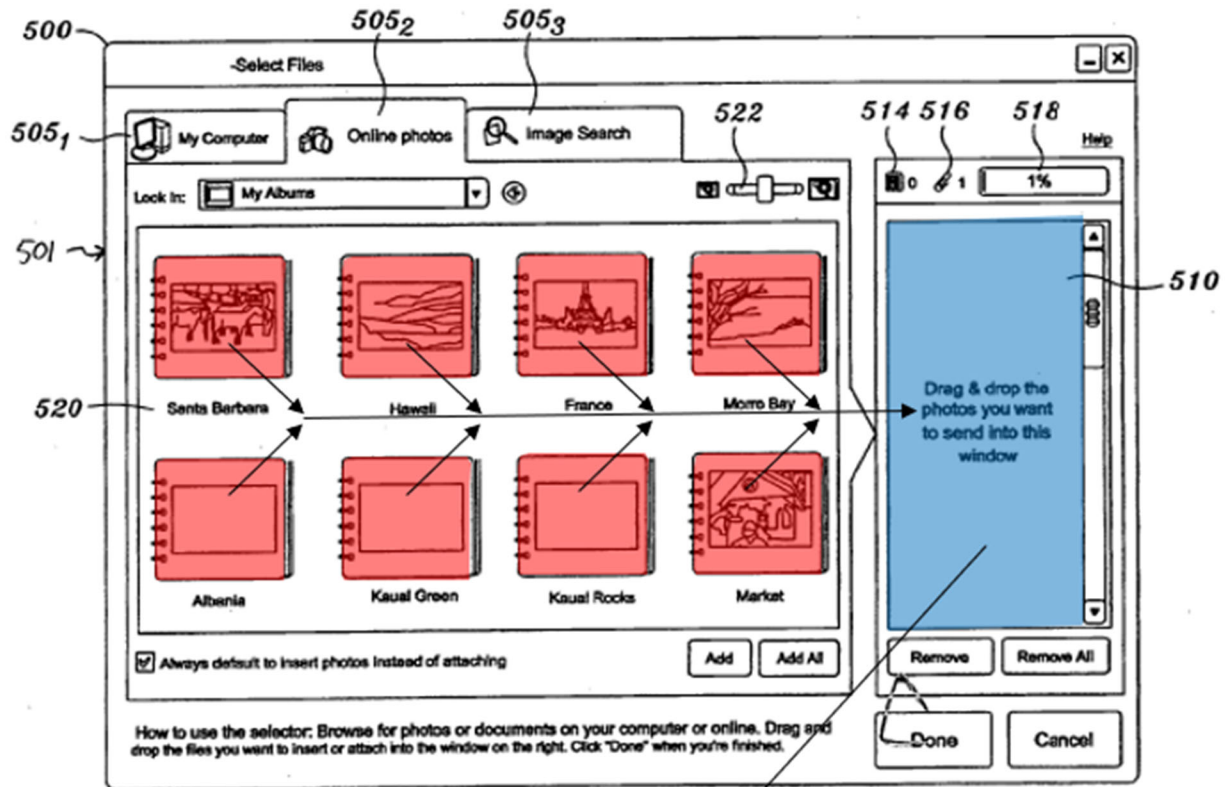


FIG. 5E

Embed queued items in email

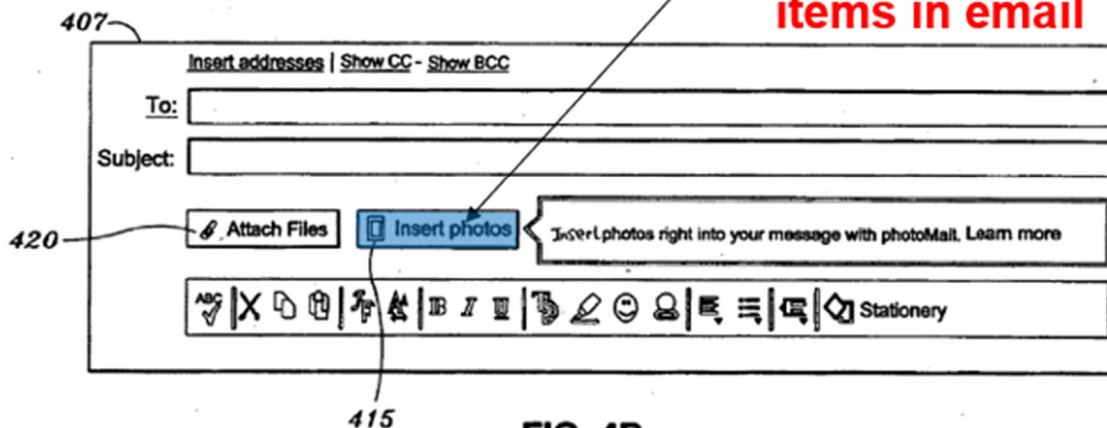


FIG. 4B

190. In my opinion, a POSITA would have been motivated to implement Aldrich's image embedding process in the Reavey-Martinez-Proctor device for the same reasons discussed above in X.B.2, specifically because a POSITA would have recognized that application of this teaching would have predictably improved the user's

ability to select and manage image files and share those image files with other computer users. EX-1012, ¶[0006] (discussing the need to improve the integration between electronic mail and file selection and management).

10. Claim 16¹¹: “The method according to claim 15, wherein the act of permitting the user to perform operations on the plurality of digital media content includes at least one of a share operation, a create channel operation, and an order prints operation.”

191. As I discussed above, in my opinion the Reavey-Martinez-Proctor-Aldrich combination teaches the “method according to claim 15” (X.B.9) and Aldrich teaches a “share operation” as discussed in Sections X.B.3, X.B.6.b, X.B.9.c. In my opinion, Aldrich also discloses an “order prints operation.” As shown in Figures 3C and 3A (annotated) below, Aldrich’s GUI provides the option for users to either print photos at home or order prints online. *Id.*, Figs. 3C, 3A (325, 335), [0038].

¹¹ In my opinion, “at least one of” in claim 16 is disjunctive and so only one of a share operation, a create channel operation, and an order prints operation is required (not all three). As support for this understanding, claim 17 (which depends from claim 16) recites “the at least one operation is a share operation” and would not need to do so if such operation was already required by claim 16.

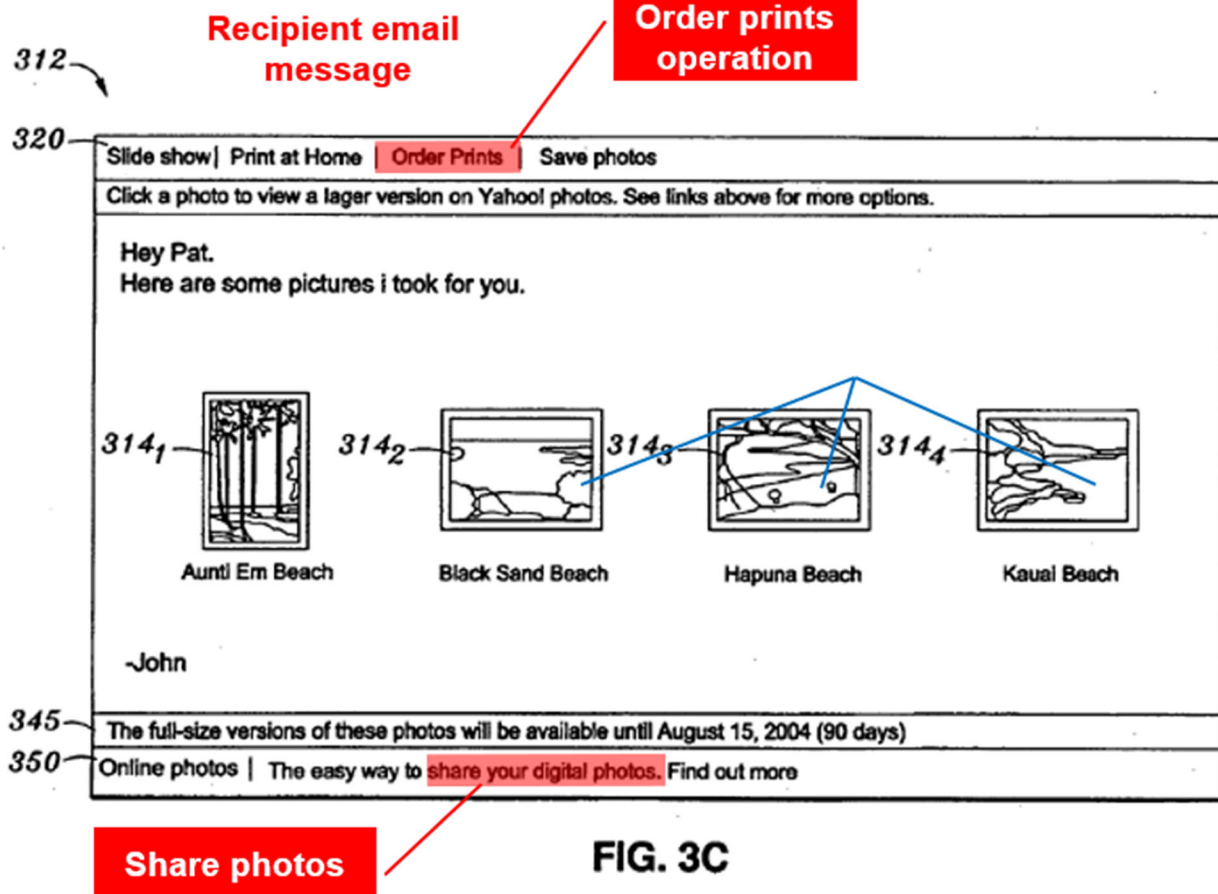
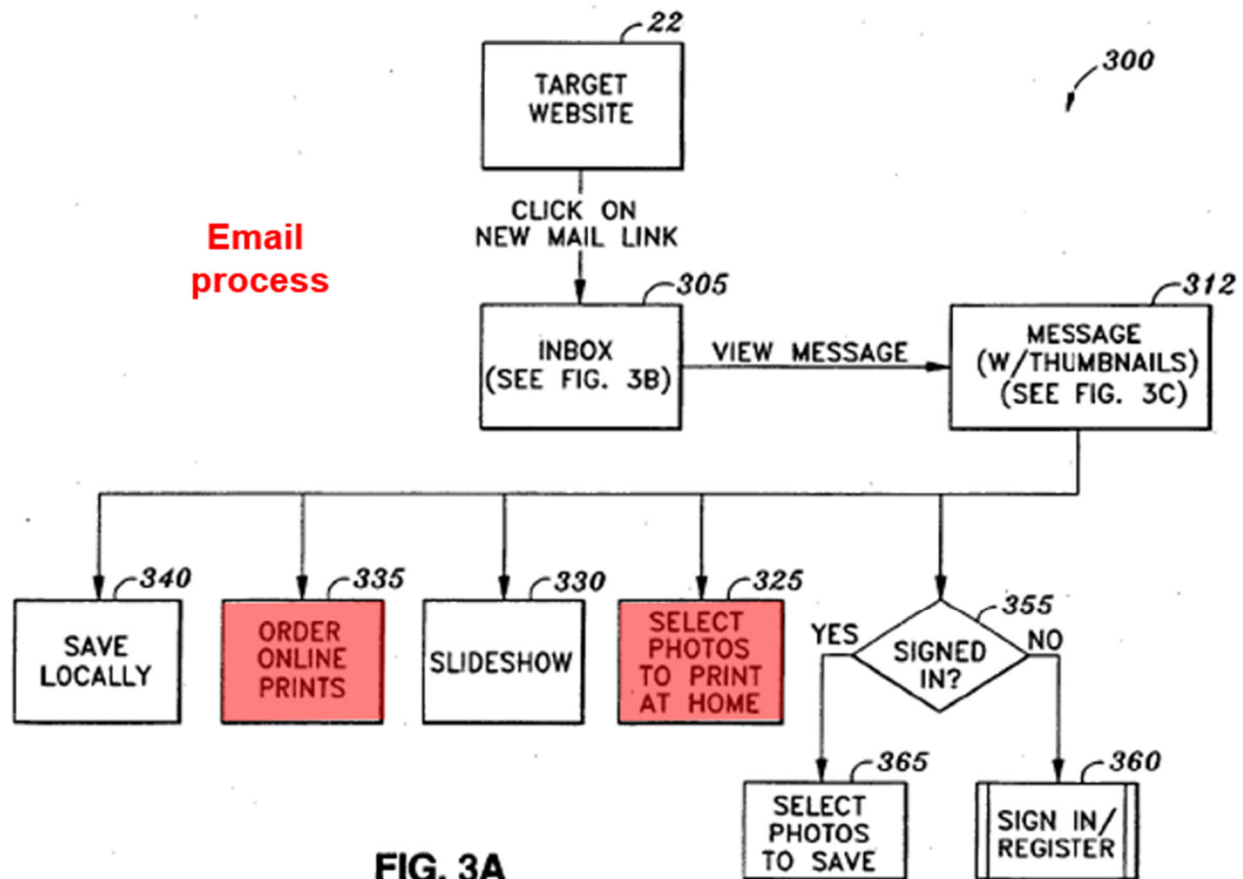


FIG. 3C



192. In my opinion, a POSITA would have been motivated to incorporate this teaching of Aldrich into the Reavey-Martinez-Proctor combination for the same reasons I discussed in Section X.B.2, specifically because a POSITA would have recognized that application of this teaching would have predictably improved the user's ability to select and manage image files and share those image files with other computer users. EX-1012, ¶[0006] (discussing the need to improve the integration between electronic mail and file selection and management). Thus, in my opinion, a POSITA would have understood that an "order prints operation" was a convenient way for a user to order prints or images from files they have received.

11. Claim 17

- a. *17[a]: “The method according to claim 16, wherein the at least one operation is a share operation,”*

193. In my opinion, the Reavey-Martinez-Proctor-Aldrich combination teaches the “method according to claim 16” (X.B.10). That section also explains that Aldrich teaches a share operation.

- b. *17[b]: “and the method further comprises acts of: identifying any state entries for the plurality of digital media content”*

194. In my opinion, Aldrich teaches 17[b]. The ’888 patent explains that “state entries” are associated with a view and source of digital media content. EX-1001, 4:9–12, 6:44–49, 9:1–7. Aldrich discloses “attachment state icon 530” which indicates whether an email includes attached files or embedded ActiveX thumbnails, which direct the email recipient to an online photos storage account storing those files. EX-1012, Figure 5C (annotated), [0046], [0055]. In Figure 5C (annotated) below, as a user adds an image file in Aldrich’s GUI to a queue to include it in an email, the “thumbnail is **updated** with an attachment **state icon** 530 to reflect this fact.” *Id.*, [0054] (emphasis added).

Attachment state icons showing files have been added to queue for embedding in email

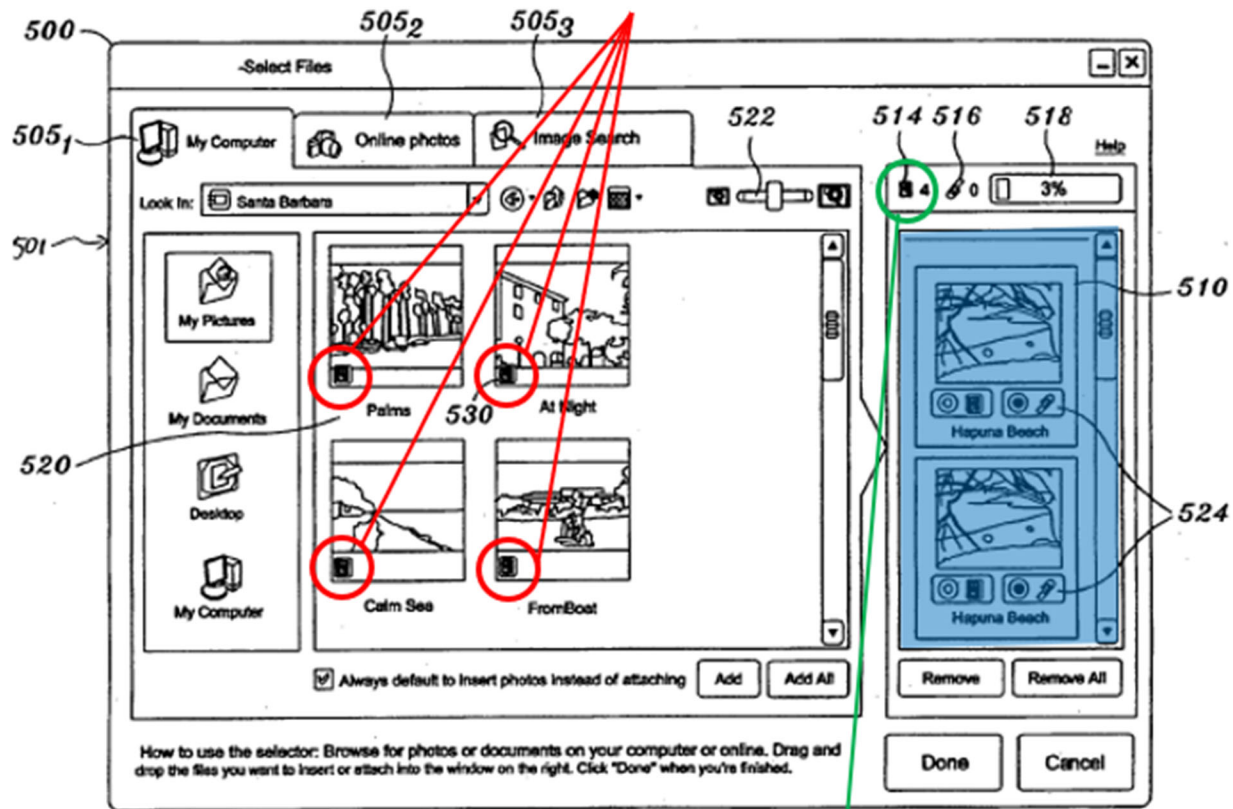
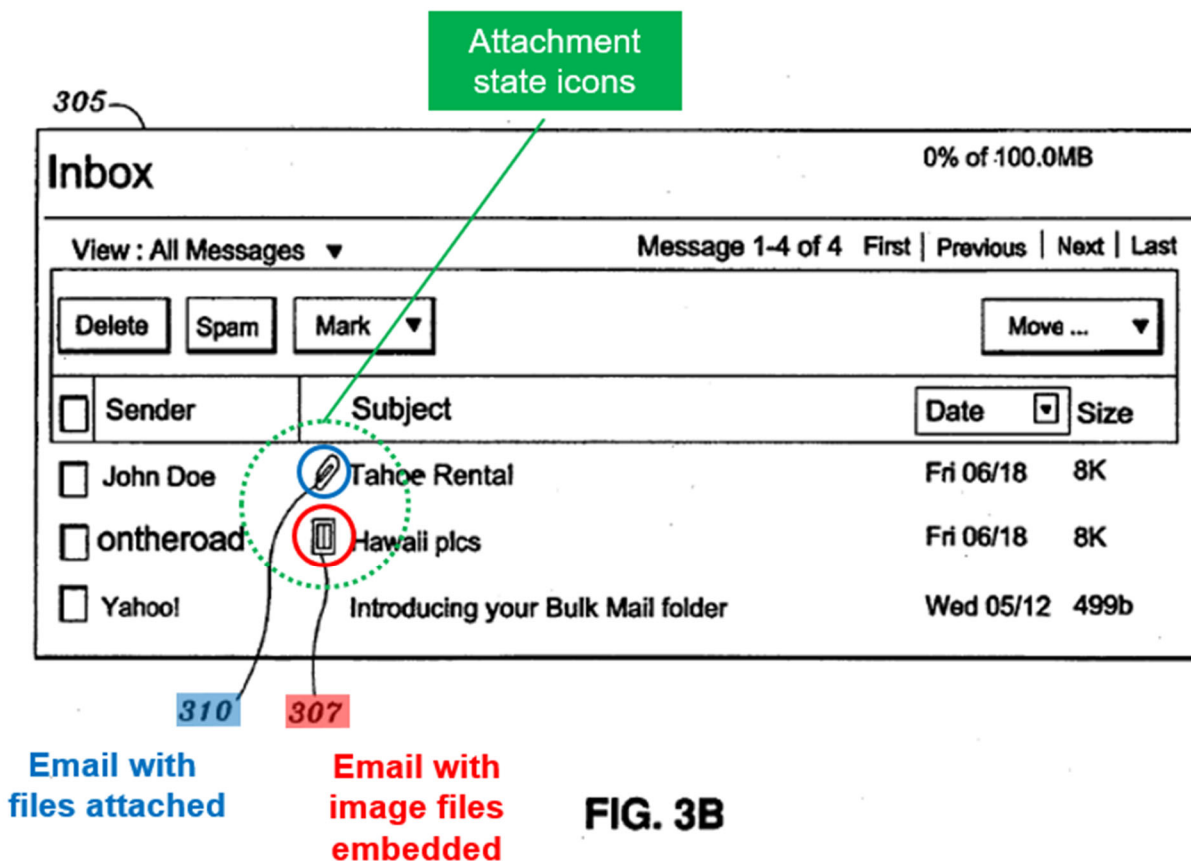


FIG. 5C

Attachment state icon 514 showing total image files (4) queued for embedding in email

195. Figure 3B (annotated) displays state icons 307 and 310 as shown in a view of the email inbox. *Id.*, [0036]. As shown below, paperclip icon 310 indicates an email contains a traditional file attachment and image file icon 307 indicates an email contains

an embedded image attachment. *Id.*, Figure 3B (annotated), [0036].



196. In my opinion, a POSITA would have recognized the attachment state icon 530 of Fig. 5C as the same icon 307 in Figure 3B. *Id.*, [0054] (describing thumbnails that are depicted with state icon 530 after being added to the queue as *embedded image* files) (emphasis added), [0036] (“If an email contains an *embedded image attachment*, the image file icon 307 may be displayed”) (emphasis added). Additionally, in my opinion, a POSITA would have recognized that the type of icon (paperclip versus rectangular-type) indicates the source of an image because it indicates whether the image itself is included in the email (is attached) or is instead hosted by a Yahoo! Photos

account (embedded). *Id.*, [0053]-[0054], [0036] (“If an email contains an embedded image attachment, the image file icon 307 may be displayed. If, on the other hand, an email contains a traditional file attachment, the typical attachment icon 310 may be displayed instead.”).

197. In my opinion, a POSITA would have been motivated to combine the Reavey-Martinez-Proctor computer with Aldrich for the same reasons I discuss in X.B.2. Additionally, a POSITA would have been motivated to implement Aldrich’s attachment icon identification processes to improve usability so that the user knows whether an image is attached locally within an email or must be accessed/retrieved from a remote source. Additionally, a POSITA would have understood that in the combination, the device would identify state entries so that it can display the appropriate icon corresponding to those entries. It was well known that icons in user interface could represent properties (*e.g.*, whether an image was embedded or attached). *See* Foley, 398. Additionally, Aldrich recognized the “inability or difficulty to attach remotely located image files and the inability or difficulty of the recipient to select which files to download.” *Id.*, [0005]. Adding state entries (icons) to indicate the source of an image would have further enabled the integration between email and file selection management.

c. 17[c]: “identifying any remote service settings for the plurality of digital media content; and”

198. In my opinion, Aldrich teaches 17[c]. As I discussed for claims 3 and 4, Aldrich teaches a remote online account (*e.g.*, Yahoo! Photos) that hosts digital media

content. *See* Sections X.B.3 and X.B.4. Aldrich also discloses that ActiveX control references are embedded in thumbnails included in emails sent between user computers running a web browser and Windows photo attachment module. EX-1012, ¶[0024], ¶[0046]. The ActiveX control reference is a link to a location of an image file on the remote online account server. *Id.*, ¶[0007], ¶[0050]. To embed and send such a link, a user sending an email must first log in to the remote account with username, password, cookies, or other authentication mechanisms. *Id.*, ¶[0056]. As shown in Figure 5C (annotated) below, a progress bar on the GUI indicates how much of an allowable attachment size is consumed by any images currently queued for being embedded in an email. *Id.*, [0050], [0052].

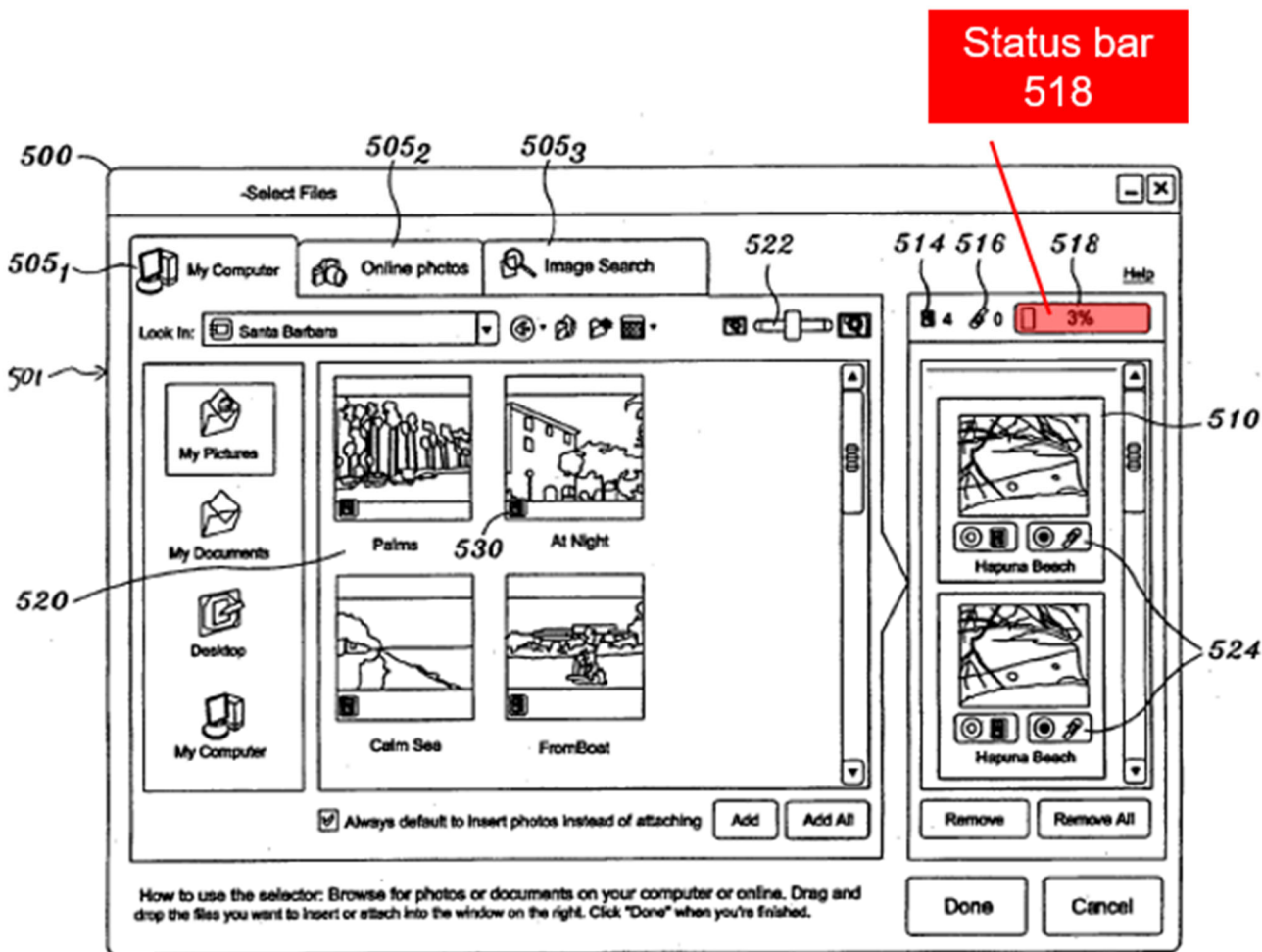


FIG. 5C

199. Aldrich teaches that file size progress bar 518 “may be used to keep track of the total storage space required for the selected files/folders” and is useful “where an email attachment size limit is being imposed.” *Id.* Thus, in my opinion, a POSITA would have understood allowable attachment size information (“remote service settings”) must be established (“identif[ied]”) to present status bar 518 to a user.

200. In my opinion, a POSITA would have been motivated to combine the Reavey-Martinez-Proctor computer with Aldrich for the same reasons I discuss in X.B.2. Additionally, a POSITA would have been motivated to implement in the combination, a status bar showing indicate how much of an allowable attachment size

is consumed by any images currently queued for embedment embedding in an email as taught in Aldrich, to enhance usability (e.g., so that a user knows whether she has exceeded that allowable attachment size prior to sending the email).’s attachment icon identification processes to facilitate remote access and hosted photo sharing operations relying upon conventional web browser systems on that computer because they were predictable and well-known GUI elements acting upon conventional online browser systems that a POSITA would have understood would increase a user’s ease in browsing and sharing photos and any online digital content using the expanded input detection processes of the Reavey-Martinez-Proctor device. It was well known that icons in user interface could represent properties (e.g., whether an image was embedded or attached). *See* EX-1021, 398. Aldrich recognized that one of the drawbacks to file sharing was the “inability or difficulty of the recipient to select which files to download” and the recipient did not have “options as to which image files are to view and/or retrieve.” *Id.*, [0005]. In my opinion, a POSITA would have understood that identifying remote service settings (e.g., file attachment size) would have provided a user with an additional option as to how many image files to select and share and would have further enabled the integration between email and file selection management.

d. 17[d]: “transmitting a visual representation associated with the plurality of digital media content, any state settings, and any remote service settings to another streamlined device user.”

201. In my opinion, Aldrich teaches 17[d]. Aldrich teaches sending emails to a recipient user that include attachment state icons indicating whether an image is

attached to an email or included as a hyperlinked thumbnail (“visual representation[s] associated with...digital media content” and “state settings”) accessible only to users logged in to the requisite Yahoo! Photos account to access such images (“remote service settings”) in the graphical user interface. *Id.*, ¶¶[0036]–[0040]. I have provided an annotated version of Figure 3B displaying these attachment state icons below. *Id.*, Figs. 3B–3C.

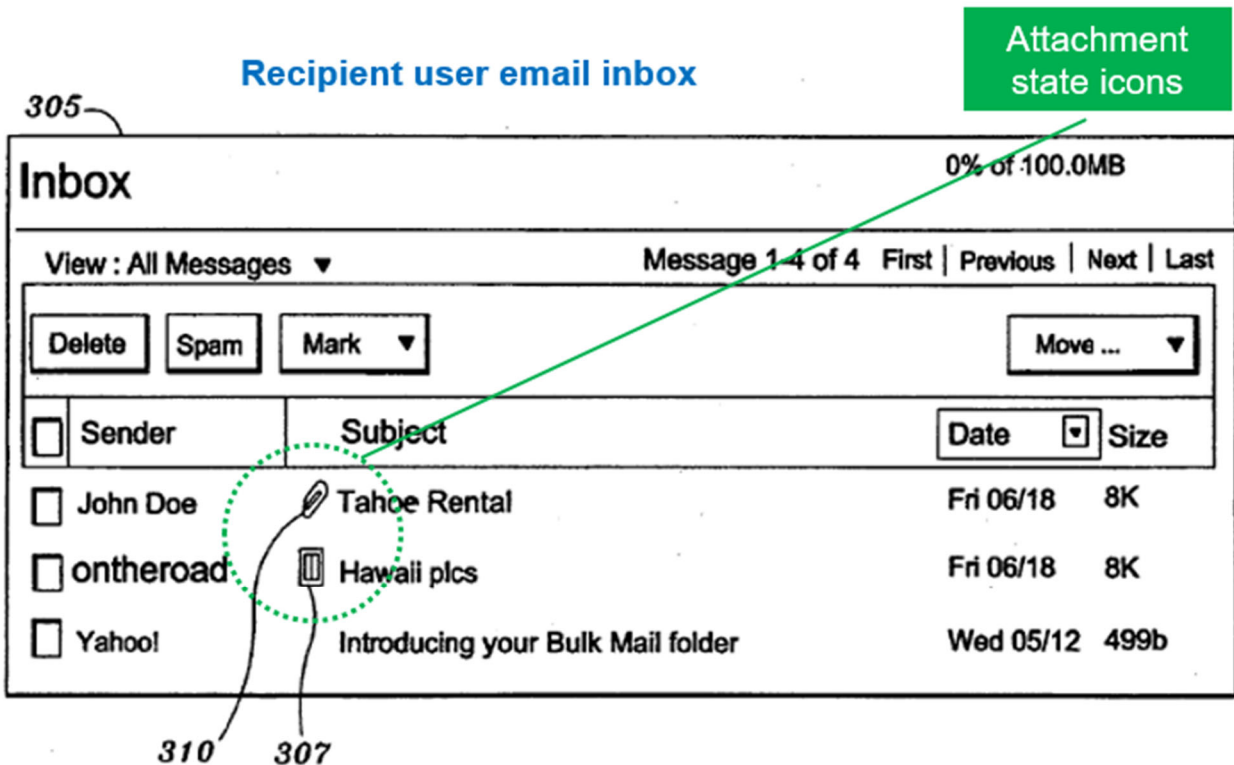


FIG. 3B

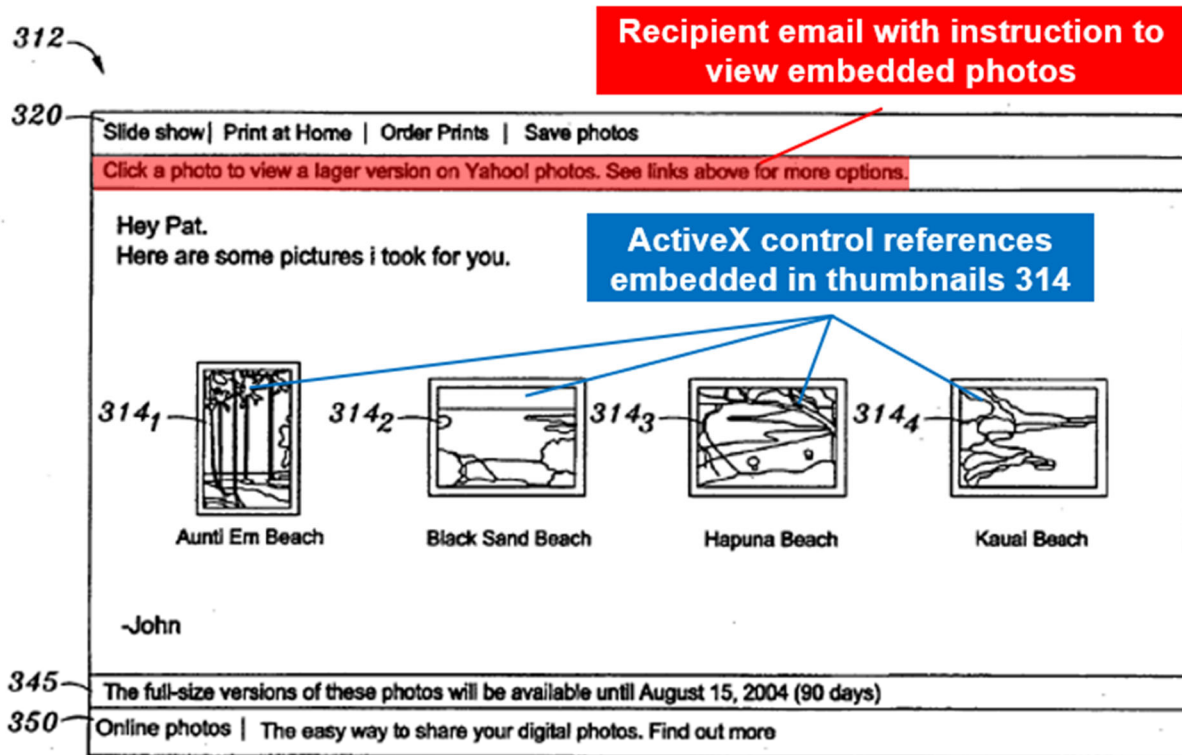


FIG. 3C

202. In my opinion, a POSITA would have been motivated to combine these Aldrich teachings into the combination for the same reasons I discuss in X.B.11.b, X.B.11.c. Additionally, a POSITA would have motivated to transmit such information to the recipient user when transmitting, e.g., a thumbnail, so the recipient can also view this useful information (e.g., attachment size when determining whether to forward the received email).

203. Additionally, as I discussed in Section X.5.i (1[f]), associating a visual representation (such as a thumbnail or icon) with digital media content (such as a picture or application) was well-known prior to the priority date of the '888 patent and was commonly used in user interfaces. *See* Foley, 395-96 (describing iconic interfaces as a

common style for user-computer interfaces), 399 (describing icons as “visual representation[s]”), 400-401 (discussing icons that represent Macintosh programs), Fig. 9.6 (“What does each icon represent? In most cases, the icons suggest the type of information that is operated on or created”). Thus, in my opinion, a POSITA would have understood that the attachment state icons in Aldrich were “visual representations associated with digital media content.”

12. Claim 20

- a. ***20[a]: “The method according to claim 1, further comprising acts of: permitting the user to share the at least one visual representation, including any associated digital media content with another user;”***

204. As I discussed in X.A.5, in my opinion the Reavey-Martinez-Proctor combination discloses the “method according to claim 1.” In my opinion, Aldrich teaches the additional limitations of 20[a] for the same reasons as I discussed in Section X.B.11 for claim 17, namely, describing embedding ActiveX control references to remote account-hosted photos in thumbnails emailed between users (“share the at least one visual representation”).

- b. ***20[b]: “storing shared information in response to an act of sharing by the user; and”***

205. In my opinion, Aldrich teaches 20[b]. As shown in annotated Figure 3C below, Aldrich teaches that users of the file sharing system interface may save photos locally or online. EX-1012, [0038]-[0039], Fig. 3C (annotated).

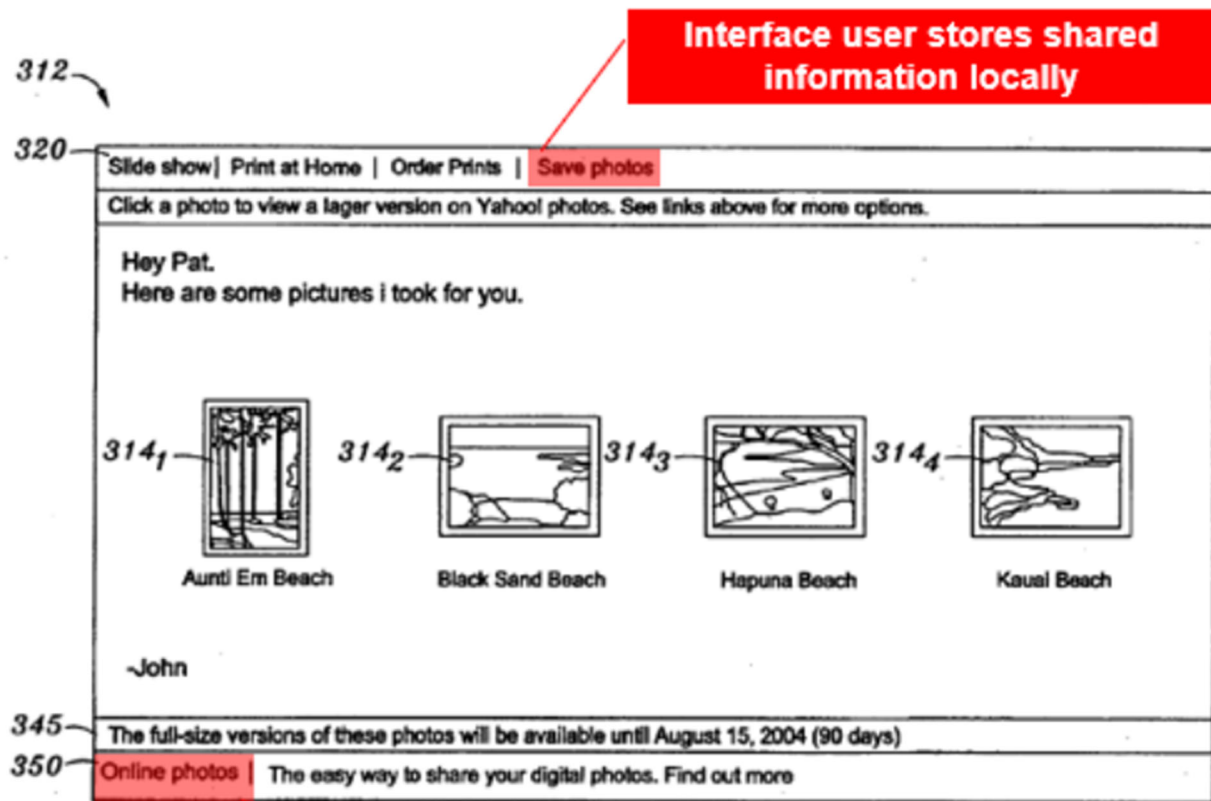


FIG. 3C

206. In my opinion, a POSITA would have been motivated to combine the teachings of Aldrich with the Reavey-Martinez-Proctor combination for the same reasons I discussed in X.B.2. Additionally, a POSITA would have been motivated to allow a user to also store locally when sharing in the combination as beneficial for the user to retain a local record of what was shared. Further, a POSITA would have understood that incorporating Aldrich's local and online photo storage options to facilitate file sharing would have provided more options for a user and recipient user to view and interact with a wider amount of digital content, thus improving the usability of the Reavey-Martinez-Proctor combination.

c. 20[c]: “updating any associated digital media automatically for the another user,”

207. In my opinion, Aldrich teaches 20[c]. I annotated Figure 3C below to show that availability information for digital media content is automatically provided to a recipient of online-hosted photos shared as thumbnails with embedded ActiveX control references. Aldrich, [0039].

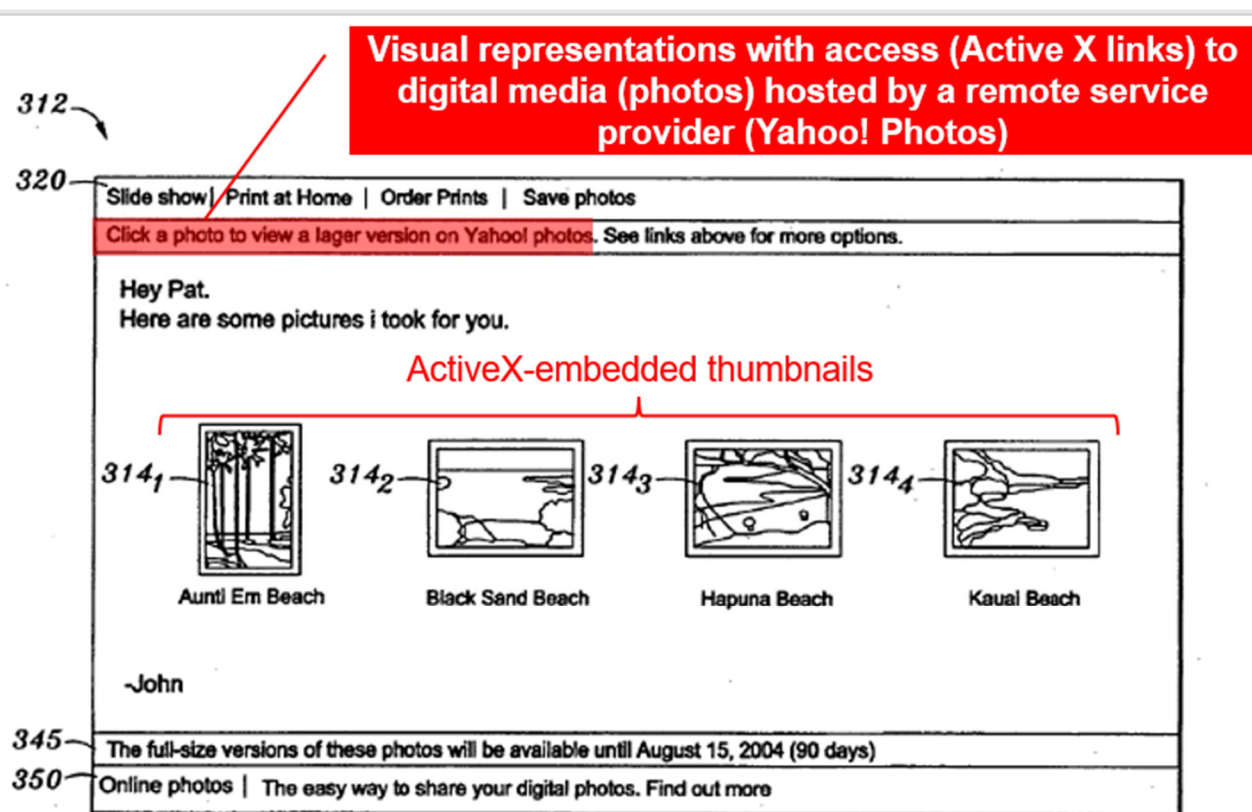


FIG. 3C

208. Aldrich teaches that message 312 may contain additional information 345 relating to the image files. *Id.*, [0039]. Specifically, information 345 “indicates that availability of the full image files which correspond to thumbnails 314₁-314₄.” Further, as shown above in Figure 3C, Aldrich teaches that information 345 may be provided to

the user in the form of text stating “The full-size versions of these photos will be available until August 15, 2004 (90 days).” In my opinion, a POSITA would have understood that when a content controlling user updates an image (e.g., photo) stored in a remote sharing location (e.g., Yahoo! Photos), a content-accessing user that navigates to that online-hosted photo through a shared ActiveX link (e.g., in email as above), would access the image stored at that linked location, including any changes to or replacements of that image made by the content-controlling user (i.e., that image(“associated digital media content”) has been “update[ed] automatically for the another user”). See, e.g., EX-1040, 11:61-12:7, 16:51-57 (describing an invention antedating the ’888 patent where a user can share information with another content controlling user who can also access and view updated information). A POSITA would be motivated to combine the Reavey-Martinez-Proctor computer with Aldrich as discussed in Section X.B.2.

d. 20[d]: “wherein the act of updating any associated digital media includes acts of: identifying any changes in shared digital media content, wherein changes include at least one of addition of digital media content associated with the at least one visual representation, deletion of digital media content associated with the at least one visual representation, edits of digital media content associated with the at least one visual representation, and updates of information associated with digital media content associated with the at least one visual representation.”

209. In my opinion, Aldrich teaches claim 20[d] for the same reasons I discussed in 20[c]. Additionally, in my opinion, a POSITA would have been motivated to implement Aldrich’s photo-managing graphical user interface elements to the

Reavey-Martinez-Proctor computer for the same reasons as discussed in Section X.B.12.c as in claim 20[c].

13. Claim 21

- a. ***21[a]: “The method according to claim 1, further comprising acts of: permitting the user to share the at least one visual representation, including any associated digital media content with another user;”***

210. As I discussed in Section X.A.5, in my opinion the Reavey-Martinez-Proctor combination discloses the “method according to claim 1.” In my opinion, Aldrich also teaches or suggests the additional limitations of claim 21[a] for the same reasons I discussed in Sections X.B.9 and X.B.12.a for claims 15 and 20[a].

211. Additionally, in my opinion, a POSITA would have been motivated to implement Aldrich’s photo-managing graphical user interface elements to the Reavey-Martinez-Proctor computer for the same reasons as discussed in X.B.9 and X.B.12.a for claims 15 and 20[a].

- b. ***21[b]: “transmitting the at least one visual representation associated with the digital media content, any state settings, and any remote service settings to another streamlined device user.”***

212. In my opinion, Aldrich teaches or suggests the additional limitations of claim 21[b] for the same reasons as describes with respect to the organizing, emailing (“share”), viewing, and downloading operations I discussed in Sections X.B.11.a, X.B.11.b, X.B.11.c for claims 17[a], 17[b], and 17[c].

213. Additionally, in my opinion, a POSITA would have been motivated to implement Aldrich’s photo-managing graphical user interface elements to the Reavey-

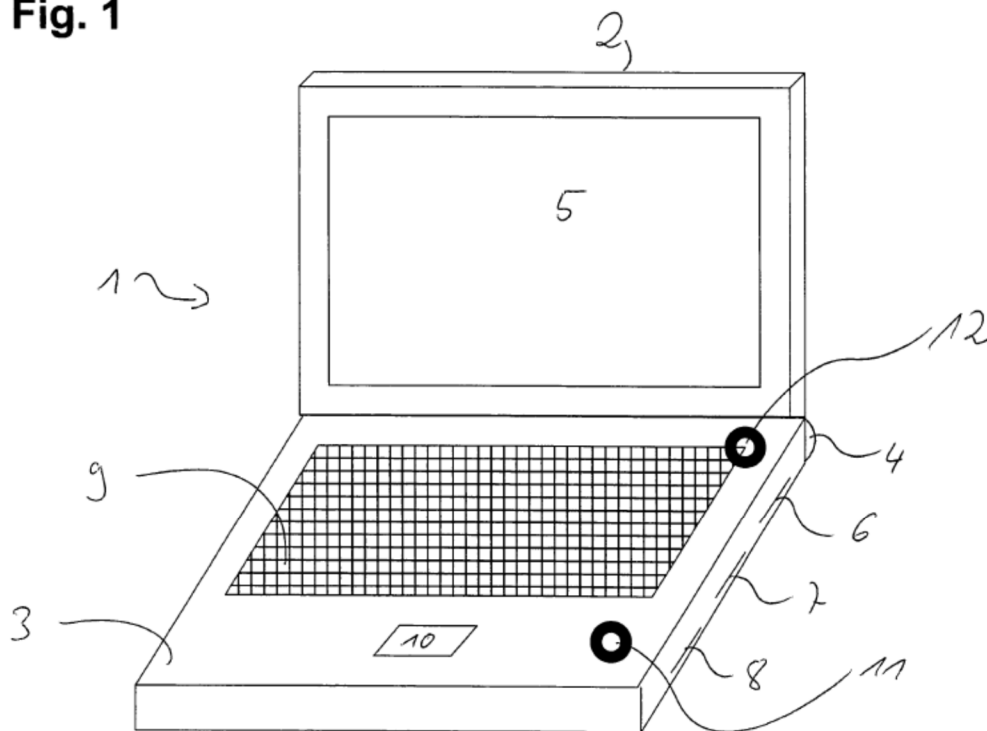
Martinez-Proctor computer for the same reasons as discussed in Sections X.B.11.a, X.B.11.b, X.B.11.c for claims 17[a], 17[b], and 17[c].

C. Ground 3: Obviousness over Reavey, Martinez, Proctor, and Pröll (Claim 25)

1. Pröll

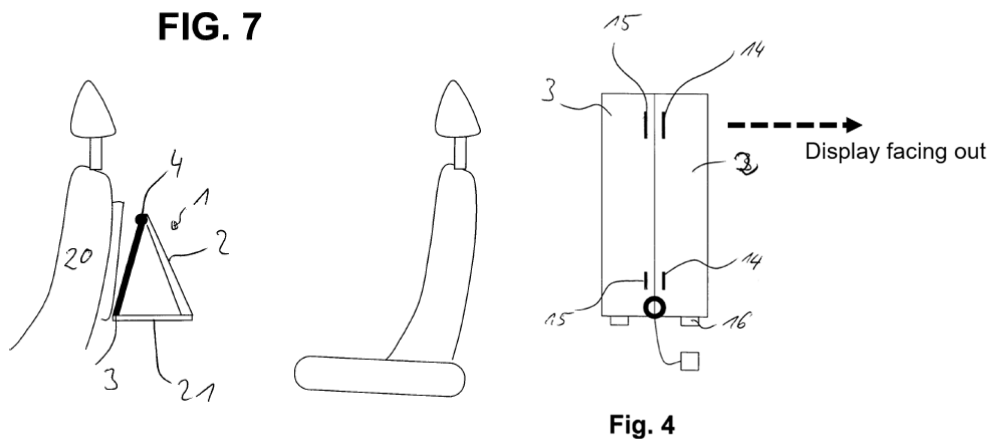
214. Pröll is directed to a “[m]obile data processing device,” such as a laptop, with two housing halves (one with a screen and one with an input unit, such as a keyboard) connected by a hinge that can rotate 360 degrees. *See* EX-1006, Title, Abstract, claims 1, 3, 5. Pröll’s Figure 1 is reproduced below:

Fig. 1



215. Figure 1 shows Pröll’s device in a laptop configuration where housing halves 2, 3 can rotate “almost 360°” relative to one another using hinge device 4. *Id.*,

[0033]. Housing half 2 contains display device 5, and housing half 3 contains keyboard 9. *Id.*, [0034]. Other figures in Pröll show its device in other configurations. E.g., *id.*, Fig. 3 (180°), Fig. 4 (360°), Fig. 6 (360°), Fig. 7 (270°). As two examples, Figures 7 and 4 are reproduced below:



Id., Fig. 4 (annotated) (rotated 360°), Fig. 7 (rotated 270°).

216. Pröll discloses it has a switch in hinge device 4 to detect whether the housing half 2 has been pivoted towards housing half 3 by more than 180°; if so, the representation on the display device is rotated by 180° and the input devices, including keyboard 9, are automatically blocked. *Id.*, ¶¶[0049]–[0050].

2. Motivation to Combine

217. In my opinion, a POSITA would have been motivated to combine the Reavey-Martinez-Proctor combination with Pröll. As I discussed in X.A.1, Reavey teaches that a user manipulates its device into different physical configurations, including a laptop configuration (Mode 3) and a flat configuration (Mode 2). EX-1009, 1:11-15, 7:24-62, Figs. 2-3.

218. In my opinion, it would have been obvious to a POSITA to implement Pröll's easel configuration as another mode (e.g., Mode 4) of the Reavey-Martinez-Proctor device because the Reavey-Martinez-Proctor device already contains the requisite hinge and sensor to sense the degree of the device's opening conducive to its "ability to have multiple operational modes...facilitated by having a screen orientation feature which automatically adjusts the text and graphics to the desired mode," and configuring the device to operate in an easel mode would have been a simple improvement within the electrical and mechanical abilities of a POSITA and obvious to try as new application of the same device with the same screen orientation and device rotation characteristics at a different opening angle to assist a user in another environment (e.g., car or airplane travel). EX-1009, 3:24-27, 6:43-46; EX-1006, ¶¶[0052]–[0054]; *Compare* EX-1009, 6:43-46, 7:26-31 (disclosing the use of hinge 125 and switches to detect a device configuration and set a proper screen orientation) 7:24-26 (disclosing automatic text and graphic display rotation responsive to screen orientation) *with* EX-1006, ¶¶[0049], [0053] (disclosing the need to rotate the display 180° when a switch detects an easel configuration to avoid an upside-down display relative to a user's view).

219. Pröll and Martinez also disclose similar systems with a laptop configuration of a computing device with display, keyboard, and processing components containing a hardware-based trigger that detects rotational changes to the two halves of the device and responds to such changes with a different GUI display. *See*

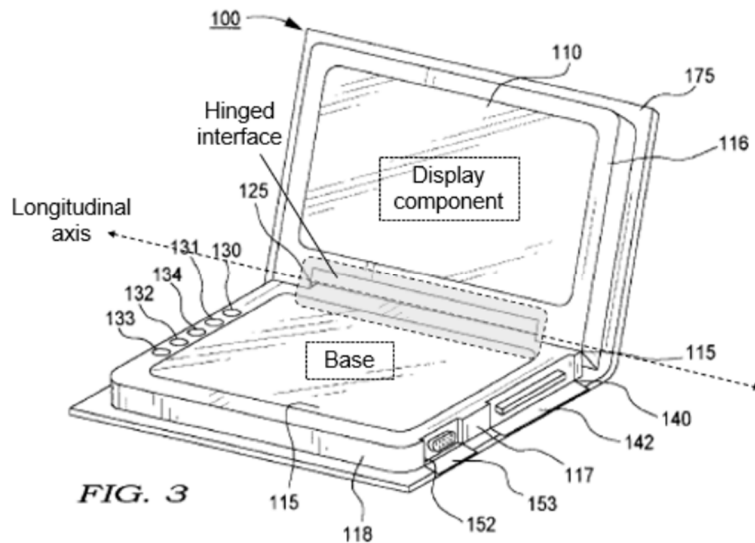
also EX-1009, 3:21-24 (disclosing laptop mode), EX-1010, [0022] (“[T]he display modes are described in the context of portable electronic devices, such as . . . laptop computers.”). The switch in Pröll is a sensor that detects the degree of rotation and Martinez teaches rearranging a GUI based on a sensor “attached to the hardware of interest” that “provides numeric values to a register.” EX-1007, 5:24-28. Thus, in my opinion, a POSITA would have been motivated to simply apply the known technique of rearranging the display in response to sensor data to improve the usability of Pröll. In my opinion, such a modification would have been well within the programming skills of a POSITA because the combination would require only reading a value from sensor data and using that value, via the processor executing instructions, to make changes to the display

3. Claim 25

- a. ***25[a]: “The method according to claim 1, wherein rotating the display component about the longitudinal axis up to approximately 180 degrees from the closed mode and [sic] configures the computing device into a laptop mode with one of the plurality of views as a default display; and”***

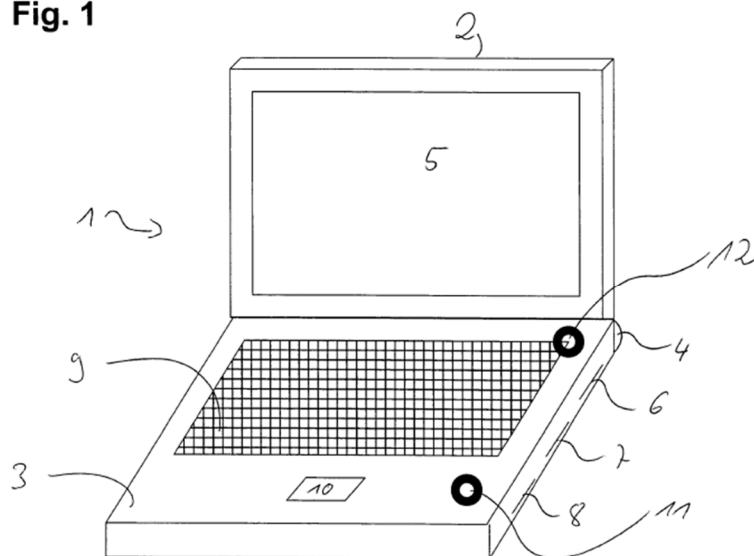
220. See Section X.A.5.g for 1[e2], including how Reavey teaches a “laptop configuration.” 25[a] further requires this configuration to be displayed by default between 0 and approximately 180 degrees. Reavey discloses a “laptop configuration” that is configured by default “approximately at 120° open,” which discloses rotating the display component “up to approximately 180 degrees from the closed mode.” EX-1009, 7:53–58. Reavey depicts an embodiment of this configuration in Figure 3 (annotated

and reproduced below), where the display component 110 is rotated up to approximately 180° into a laptop mode so it remains useful to a device operator. EX-1009, 7:39–58.



Moreover, Pröll teaches this additional limitation of 25[b]. As shown in the Figures below, Pröll’s Figure 1 shows its processing device arranged as a “laptop” and Figure 3 shows the device “folded open by almost 180 degrees.”

Fig. 1



EX-1006, Fig. 1, [0025], [0033]. Pröll’s device mirrors Reaveys when used in this

traditional laptop configuration, supporting that a POSITA would have been motivated to combine their teachings for the same reasons as described in Section X.C.2 above.

b. ***25[b]: “wherein rotating the display component about the longitudinal axis configures the computing device into the another display mode with another one of the plurality of views as the default display, and includes rotating the display component beyond approximately 180 degrees from the closed mode to configure the computing device into an easel mode with another one of the plurality of views as the default display.”***

221. See Section X.A.5.h for 1[e3]. Notably, claim 25[b] requires “rotating the display component beyond approximately 180 degrees from the closed mode to...an easel mode.” In my opinion, Pröll teaches the additional limitations of claim 25[b].

222. Pröll discloses “in the form of use as a portable computer with an angle between the first and second housing halves 2, 3 of **more than 180° degrees** . . . the display on the display device must be rotated by 180° degrees since otherwise the display would be upside down.” EX-1006, ¶[0049] (emphasis added). As shown in an annotated version of Figures 4 and 7 below, Pröll shares an embodiment of this configuration where the halves are rotated beyond 180° to approximately 270° into an easel mode that similarly rotating the display 180° degrees so it remains useful to a device operator. *Id.*, ¶[0052]–[0053].

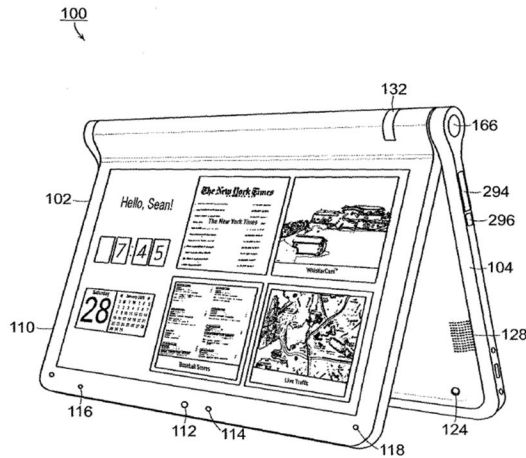
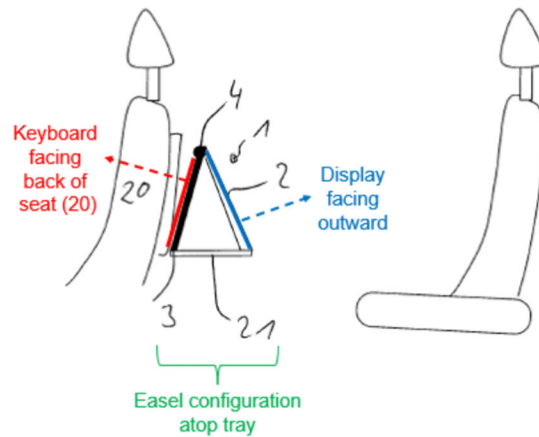


FIG. 4

FIG. 7



223. In my opinion, it would have been obvious to a POSITA to implement Pröll's easel configuration as another mode (e.g., Mode 4) of the Reavey-Martinez-Proctor device for the same reasons I described in Section X.C.2 above.

D. Ground 4: Obviousness over Reavey, Martinez, Proctor, Aldrich, and Chao (Claims 9, 18, 19)

1. Chao

224. Chao is directed to a digital image management system for searching for specific images embodied as at least an "archiving system" shown in the figure reproduced below. EX-1013, Abstract, 12:56–58, FIG. 8.

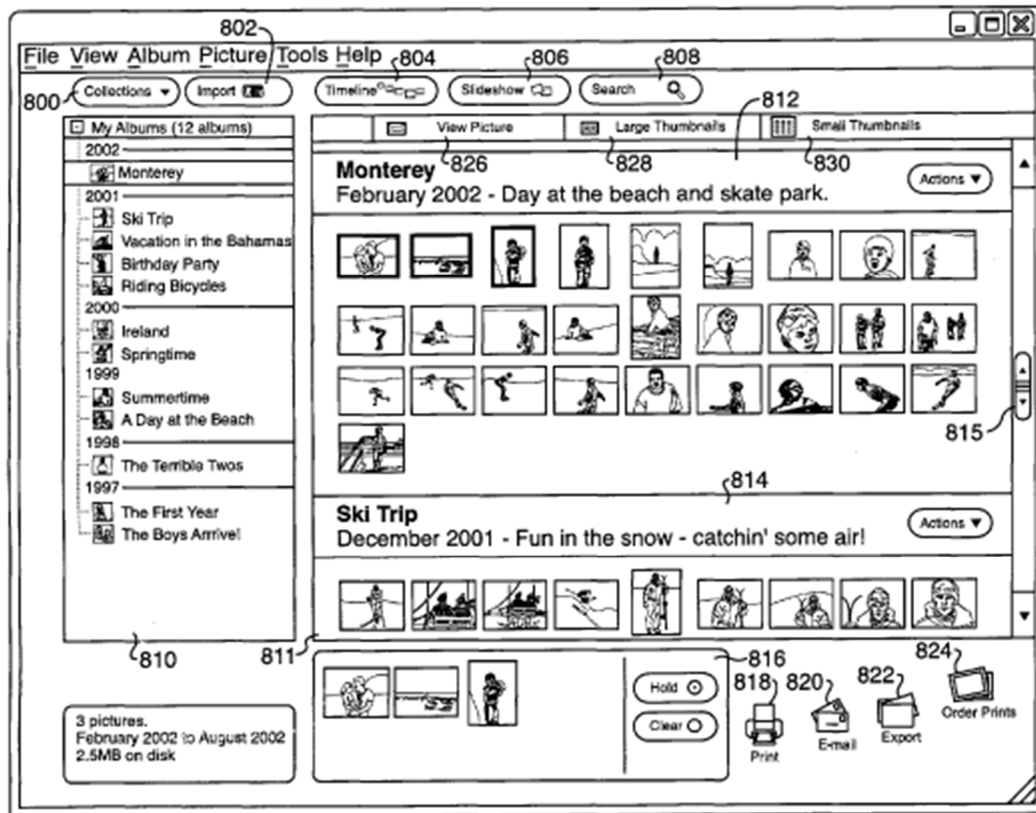


FIG. 8

225. As shown above, display area 810 of the archiving system is set aside for presenting archived collections, and the images are clustered into albums. *Id.*, 13:5–7, FIG. 8. Along the top of this archiving system, there are, among other elements, timeline button 804 (Figure 8 above) to display archived images according to a timeline view (Figure 20 below). *Id.*, 12:63–65, 15:7–11.

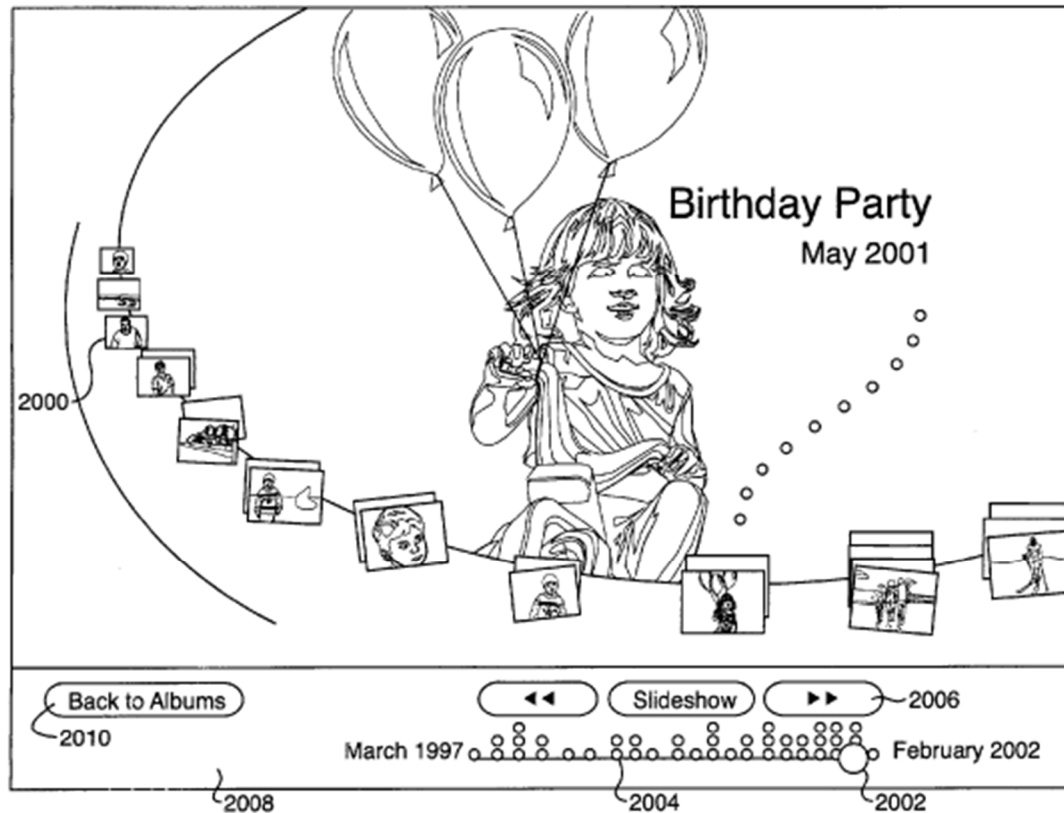


FIG. 20

226. In this view, “[a] user may employ an interactive device, such as a mouse, to move along the timeline, thereby searching through time for images of interest. Moving the slide 2002 may shift timeline 200[0].¹² The scrubber 2004 indicates the number of image albums associated with various time periods within the displayed range (March 1997 to February 2002 in this example).” *Id.*, 15:11–17.

2. Motivation to Combine

227. In my opinion, a POSITA would have been motivated to implement

¹² The timeline is identified as “2002” in this quotation, but is referred to as “2000” in Chao, 15:11. In my opinion, the “2002” is understood as a typographical error here that should read, “2000.”

Chao's GUI timeline views and controls in the Reavey-Martinez-Proctor-Aldrich GUI. Aldrich discloses a GUI 500 displaying different albums in an album view but does not disclose a timeline view. (EX-1012, ¶¶[0057]–[0058], FIG. 5E). Chao discloses both an album view and a timeline view and further provides a timeline button 804 to switch between those views. EX-1013, 12:63-65, 15:7-22, Fig. 20.

228. In my opinion, it would have been obvious to a POSITA to implement Chao's timeline view with timeline button 804 into the combination's GUI (which includes Aldrich's photo GUI elements and associated functionality) to allow for increased functionality and usability. Chao's teaching would have provided the user with the ability to navigate and organize a large amount of digital content (e.g., photos) that were uploaded to a remote service (e.g., Aldrich's Yahoo! Photos) in an aesthetically pleasing view. *See*, e.g., EX-1007, 1:23-28 (discussing solutions made to simplify the interface between a user and the large amounts of data), EX-1009, 3:9-11 ("The present invention provides an aesthetically pleasing, easy to read and use electronic device for reviewing various types of information."). A POSITA would have recognized that this option to navigate a high volume of user photos was advantageous with the release of portable phones that could connect to the internet and capture images. For example, the original iPhone was released in 2007 and contained a camera and photo library that could be synced from the user's PC and was also connected to the internet via a web browser. *See* EX-1037; EX-1038 (describing release of the Nokia N90 in 2005 which advertised a camera and web connection allowing users to upload

images to web albums). Thus, a POSITA would have been motivated to incorporate Chao's timeline view with timeline button 804 into the combination's GUI 500 to create a timeline view of photos that increasingly helps users to "quickly disregard a large number of collections in the wrong years, and focus on a subset that has a high probability of containing the desired image." EX-1013, 4:52–56.

229. Additionally, in my opinion, a POSITA would have been motivated to implement Chao's user-driven temporal clustering technique to predictably improve the Reavey-Martinez-Proctor computing device. Chao recognized the need for a system that enabled users to manipulate digital content "in a more natural fashion" that was directed to the convenience of the user. *Id.*, 1:42-49. Thus, a POSITA would have recognized Chao's teaching would have improved management of content on a computing device using that device's computing processes (algorithmic solving) to more intuitively organize images (i.e., photo albums) according to the "superb human capability for remembering events, people, and emotional context" and accommodate "human preference for visual and spatial" characteristics of information beyond the conventional, textual and linguistic characteristics otherwise relied upon to make image organization convenient for machine organization rather than the user recollection and use. *Id.*, 8:12–20, 1:24–49 (describing prior art methods of image organization convenient to the machine rather than the natural inclinations of a human attempting to remember the events captured in the images).

230. In my opinion, there would have been a reasonable expectation of success

in combining Chao with the Reavey-Martinez-Proctor-Chao combination because Chao taught the well-known concept of a timeline view, and a button to transition the displayed content from the album view to the timeline view. Application of this teaching to the Reavey-Martinez-Proctor-Chao combination would have yielded a predictable GUI capable of transitioning between the album and timeline views by selecting a button. EX-1013, 12:63-65, 15:7-22, Fig. 20.

3. Claim 9: “*The method according to claim 7, further comprising an act of displaying a toggle element in a header portion of the view, wherein the toggle element transitions the computing device display between the album view and the timeline view upon selection by a user.*”

231. In my opinion, the Reavey-Martinez-Proctor-Aldrich combination teaches the “method according to claim 7,” (X.B.7) and Aldrich teaches a GUI including an album view with header. In my opinion, Chao also teaches claim 9’s additional limitations.

232. Specifically, Chao teaches a GUI including an album view with header that includes a selectable button (“displaying a toggle element in a header portion of the view”) that transitions from a display of photos grouped by album (“album view”) to a display of photos serialized by timeline progression in a timeline metaphor (“timeline view”) as depicted in Figures 8 and 20 (annotated) reproduced below. *Id.*, 12:63–65 (“The Timeline button 804 allows a user to display archived images using the...timeline metaphor”), 15:7–22 (“[a] button 2010 allows a user to toggle between timeline and slideshow views”).

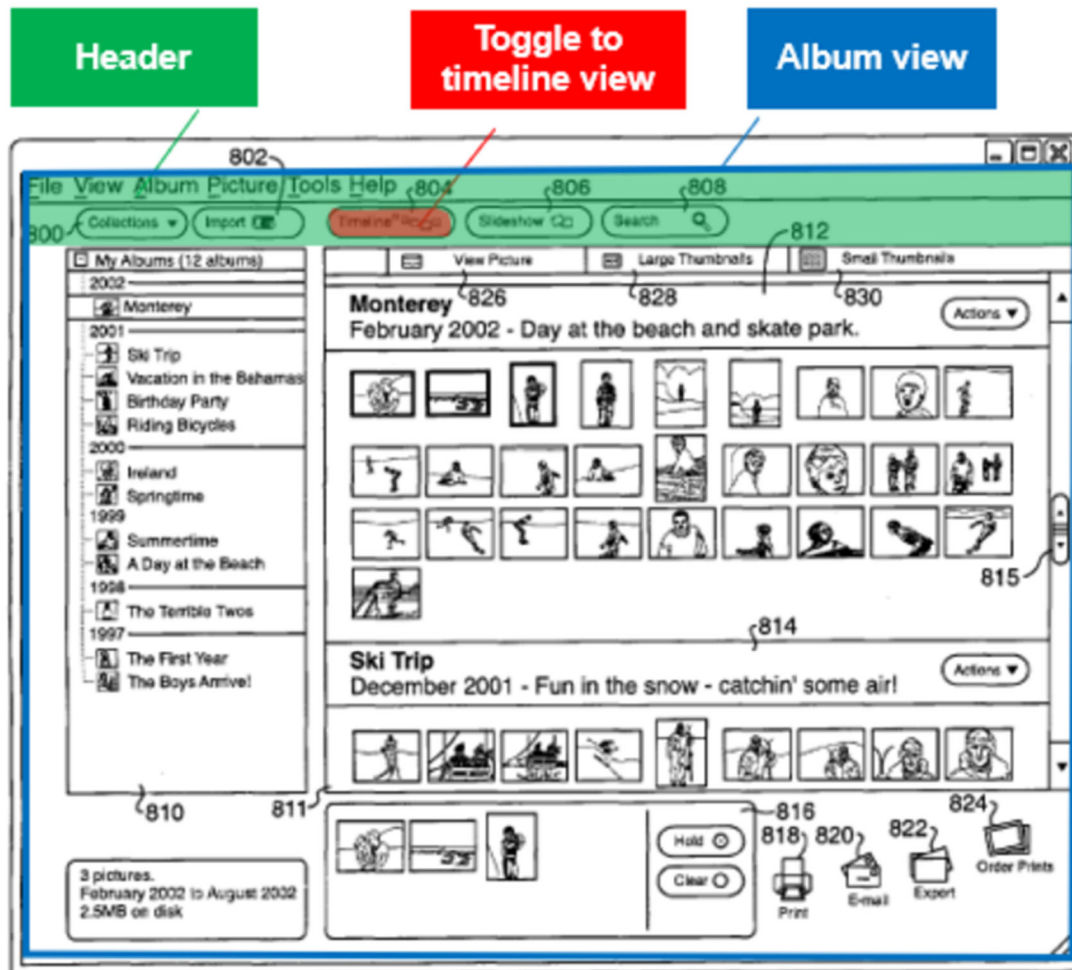


FIG. 8

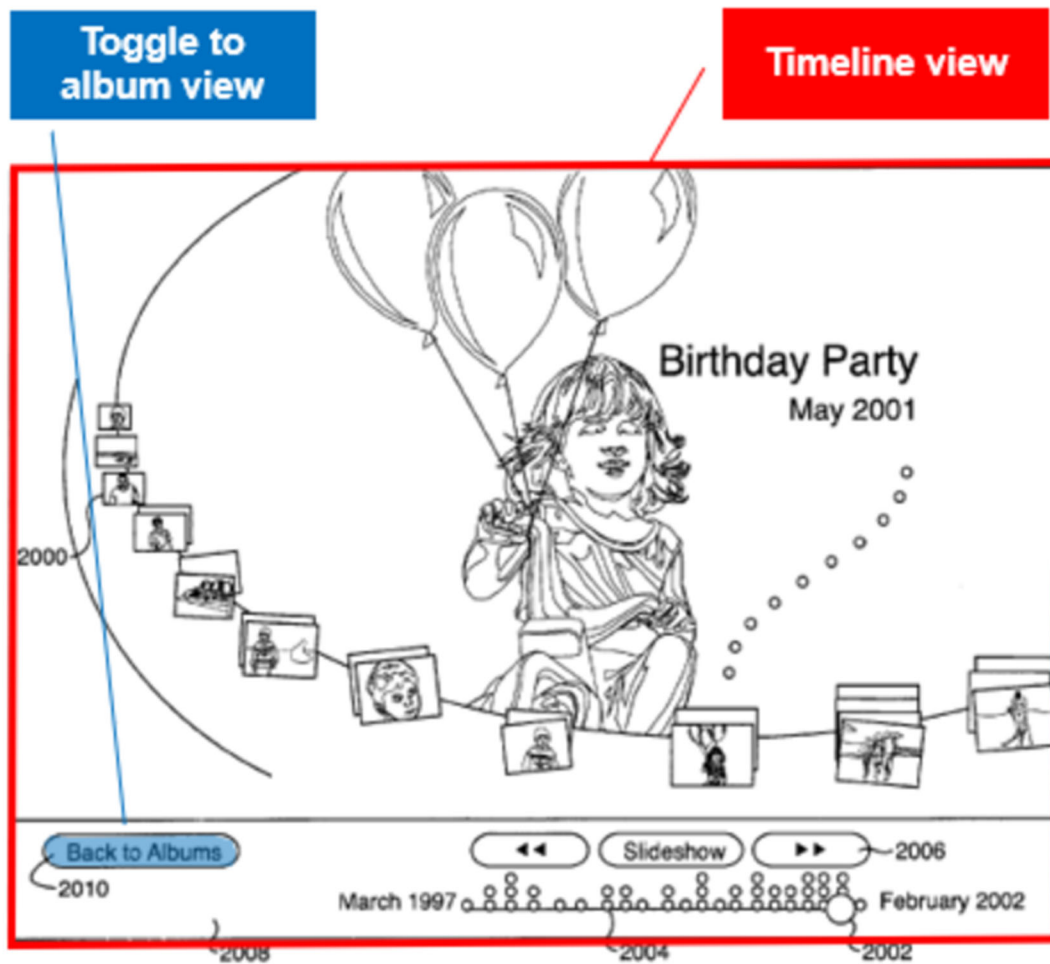


FIG. 20

233. In my opinion, it would have been obvious to a POSITA to implement Chao's timeline metaphor and button 804 in the graphical user interface of the computing device of the Reavey-Martinez-Proctor-Aldrich combination. Chao's teaching would have provided the user with the ability to navigate and organize a large amount of digital content (e.g., photos) that were uploaded to a remote service (e.g., Aldrich's Yahoo! Photos) in an aesthetically pleasing view. *See, e.g.,* EX-1007, 1:23-28 (discussing solutions made to simplify the interface between a user and the large amounts of data), EX-1009, 3:9-11 ("The present invention provides an aesthetically pleasing, easy to read and use electronic device for reviewing various types of

information.”).

234. In my opinion, it would have been obvious to a POSITA to implement Chao’s timeline metaphor and button 804 in the graphical user interface of the computing device of the Reavey-Martinez-Proctor-Aldrich combination because this provides an additional view to a user for increased ease in navigating and managing the conventionally-high volume of user photos uploaded to an online photo account (e.g., Aldrich’s Yahoo! Photos) thanks to the prolific image-capturing techniques pervading conventional smart- and mobile-phones at the time of the invention. For example, the original iPhone was released in 2007 and contained a camera and photo library that could be synced from the user’s PC and was also connected to the internet via a web browser. EX-1037;¹³ EX-1038¹⁴ (describing release of the Nokia N90 in 2005 which advertised a camera and web connection allowing users to upload images to web albums). Thus, a POSITA would have recognized that this option to navigate a high volume of user photos was advantageous with the release of portable phones that could connect to the internet and capture a large number of images.

¹³ <https://www.apple.com/newsroom/2007/01/09Apple-Reinvents-the-Phone-with-iPhone/> (EX-1037)

¹⁴ <https://web.archive.org/web/20140714193817/http://company.nokia.com/en/news/press-releases/2005/04/27/twist-and-shoot-nokia-n90-makes-its-premiere> (EX-1038)

4. Claim 18

- a. ***18[a]: “The method according to claim 7, wherein the view is a time view”***

235. As I discussed in X.B.7, in my opinion the Reavey-Martinez-Proctor-Aldrich combination teaches the “method according to claim 7.” Additionally, in my opinion Chao teaches 18[a] based on its “timeline metaphor” including a timeline view for the same reasons discussed in Section X.D.3 for claim 9. A POSITA would have been motivated to combine Chao’s timeline view with the Reavey-Martinez-Proctor-Aldrich combination for the same reasons I discussed in that Section.

- b. ***18[b]: “and the method further comprises: displaying a timeline navigation control in the body of the view, wherein the timeline navigation control is configured to provide organization segments, the organization segments providing a visual indication of a number of digital media content items in each segment.”***

236. In my opinion, Chao also teaches 18[b]. Chao’s timeline metaphor further includes a timeline showing a timeframe (e.g., March 1997 to February 2002) with a slide 2002, forward button 2006, and backward button 2008 used to shift the timeline forward and backward (“timeline navigation control[s]”) to show different image albums associated with the selected time period (“organization segments”) further organized as a cascading view of photos within an album, the number of respective albums per chosen timeframe further displayed by a “scrubber 2004” and the number of photos in an album corresponding to the number of vertically-stacked circles on the scrubber (“visual indication of a number of digital media content items in each

segment”). EX-1013, 15:7–22. I have produced an annotated version of Figure 20 showing these elements displayed “in the body of the view” below. *Id.*, Figure 20 (annotated).

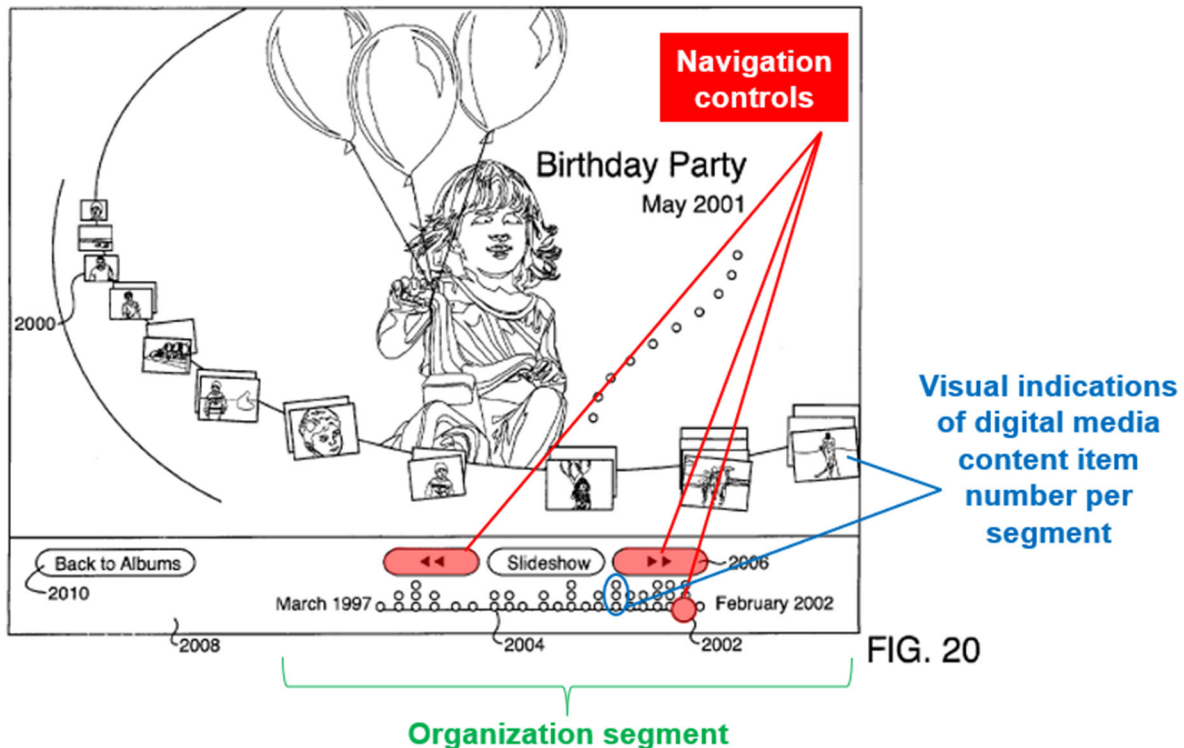


FIG. 20

237. In my opinion, a POSITA would have been motivated to combine Chao’s timeline view with the Reavey-Martinez-Proctor-Aldrich combination for the same reasons I discussed in Section X.D.2.

5. Claim 19: *“The method according to claim 18, wherein the timeline navigation control further comprises a handle responsive to a pointer displayed on the computer device, wherein the handle is further responsive to select and drag operations.”*

238. Section X.D.4 explains that in my opinion, the Reavey-Martinez-Proctor-Aldrich-Chao combination teaches the “method according to claim 18.” As I discussed above in X.D.4.b for 18[b], Chao teaches timeline navigation controls, specifically a

slider 2002 (“handle”) selectable and manipulatable by a mouse. In my opinion, Chao further discloses the mouse is an “input device” used “for controlling cursor movement.” EX-1013, 6:21–28. A figure (annotated) depicting the slider is reproduced below. *Id.*, Fig. 20 (annotated).



FIG. 20

Select and drag navigation

239. In my opinion, a POSITA would have recognized that controlling a linear-moving slider with cursor movements controlled by a mouse teaches a select and drag operation with a pointer. A “pointer” was the well-known shape of mouse cursors used to manipulate objects within graphical user interfaces. *See* EX-1021; 350 (“[W]ith an indirect device—such as a tablet, **mouse**, or joystick—the user moves a cursor on the screen using a device not on the screen”) (emphasis added), 5, 15 (“[P]oint-and-click

facilities to allow users to select menu items, icons, and objects on the screen”); Ex. 1008, 144-145. Thus in my opinion, a POSITA would have considered sliding and dragging as synonymous operations and understood that sliding Chao’s cursor would have required a user to first select then drag it across a screen by dragging a corresponding mouse across a desktop or finger across a touch or track pad to register that intended control movement from a user. *See* EX-1021, 386-87, Fig. 8.40 (demonstrating “dragging” as dynamic manipulation using a mouse cursor as a pointer). Additionally, in my opinion, a POSITA would have been motivated to combine Chao’s timeline view with the Reavey-Martinez-Proctor-Aldrich combination for the same reasons I discussed in Section X.D.2.

E. Ground 5: Obviousness over Reavey, Martinez, Proctor, and Chao (Claim 22)

1. Claim 22: “*The method according to claim 1, further comprising an act of permitting the user to update date information associated with the digital media content.*”

240. In my opinion, as I discussed in X.A.5, the Reavey-Martinez-Proctor combination teaches the “method according to claim 1.” In my opinion, Chao further teaches claim 22’s additional limitations. The ’888 Patent describes updating the date of items in an album, which updates the album itself. EX-1001, 43:44–47. Chao teaches automatic and continuous collection of metadata for each image file captured. EX-1013, 3:35–42. Chao’s metadata includes temporal information—e.g., a date a photo is taken—and is used as criteria to group images into albums according to events like those reflected in annotated Figure 20 reproduced below. *Id.*, Figs. 2, 20, 8:33–46, 15:7–

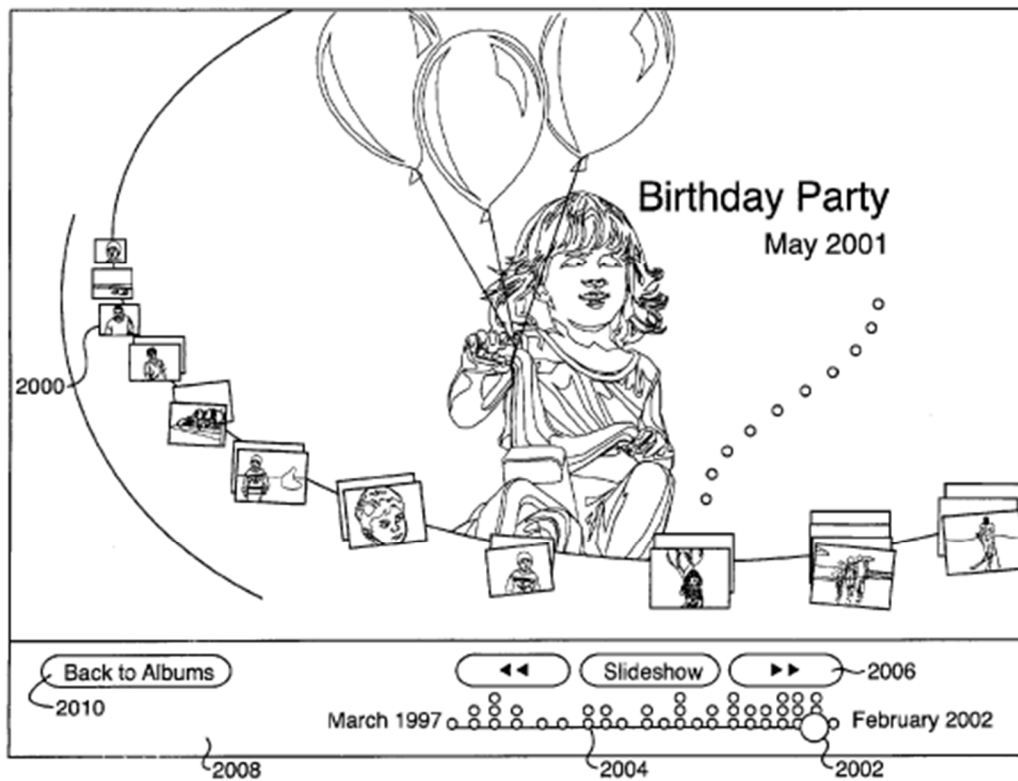


FIG. 20

241. Images are grouped into collections using time criteria as a constraint reflecting, e.g., a recurring, discrete day (e.g., December 25), or a span of hours on a certain day to group images by a certain event (e.g., attendance at “Red Sox games”). *Id.*, 4:19–37, 12:2–6. This process, called “temporal clustering,” permits users to “tweak” the clusters and determine convergence points to include and exclude the appropriate images from a collection (album). *Id.*, 9:24–26, 9:61–64. Thus, in my opinion, a POSITA would have understood that Chao allows a user to update date data information of digital media content because the user has control over the algorithms used to cluster images relevant to a specific date and time-based event on an iterative basis (e.g., refining criteria to correctly converge upon a “Rex Sox game[]” occurring

over certain times of a certain day); therefore users update the date information associated with a given collection of images (album) dedicated to the convergence event. *Id.*, 4:19–47. Additionally, a POSITA would have found it obvious to update date information for certain images. For example, photo organization tools, such as Adobe’s Photoshop Elements’ organizer tool, allowed users to “easily change the date associated with a scanned photo (or any photo) by right-clicking it and choosing Adjust Date And Time.” EX-1039, 24.

242. Further, in my opinion, a POSITA would have been motivated to implement Chao’s user-driven temporal clustering technique to predictably improve the Reavey-Martinez-Proctor device. Chao recognized the need for a system that enabled users to manipulate digital content “in a more natural fashion” that was directed to the convenience of the user. EX-1013, 1:42-49. Thus, a POSITA would have recognized Chao’s teaching would have improved management of content using that device’s computing processes (algorithmic solving) to more intuitively organize images (i.e., photo albums) according to the “superb human capability for remembering events, people, and emotional context” and accommodate “human preference for visual and spatial” characteristics of information beyond the conventional, textual and linguistic characteristics otherwise relied upon to make image organization convenient for machine organization rather than the user recollection and use. EX-1013, 8:12–20, 1:24–49 (describing prior art methods of image organization convenient to the machine rather than the natural inclinations of a human attempting to remember the events

captured in the images).

XI. CONCLUSION

243. I currently hold the opinions expressed in this declaration. But my analysis may continue, and I may acquire additional information and/or attain supplemental insights that may result in added observations.

244. I hereby declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge. I understand that willful false statements are punishable by fine or imprisonment or both. *See* 18 U.S.C. § 1001.

Date: January 30, 2024

By: Henry H. Houh.
Dr. Henry Houh