

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DELL TECHNOLOGIES INC., DELL INC., HP INC., ASUSTEK COMPUTER
INC., AND ASUS GLOBAL PTE. LTD.

Petitioners

v.

LITL LLC
Patent Owner

U.S. Patent No. 9,563,229

**DECLARATION OF ANDREW WOLFE, PH.D. IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO.
9,563,229**

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b)	[1a/18a] a display component;	93
c)	[1b/18b] a base;	95
d)	[1c/18c] an accelerometer configured to generate orientation information indicative of a current [display mode among the plurality of display modes of the portable computer/mode of operation];	96

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- e) [1d/18d] a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least the laptop and easel modes, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode; 103
- f) [1e/18e] an interface between the display component and the base defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;.....107
- g) [1f/18f] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis up to approximately 180 degrees from a closed mode configures the portable computer into the laptop mode, wherein in the laptop mode the display component is oriented towards an operator and a keyboard disposed within the base is oriented to receive input from the operator; 112
- h) [1g/18g] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis beyond approximately 270 degrees from the closed mode transitions the portable computer for viewing in the frame mode or the easel mode, wherein during operation in the frame mode the display component is positioned toward the operator, the base contacts a substantially horizontal surface, and the keyboard is directed towards the substantially horizontal surface, and wherein during operation in the easel mode the display component is oriented facing the operator with the keyboard oriented away from the operator; and.....114

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i)	[1h/18h] wherein the portable computer is configured to detect a transition to at least [one of] the easel mode and the frame mode based on the orientation information, automatically determine a display orientation of content, and disable the keyboard [when/in response to detecting] the portable computer is in the frame mode.	117
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c)	[12b] a base;.....	122
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i)	[12h] wherein the interface is constructed and arranged so that reorienting the portable computer while the display component and the base are in the first position configures the portable computer into the second operating display mode of the plurality of operating display modes, wherein in the second operating display mode the display component is oriented towards an operator of the portable computer, the base lies flat on a substantially horizontal surface, and a keyboard of the base is disabled and disposed towards the substantially horizontal surface, wherein at least a portion of the base is configured to support the portable computer in position when in the second operating display mode, a display orientation of content is automatically changed when transitioning between the first and second operating display modes.	129

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b)	[16a] rotating at least one of the display component and the base of the portable computer about the longitudinal axis to configure the portable computer in at least one of the plurality of display modes, wherein the longitudinal axis is configured to run along the connection between the display component and the base of the portable computer;	162
c)	[16b] positioning at least a portion of the portable computer in a sideways v configuration for operation by a user, responsive to the act of rotating, wherein the act of positioning includes acts of: positioning the display component in an orientation directed towards the user; and positioning the base to lie flat on a surface and support the portable computer in the sideways v configuration;.....	163
d)	[16c] generating, by an accelerometer, orientation information indicative of an orientation of the device;.....	165
e)	[16d] determining a current display mode of the plurality of display modes based on the orientation of the device, including distinguishing between a first display mode and a second display mode of the plurality of display modes where either the display component or the base is rotated about the longitudinal axis beyond approximately 270 degrees from the closed state;.....	165
f)	[16e] executing software protection configured to disable the keyboard when the portable computer is in the sideways v configuration; and	168

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	g)	[16f] displaying computer content and varying the computer content displayed responsive to the orientation information indicating a transition between at least two display modes of the plurality of display modes, wherein the act of varying the computer content includes: enlarging the computer content displayed on the display component responsive to detecting a transition from the first display mode to the second display mode.....	168
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I, Andrew Wolfe, Ph.D., declare as follows:

1. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters stated herein.

2. I have been asked by the petitioners to provide technical assistance in connection with the *inter partes* review of U.S. Patent No. 9,563,229 (which I will refer to as the “’229 Patent”). This declaration is a statement of my opinions on issues related to the patentability of claims 1-12, 14, 16-21, and 23-25 (which I will refer to as the “challenged claims”) of the ’229 Patent.

3. My compensation is not based on the content of my opinions or the resolution of this matter. I have no financial interest in this proceeding.

I. BACKGROUND AND QUALIFICATIONS

4. A full description of my educational background, professional achievements, qualifications, and publications in the past 30+ years are set forth more fully in my curriculum vitae, which has been provided as Exhibit 1004. Here, I provide a brief summary of my background and qualifications.

5. I am the founder and sole employee of Wolfe Consulting. Through Wolfe Consulting, I provide technical and business analytics to businesses on processor technology, computer systems, consumer electronics, software, design tools, data security, cryptography, and intellectual property issues. I have more than thirty-five years’ experience developing products, researching, consulting, and

teaching in those fields. In that time, I have worked as a computer architect, computer system designer, and as an executive in the PC and electronics business. I have also taught at some of the world's leading institutions in those fields, including Stanford University, Princeton University, Carnegie Mellon University, and Santa Clara University.

6. In 1985, I earned the B.S.E.E. degree in Electrical Engineering and Computer Science from the Johns Hopkins University. In 1987, I received the M.S. degree in Electrical and Computer Engineering from Carnegie Mellon University and in 1992, I received the Ph.D. degree in Computer Engineering from Carnegie Mellon University. My doctoral dissertation proposed a new approach for the architecture of a computer processor.

7. I have more than 35 years of experience as a computer architect, computer system designer, personal computer graphics designer, educator, and executive in the electronics industry.

8. I have extensive experience in the design, development, and analysis of portable computing devices including portable PCs. In the mid-late 1980s, I worked as part of the development team for the Linus Write-Top, which is commonly acknowledged to be the first commercial tablet computer. I later worked on screen technology for many handheld computing devices including the Motorola Envoy and prototypes for the Apple Newton. In 1997, I was hired to run

the research efforts at S3, Inc. At the time S3 produced the 3D graphics hardware and driver software for more than half of new PCs, worldwide. I managed our display technology group. I led the development of components for laptop computers including the IBM Thinkpad and for desktop computers as well. I also worked with the teams that developed the FrontPath wireless tablet PC and the Diamond Mako handheld computer.

9. In these roles, I managed relationships with numerous laptop computer companies including IBM, Toshiba, and Compaq as well as key software providers such as Microsoft.

10. I have consulted, formally and informally, for a number of fabless semiconductor companies. In particular, I have served on the technology advisory boards for two media processor design companies: BOPS, Inc., where I chaired the board, and Siroyan Ltd., where I served in a similar role; for three networking chip companies – Intellon, Inc., Comsilica, Inc., and Entridia, Inc.; and for one 3D game accelerator company, Ageria, Inc.

11. I have also served as a technology advisor to Motorola and to several venture capital funds in the U.S. and Europe. Currently, I am a director at Turtle Beach Corporation, providing guidance in its development of commercial electronic products primarily related to video gaming.

12. From 1991 through 1997, I served on the Faculty of Princeton University as an Assistant Professor of Electrical Engineering. At Princeton, I taught undergraduate and graduate-level courses in Computer Architecture, Advanced Computer Architecture, Display Technology, and Microprocessor Systems, and I conducted sponsored research in the area of computer systems and related topics. From 1999 through 2002, I taught a Computer Architecture course to both undergraduate and graduate students at Stanford University multiple times as a Consulting Professor. At Princeton, I received several teaching awards, both from students and from the School of Engineering. I have also taught advanced microprocessor architecture to industry professionals in IEEE and ACM sponsored seminars. I am currently a lecturer at Santa Clara University teaching courses on Microprocessor Systems, Advanced Logic Design, Real-Time Computing, and Mechatronics. Among other things, I teach about the operation and use of accelerometers for determining orientation.

13. I have published more than fifty peer-reviewed papers in computer architecture and computer systems. I have also chaired IEEE and ACM conferences in microarchitecture and integrated circuit design and served as an associate editor for IEEE and ACM journals. I served on the IEEE Computer Society Awards committee. I am an IEEE Fellow and an IEEE Computer Society Distinguished Contributor. I am a named inventor on at least fifty-seven U.S.

patents and thirty-seven foreign patents, including patents related to display technology.

14. I have been the invited keynote speaker at the ACM/IEEE International Symposium on Microarchitecture and at the International Conference on Multimedia. I have also been an invited speaker on various aspects of technology or the PC industry at numerous industry events including the Intel Developer's Forum, Microsoft Windows Hardware Engineering Conference, Microprocessor Forum, Embedded Systems Conference, Comdex, and Consumer Electronics Show as well as at the Harvard Business School and the University Illinois Law School. I have been interviewed on subjects related to technology and the electronics industry by publications such as the Wall Street Journal, New York Times, LA Times, Time, Newsweek, Forbes, and Fortune as well as CNN, NPR, and the BBC. I have also spoken at dozens of universities including MIT, Stanford, University of Texas, Carnegie Mellon, UCLA, University of Michigan, Rice University, and Duke University.

II. MATERIALS CONSIDERED

15. In preparation of this declaration, I have considered the materials discussed in this declaration, including, for example the '229 Patent, the prosecution history of the '229 Patent, and the prosecution histories of the two

parent patents from which the '229 Patent is a continuation: U.S. Patent No. 8,298,688 (the "'688 Patent") and U.S. Patent No. 8,624,844 (the "'844 Patent").

16. In particular, I have reviewed and considered the following documents, among others, in connection with my analysis of the '229 Patent:

- EX1001: The '229 Patent;
- EX1002: The prosecution history of U.S. Patent Application No. 13/651,636, which led to the issuance of the '229 Patent;
- EX1005: PCT International Patent Application Publication No. WO 95/24007 ("Lane");
- EX1006: Japanese Patent Application Publication No. 2006-243137 to Fujinawa;
- EX1007: Certified English Translation of JP 2006-243137 ("Fujinawa");
- EX1008: U.S. Patent Application Publication No. US 2005/0122318 ("Tonouchi");
- EX1009: German Patent Application Publication No. DE10331185A1 to Pröll-Wagenbuechler, et al.
- EX1010: Certified English Translation of DE10331185A1 ("Pröll");
- EX1011: U.S. Patent No. 6,724,403 ("Santoro");
- EX1012: "MIT's \$100 Laptop," TechPowerUp (Sept. 28, 2005);

- EX1013: “\$100 Laptop Idea Taking Off,” TechTalk (Vol. 50, No. 4, October 5, 2005);
- EX1014: Advertisement in *InfoWorld, The Newsweekly for Microcomputer Users*, Vol. 4, No. 43 (November 22, 1982);
- EX1015: Advertisement in *BYTE* (September 1990);
- EX1016: UK Patent Application No. GB2321982A (“Välikangas”);
- EX1017: Chinese Patent Application No. CN2627170Y;
- EX1018: Certified English Translation of CN2627170Y (“Lin”);
- EX1019: U.S. Patent Application Publication 2006/0034042 (“Hisano”);
- EX1020: U.S. Patent No. 6,154,359 (“Kamikakai”);
- EX1021: U.S. Patent No. 7,768,508 (“Okuley”);
- EX1022: U.S. Patent No. 5,949,408 (“Kang”);
- EX1023: U.S. Patent No. 7,688,306 (“Wehrenberg”);
- EX1024: U.S. Patent No. 2,880,617 (“Cotton”);
- EX1025: U.S. Patent No. 6,851,711 (“Goertzen”);
- EX1026: U.S. Patent No. 7,408,506 (“Miller”);
- EX1027: PCT International Patent Application Publication No. WO 2007/010481 (“Digon”);
- EX1028: U.S. Patent Application Publication No. 2004/0066302 (“Menard”);

- EX1029: U.S. Patent No. 6,230,564 (“Matsunaga”);
- EX1030: U.S. Patent Application Publication No. 2005/0155184 (“Kayl”);
- EX1031: European Patent Application No. EP1640855A2 (“Herberger”);
- EX1032: U.S. Patent No. 5,941,965 (“Moroz”);
- EX1033: U.S. Patent No. 6,407,914 (“Helot”);
- EX1034: U.S. Patent No. 9,429,992 (“Ashenbrenner”);
- EX1035: U.S. Patent No. 7,342,783 (“Park”);
- EX1036: “Precise Selection Techniques for Multi-Touch Screens,” CHI 2006 Proceedings—Interacting with Large Surfaces, Montreal, Quebec, Canada (April 22-27, 2006);
- EX1037: Appeal Brief Under 37 CFR 41.37 in *Ex Parte* Reexamination of U.S. Patent No. 8,289,688 (Appl. No. 90/015,035);
- EX1038: Non-Final Office Action dated December 28, 2022 in *Ex Parte* Reexamination of U.S. Patent No. 8,289,688 (Appl. No. 90/015,035);
- EX1039: Notice of Intent to Issue *Ex Parte* Reexamination Certificate in *Ex Parte* Reexamination of U.S. Patent No. 8,624,844 (Appl. No. 90/014,965);

- EX1040: Response to Final Office Action in *Ex Parte* Reexamination of U.S. Patent No. 8,624,844 (Appl. No. 90/014,965);
- EX1041: Response to Office Action in *Ex Parte* Reexamination of U.S. Patent No. 8,624,844 (Appl. No. 90/014,965);
- EX1042: Complaint in *LiTL LLC v. HP Inc.*, (Case No. 1:23-cv-00120);
- EX1043: Complaint in *LiTL LLC v. Dell Technologies, Inc. and Dell Inc.* (Case No. 1:23-cv-00121);
- EX1044: Complaint in *LiTL LLC v. ASUSTeK Computer, Inc., et al.* (Case No. 1:23-cv-00122);
- EX1045: “At Velcro Mill, The Ideas Keep Coming,” *The New York Times*, (July 12, 1987); and
- EX1048: “The \$100 laptop moves closer to reality,” *CNet News.com* (Sept. 28, 2005) (“MIT”).

17. My analysis and opinions are further based on my education, training, experience, and knowledge in the relevant field.

III. RELEVANT LEGAL STANDARDS

18. I am not an attorney. For the purposes of this declaration, I have been informed by counsel for the petitioners about certain aspects of the law that are relevant to forming my opinions. My understanding of the relevant law is as follows.

A. Burden of Proof

19. I understand that the petitioner in an *inter partes* review proceeding must demonstrate unpatentability by a preponderance of the evidence. I understand preponderance means more likely than not in this context.

B. Legal Standards for Prior Art

20. I understand that a patent or other publication must first qualify as prior art before it can be used to invalidate a patent claim.

21. I understand that a U.S. or foreign patent qualifies as prior art to a challenged patent if the date of issuance of the patent is prior to the invention of the challenged patent.

22. I further understand that a printed publication, such as an article published in a magazine or trade publication, qualifies as prior art to a challenged patent if the date of publication is prior to the invention of the challenged patent.

23. I understand that a U.S. or foreign patent also qualifies as prior art to a challenged patent if the date of issuance of the patent is more than one year before the filing date of the challenged patent.

24. I further understand that a printed publication, such as an article published in a magazine or trade publication, constitutes prior art to a challenged patent if the publication occurs more than one year before the filing date of the challenged patent.

25. I also understand that a U.S. patent qualifies as prior art to the challenged patent if the application for that patent was filed in the United States before the invention of the challenged patent.

C. Person of Ordinary Skill in the Art

26. I understand that my assessment of the claims of the challenged patent and the teachings of the prior art and my analysis and opinions herein must be undertaken from the perspective of what would have been known or understood by a person having ordinary skill in the art, reading the challenged patent on its priority date and in light of the specification and file history of the patent. I may refer to such a person as a “POSITA.”

27. I further understand that in determining the level of ordinary skill in the art, I may consider factors including:

- (a) the type of problems encountered in the art or field of invention,
- (b) prior art solutions to those problems,
- (c) the rapidity with which innovations are made,
- (d) sophistication of the technology, and
- (e) the educational level of active workers in the field.

28. I understand that a person of ordinary skill in the art, or POSITA, is not a specific real individual, but rather a hypothetical individual having the qualities reflected by the factors above. This hypothetical person has knowledge of

all prior art in the relevant field and takes from each reference what it would teach to a person having the skills of a POSITA.

D. Anticipation

29. I understand that a patent claim may be “anticipated” if each element of that claim is present either explicitly or inherently in a single prior art reference, and that the elements should be arranged in the reference as in the claim. I understand that for a claimed limitation to be inherently present, the prior art reference need not expressly disclose the limitation so long as the claimed limitation necessarily flows from a disclosure in the reference.

E. Obviousness

30. I understand that a patent claim can be considered to have been obvious to a person of ordinary skill in the art at the time of the claimed invention. This means that, even if all of the requirements of a claim are not found in a single prior art reference, the claim is not patentable if the differences between the prior art and the subject matter in the claim would have been obvious to a person of ordinary skill in the art at the time of the claimed invention.

31. I understand that a person of ordinary skill in the art provides a reference point from which the prior art and claimed invention should be viewed. This reference point prevents one from using his or her own insight or hindsight in deciding whether a claim is obvious.

32. I also understand that an obviousness determination includes the consideration of various factors such as (1) the scope and content of the prior art, (2) the differences between the prior art and the asserted claims, (3) the level of ordinary skill in the pertinent art, and (4) the existence of secondary considerations such as commercial success, long-felt but unresolved needs, failure of others, etc.

33. I understand that an obviousness evaluation can be based on a combination of multiple prior art references.

34. I also understand that the prior art references themselves may provide a suggestion, motivation, or reason to combine, but other times the nexus linking two or more prior art references is simple common sense.

35. I further understand that obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references may be supplied by the direction of the marketplace.

36. I understand that if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

37. I also understand that practical and common-sense considerations should guide a proper obviousness analysis, because familiar items may have

obvious uses beyond their primary purposes. I further understand that a person of ordinary skill in the art looking to overcome a problem will often be able to fit together the teachings of multiple publications. I understand that obviousness analysis therefore takes into account the inferences and creative steps that a person of ordinary skill in the art would employ under the circumstances.

38. I understand that a particular combination may be proven obvious merely by showing that it was obvious to try the combination. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp because the result is likely the product not of innovation but of ordinary skill and common sense.

39. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, the patent claim is likely obvious.

40. It is further my understanding that a proper obviousness analysis focuses on what was known or obvious to a person of ordinary skill in the art, not

just the patentee. Accordingly, I understand that any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

41. I understand that a proposed obviousness combination does not need to be the preferred, or most desirable, combination available, in order to render a claim obvious. Instead, there must be something that suggests the desirability of the proposed combination, not necessarily something that suggests that the proposed combination is the most desirable combination available.

42. Similarly, I understand that for purposes of obviousness, when a motivating benefit comes at the expense of another benefit, that does not nullify the proposed obviousness combination or modification. Likewise, a proposed obviousness combination does not fail merely because it may be inferior to other systems used for the same use.

43. I also understand that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements between the multiple references. Likewise, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Instead, the test is whether a claim is rendered obvious by the teachings of the prior art as a whole.

44. I understand that a claim can be obvious in light of a single reference, without the need to combine references, for example, if elements of the claim that are not found explicitly or inherently in the reference can be supplied by the common sense of one of skill in the art.

45. I understand that in considering obviousness, I should keep in mind that a person of ordinary skill in the art has ordinary creativity and is not an automaton.

46. I understand that in considering obviousness, it is improper to determine obviousness using the benefit of hindsight derived from the patent being considered.

47. I understand that secondary indicia of non-obviousness may include: (1) a long felt but unmet need in the prior art that was satisfied by the invention of the patent; (2) commercial success of processes covered by the patent; (3) unexpected results achieved by the invention; (4) praise of the invention by others skilled in the art; (5) taking of licenses under the patent by others; (6) deliberate copying of the invention; (7) failure of others to find a solution to the long felt need; and (8) skepticism by experts.

48. I also understand that there must be a relationship between any such secondary considerations and the invention. I further understand that

contemporaneous and independent invention by others is a secondary consideration supporting an obviousness determination.

49. In sum, my understanding is that prior art teachings are properly combined where a person of ordinary skill in the art having the understanding and knowledge reflected in the prior art and motivated by the general problem facing the inventor, would have been led to make the combination of elements recited in the claims. Under this analysis, the prior art references themselves, or any need or problem known in the field of endeavor at the time of the invention, can provide a reason for combining the elements of multiple prior art references in the claimed manner.

F. Priority/Written Description

50. Counsel has informed me that it is elementary patent law that a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the full scope of the claims of the later application, as required by 35 U.S.C. § 112. Counsel has also informed me that when a priority claim involves a chain of priority documents, each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112. Petitioners' counsel has informed me that, to satisfy the written description requirement of 35 U.S.C. § 112, the disclosure of the earlier filed application must

convey with reasonable clarity to those skilled in the art that, as of the filing date sought, the inventor was in possession of the invention. Petitioners' counsel has informed me that a prior application that merely renders the later-claimed invention obvious is not sufficient to meet the written description requirement—it must describe the claimed invention with all its limitations. Similarly, Petitioners' counsel has informed me that it is not sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to modifications that the inventor might have envisioned, but failed to disclose.

51. Counsel has informed that even when each element may be individually described in the specification, the lack of adequate description of their combination renders those claimed combinations invalid under § 112. Petitioners' counsel has informed me that it is not enough that an applicant may show where each claimed element resides in the earliest filed application but instead must also provide support for the linkage of the claimed elements creating the embodiment. Counsel has informed me that a patent owner cannot show written description support by picking and choosing claim elements from different embodiments that are never linked together in the specification. Counsel has informed me that a description that merely renders the invention obvious does not satisfy the written description requirement.

IV. TECHNICAL BACKGROUND

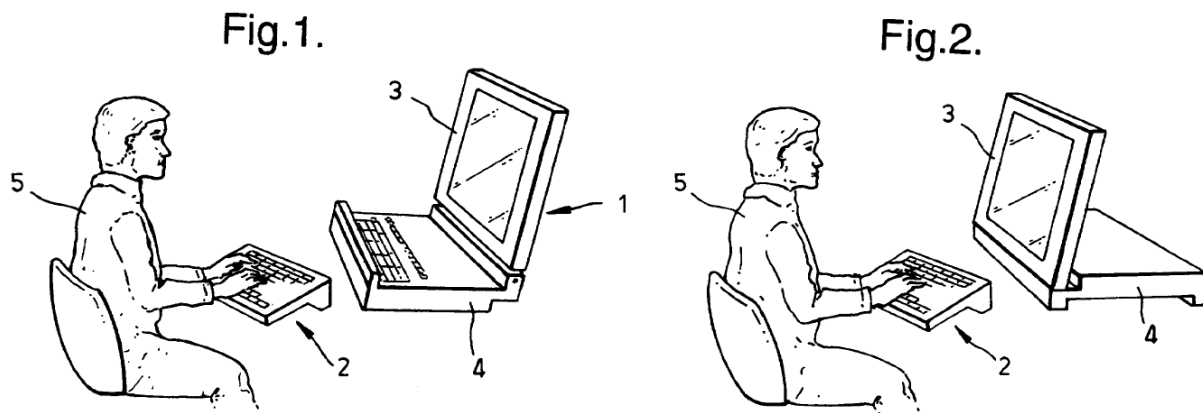
52. The '229 Patent is “relate[d] generally to portable computers and, more particularly, to a portable computer that is configurable into different functional and positional modes.” EX1001, 1:27-30. Such portable computers that could be configured into “different functional and positional modes” were well known prior to the claimed priority date of the '229 Patent in 2008.

A. Configurable Portable Computers

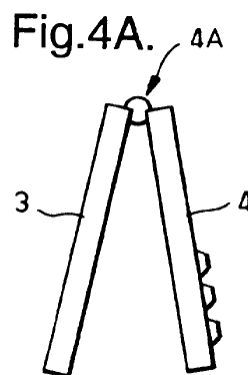
53. Portable laptop (or notebook) computers were known for decades before the '229 Patent. EX1014 (advertisement for Epson HX-20). Many models had a base and a display connected by a hinge assembly that would allow the user to rotate the display from a closed position past 90 degrees to an open, desktop-like position for use. This design is sometime called a “clamshell” design. Early examples of this design included the Dell 316LT laptop and Toshiba’s T3100SX laptop, both available in the late 1980s and early 1990s. EX1015.

54. By the early 2000s, computer manufacturers had begun developing portable computers that could be opened past 180 degrees into multiple different configurations. For example, Fujitsu described such a notebook computer in a 2004 patent application filed in the UK. EX1016 (Välikangas). The Fujitsu application explained that a conventional notebook computer could be used with an external keyboard as shown in Figure 1, but that in such a configuration the user

would be too far from the computer screen. EX1016, 4. To address this problem, Fujitsu's notebook computer had a "screen...capable of rotating through 270° about its hinge from the closed position" so that the notebook computer could be "placed with its integral keyboard face down on a work surface thereby permitting location of the external keyboard nearer the screen." EX1016, 1; *see also* EX1016, 5-7.



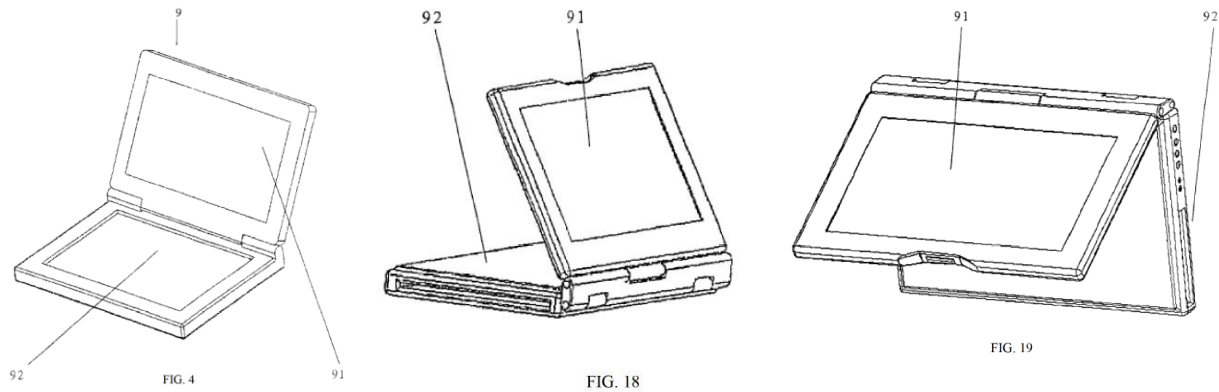
EX1016, Figs. 1-2. "Alternatively, with the screen open to an angle of 270° the notebook can be stood on its ends in an 'A' shaped configuration," as illustrated in Figure 4A. EX1016, 1; *see also* EX1016, 8.



EX1016, Fig. 4A.

55. Another example is discussed in a Chinese patent that was filed in 2003 and issued in 2004. EX1018 (“Lin”). This patent shows a portable device such as a “notebook computer” or “portable video player” in which a display screen and an operating surface are connected via a double-hinge assembly.

EX1018, 6:7-10, 6:23-27. The display screen can open to any angle between 0 and 360 degrees. EX1018, 6:43.



EX1018, Figs. 4, 18, 19. Figure 4 shows the notebook computer in a standard “opened” configuration. EX1018, 5:18-19. Figures 18 and 19 show that the portable computer can be rotated beyond 180 degrees, up to 360 degrees, and placed in different configurations. EX1018, 7:11-18.

56. Toshiba filed a U.S. patent application in 2005 (claiming priority to a 2004 Japanese application) describing another portable computer that could be put in multiple different configurations. EX1019 (“Hisano”). This laptop included a virtual keyboard that is displayed on one of two display panels, rather than having

a conventional mechanical keyboard. EX1019 ¶¶[0054], [0058]. The two display panels are included in housings that are rotatably coupled to one another to allow them to rotate beyond 180 degrees. EX1019 ¶¶[0054], [0058], [0087], [0098].

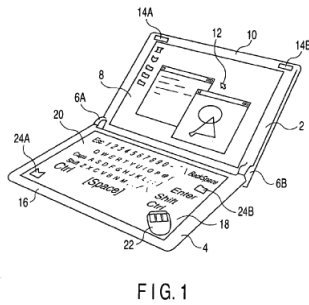


FIG. 8

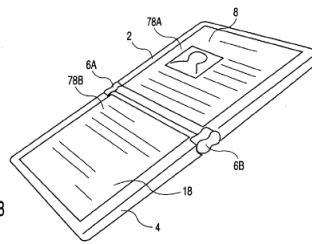
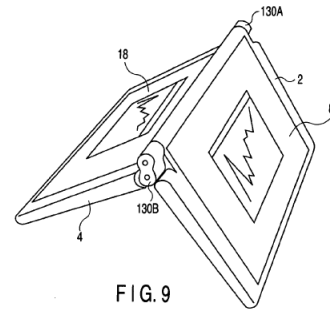


FIG. 9



EX1019, Figs. 1, 8, and 9.

57. A much earlier patent, issued to Fujitsu in 2000 but claiming priority to a 1996 Japanese patent application, showed a portable computer with hinges allowing the screen to fold beyond 180 degrees into a position in which the keyboard is oriented down toward the desktop and the screen is facing the user.

EX1020 (“Kamikakai”).

FIG. 3

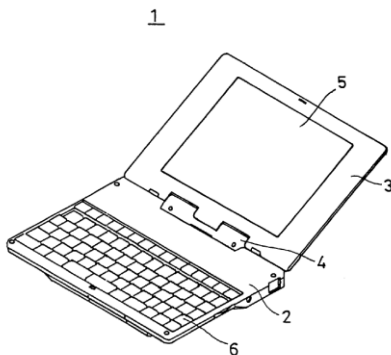
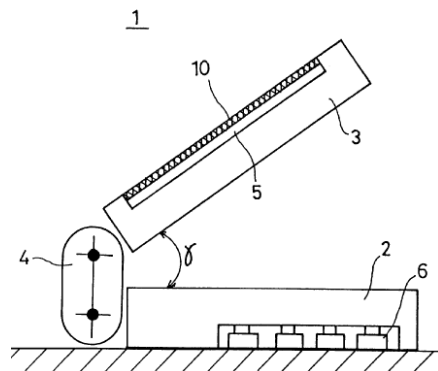


FIG. 8



EX1020, Figs. 3 and 8.

58. Intel Corporation filed a patent application in 2006 (that later issued in 2010) describing a “notebook PC” that can be configured into a “television form factor” as well as a “tablet PC form factor.” EX1021 (“Okuley”), 2:53-58.

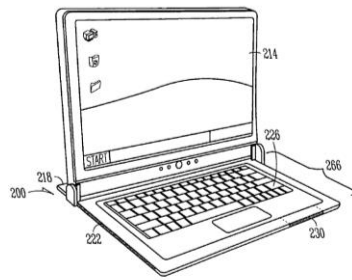


FIG. 2A

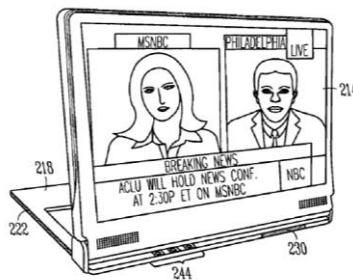


FIG. 2B

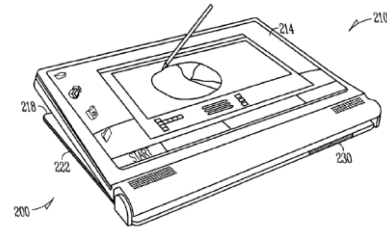


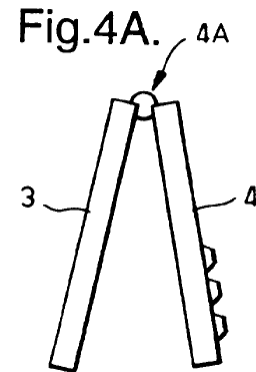
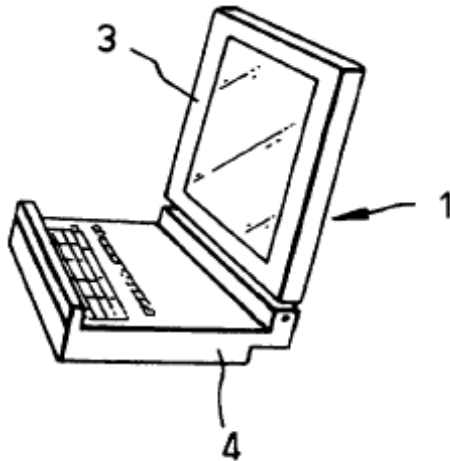
FIG. 2C

EX1021, Figs. 2A, 2B (partial), and 2C.

59. Thus, multiple examples of configurable laptop computers were known in the industry well before the '229 Patent.

B. Using Sensors to Reorient the Display

60. Industry participants and researchers recognized that a physically reconfigurable laptop computer would need to adjust the user interface (or graphical/textual display) to reorient to match the position of the hardware. For example, I discussed a Fujitsu patent application above that described a notebook computer that could be reconfigured from a standard, desktop-like mode with the hinge assembly near the desktop to an “A” shaped configuration with the hinge assembly at the top.



EX1016, Fig. 1 (partial), Fig. 4A. Fujitsu noted that, regarding the “A” shaped configuration in Figure 4A, “[i]n this mode the screen display needs inverting.” EX1016, 1; *see also* EX1016, 5 (As illustrated in Figure 4A, “the angle will be greater than 270° and the image will need reversing, top to bottom.”).

61. The display also needs to be reoriented when the device is shifted from landscape to portrait view, as discussed in a Hewlett-Packard patent from 1999 (based on a 1997 application). EX1022 (“Kang”). That patent described a “computer device, for instance a palmtop personal organizer, [that] has a dual-orientation display device with both portrait and landscape modes of viewing the display.” EX1022, Abstract.

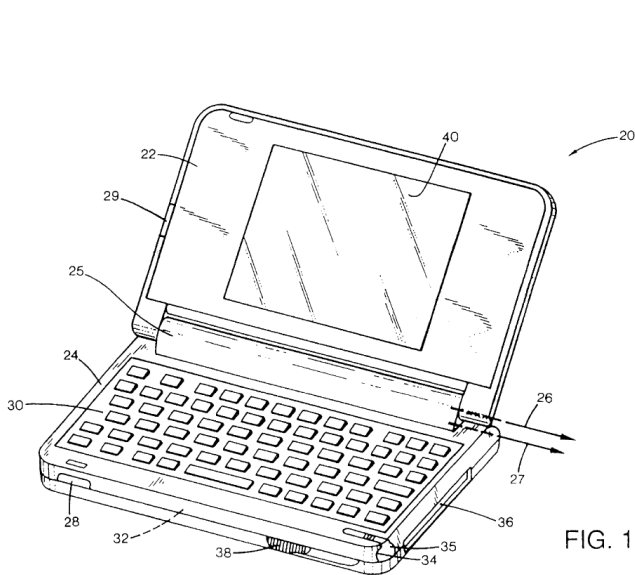


FIG. 1

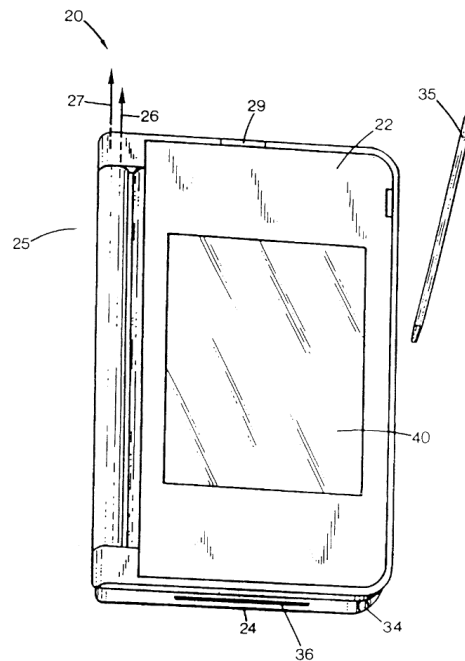


FIG. 2

EX1022, Figs. 1-2. The LCD screen on this device is composed of “row electrodes” and “column electrodes.” EX1022, 10:12-20. To rotate the screen 90 degrees from landscape to portrait (or vice versa), the device effectively swaps its control of the row electrodes and column electrodes, causing a reorientation of the image displayed on the screen. EX1022, 10:21-31.

62. The Toshiba patent application I discussed above also recognized that the content displayed on the screen may need to be reoriented when the portable computer is physically reoriented, for example from the configuration in Figure 1 to the configuration in Figure 9.

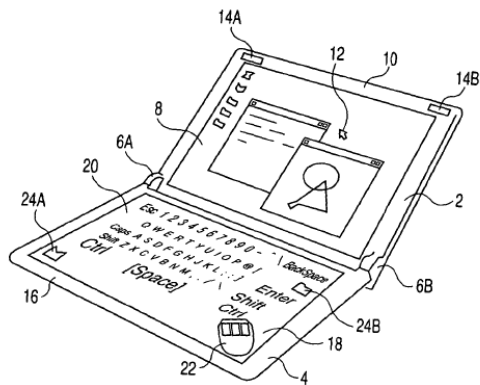


FIG. 1

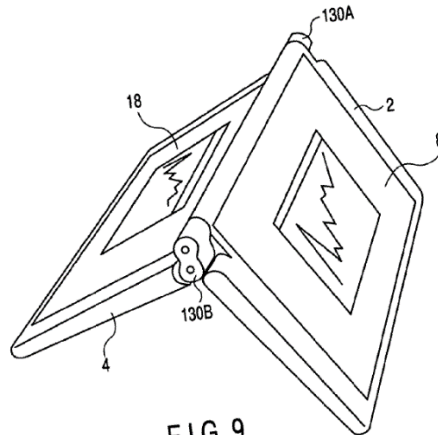


FIG. 9

EX1019, Figs. 1 and 9. The Toshiba inventors recognized that the displayed content could be flipped based on the angle of the device's hinges: "the rotating angle of the hinges 130A and 130B may be used to switch between the display of a side of the screen closer to the hinges as the top and the display of a side of the screen farther from the hinges 130A and 130E as the top." EX1019 ¶[0099]. Alternatively, the display could be flipped based on input from a gravity sensor: "Further, the personal computer may comprise a sensor that senses the direction of gravity so as to automatically switch the top and bottom of the display screen regardless of the angle of the hinges 130A and 130B or the placement of the personal computer." EX1019 ¶[0099].

63. A person of ordinary skill in the art¹ would have known to use sensors to detect the orientation of a configurable computer to assist the operating system or other software in correctly orienting the user interface or displayed content. For

¹ I describe such a person below in Section III.C.

example, Apple filed a patent application in 2004 (that issued in 2010) entitled “Methods and Apparatuses for Operating a Portable Device Based on an Accelerometer.” EX1023 (“Wehrenberg”). The Apple patent states that “an accelerometer has been used within a portable device, such as, for example, a laptop computer [or] a tablet PC...” EX1023, 3:54-58. The accelerometer “may constantly or periodically monitor the movement of the portable device” and “may be used to detect a movement of a portable device and an orientation of the portable device may be determined based on the movement data provided....” EX1023, 7:28-30, 14:42-43. The orientation information can be used to change the display. For example, the patent states that “certain movements may be used to ‘zoom in’ or ‘zoom out’ on the displayed page...[f]or example, a user may tilt up the portable device as a way to zoom out and may tilt down the device as a way to zoom in.” EX1023, 11:43-52. Figure 5A illustrates various directions in which a device may be tilted in order to zoom in or out:

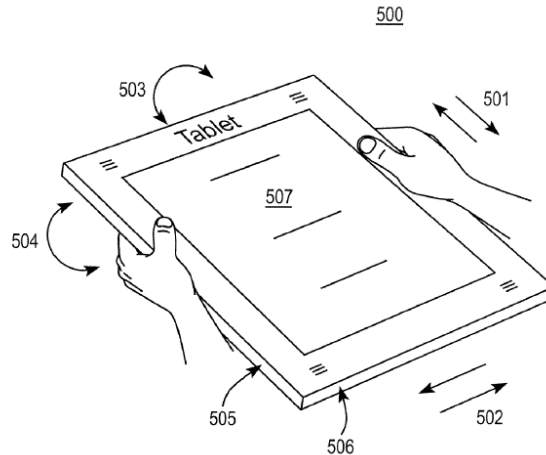


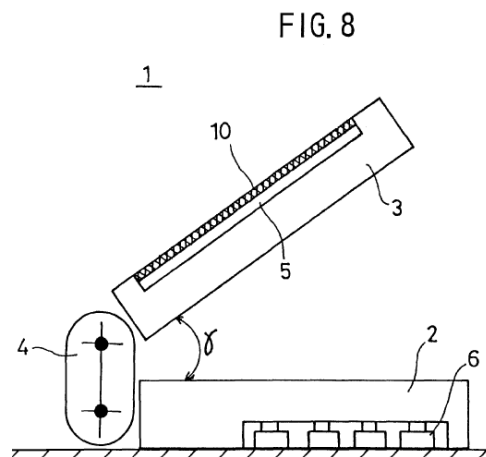
Fig. 5A

EX1023, Fig. 5A.

64. Various accelerometers (as used in the Apple patent) were known in the art before the '229 Patent. Accelerometers were widely available before 2008 and used in various electronic products. EX1023. A mercury switch (which I will discuss further below) is one type of accelerometer. EX1024, 1:34-35 (referring to “an accelerometer, such as a mercury switch”); EX1025, 5:3-7 (“accelerometer 204 can be an appropriately damped pendulum mercury switch”); EX1026, 3:12-16 (“Accelerometer 114 is a device that measures the acceleration of a moving body, such as, for example, the acceleration of the mobile device... [it] may be in the form of a motion-triggered switch (i.e., a mercury switch, a micro-electronic mechanical switch, etc.).”).

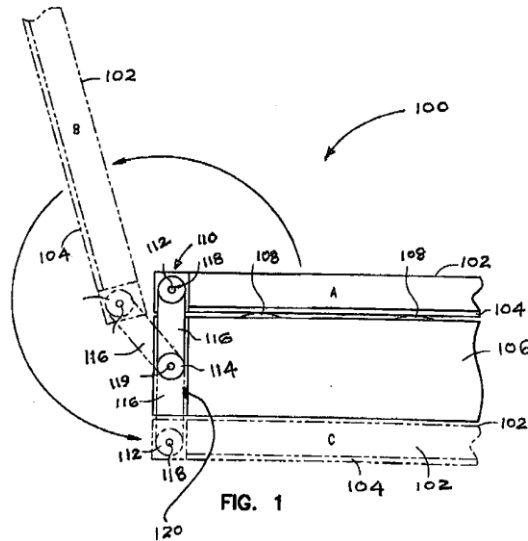
C. Keyboard Deactivation

65. Industry participants and researchers recognized that in some configurations it would be beneficial to selectively disable the laptop's keyboard to prevent unintended text entry. For example, the 2000 Fujitsu patent I discussed above described a “mechanism for disabling the keyboard 6” when the keyboard is inaccessible (for example, facing the desktop as in Figure 8) “to prevent erroneous manipulation of the keyboard 6 and to prevent erroneous inputs from the keyboard 6....” EX1020, 6:51-67.



EX1020, Fig. 8.

66. Gateway, Inc. filed a patent application in 2004 (that published in 2005) describing a “mobile computer hinge assembly” that “allows a mobile display panel to rotate substantially 360 degrees....” EX1030 (“Kayl”) ¶[0005]. The hinge assembly allows “the lid 102 to be opened and closed in order to allow access to a keyboard and mouse....” EX1030 ¶[0020].



EX1030, Fig. 1. The figure shows lid 102, including display panel 104, in three different positions: closed (A), a first operative position (B), and a second operative position (C). EX1030 ¶[0010]. “When the lid 102 of the mobile electronic device 100 is in the closed position (A), the display panel 104 is on top of and facing towards the chassis 101” as shown in the figure. EX1030 ¶[0021]. “When the lid 102 is in the first operative position (B), the display panel 104 is angled for viewing by a user of the mobile electronic device” as illustrated. EX1030 ¶[0021]. “When the lid 102 is in the second operative position (C), the display panel 104 is underneath and facing away from the chassis 101” and a pressure switch is activated to “disable the keyboard and mouse.” EX1030 ¶[0021].

67. The Hewlett-Packard patent I discussed above describing display rotation from landscape to portrait also discloses partially disabling the keyboard

when the device is in portrait mode. EX1022 9:33-41; *see also* EX1022, Abstract (“The keyboard is automatically disabled when the portrait mode is selected by a user.”). This is to prevent the user from mistakenly entering data via the keyboard. EX1022, 9:21-23.

V. TECHNICAL ANALYSIS OF THE '229 PATENT

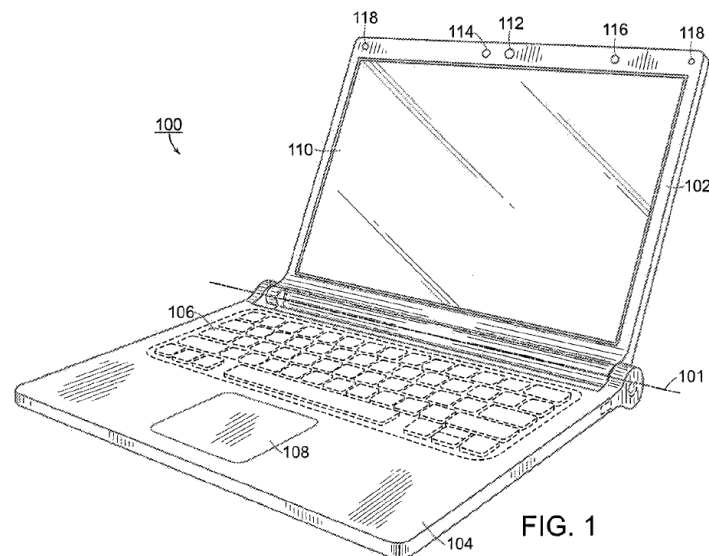
A. Overview of the Patent Specification

68. The '229 Patent is entitled “Portable Computer with Multiple Display Configurations.” EX1001, cover. The patent issued on February 7, 2017, and it claims priority to two patent applications filed on July 10, 2008, and a provisional patent application filed on April 1, 2008. The patent relates to a “portable computer that is configurable between a plurality of display modes.” EX1001, Abstract.

69. The '229 Patent states that “[c]onventional portable computers most commonly have a ‘clam-shell’ configuration, with a base including the keyboard, various ports, connectors and/or inputs...and a display component pivotably coupled to the base by a hinge.” EX1001, 1:34-42. The patent describes prior art computers that were “capable of operating either as a normal laptop computer receiving user input via a keyboard (‘laptop mode’), or as a tablet computer receiving user input via a touch screen.” EX1001, 1:51-55. In such prior art computers, “the display component of the computer is attached to the base of the

computer by hinges that allow the display to be tilted relative to the base (for laptop mode), and to be rotated and folded against the base to configure the computer into tablet mode.” EX1001, 1:55-60.

70. The '229 Patent purports to add to these prior art configurations, describing “a portable computer” that “is configurable between various modes, including a closed mode, a laptop mode, an easel mode, a flat mode and a frame mode.” EX1001, 2:34-37. The patent contains figures illustrating each of these modes. For instance, Figure 1 shows the portable computer of the '229 Patent in laptop mode. EX1001, 6:49-52.



EX1001, Fig. 1. In laptop mode, display component 102 is “inclined at a viewing angle from the base 104.” EX1001, 6:49-52.

71. Figure 2 shows the portable computer of the '229 Patent in closed mode. EX1001, 7:20-21.

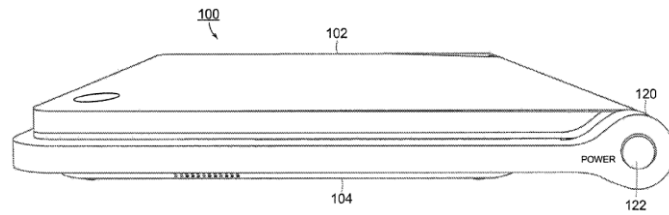


FIG. 2

EX1001, Fig. 2. In closed mode, the angle between display component 102 and base 104 is zero, and “the display screen is disposed ‘face down’ against the keyboard of the base 104.” EX1001, 7:22-25.

72. Figures 4 shows the portable computer of the '229 Patent in easel mode. EX1001 at 8:5-6.

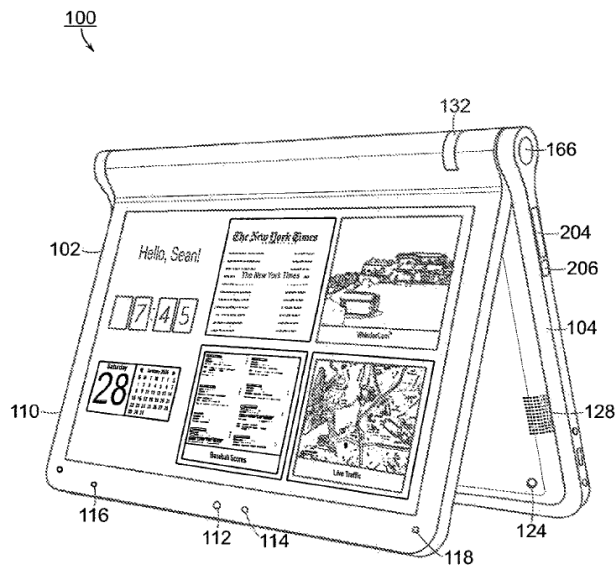


FIG. 4

EX1001, Fig. 4; *see also* Fig. 5 (depicting the portable computer in easel mode).

In easel mode, “base 104 and the display component 102 form an inverted ‘V’

shape with the bottom of the base and the back of the display component fac[ing one] another,” as illustrated in Figure 4. EX1001, 8:6-15.

73. Figure 26 shows the portable computer of the '229 Patent in frame mode. EX1001, 16:44-49.

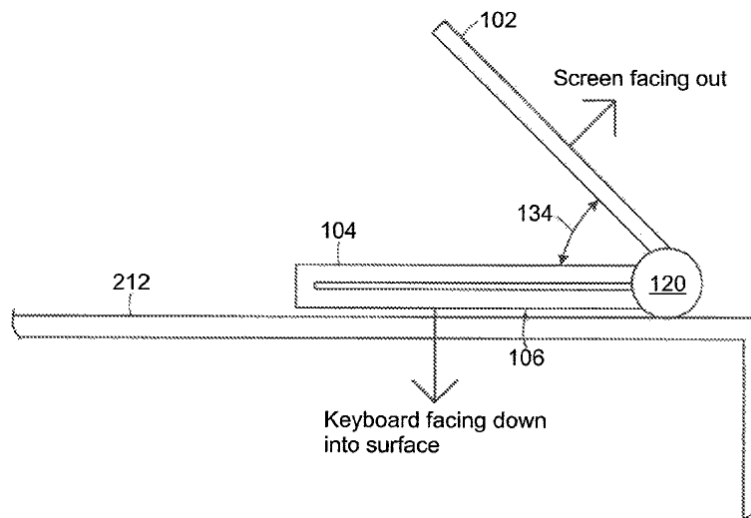


FIG. 26

EX1001, Fig. 26. In frame mode, display component 102 and base 104 are separated by a similar angle 134 as in the easel mode, but “the portable computer is placed on a surface 212 with the keyboard 106 ‘face down’ on the surface 212 and the display 110 facing upward,” rather than being placed in the inverted V of the easel mode. EX1001, 16:44-57.

74. Figure 27 shows the portable computer of the '229 Patent in flat mode. EX1001, 16:62-64.

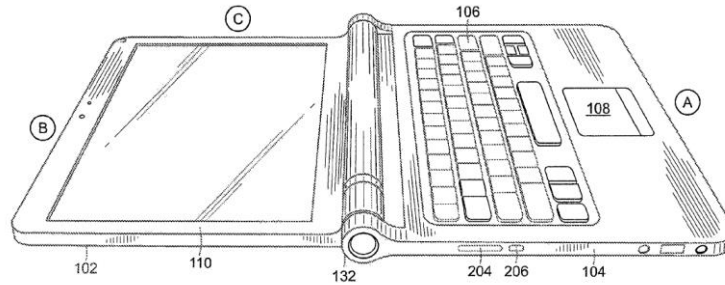


FIG. 27

EX1001, Fig. 27. In flat mode, display component 102 and base 104 are “rotated (or opened) to approximately 180 degrees with respect to” one another, “such that the base component and display component lay flat on a surface, with the keyboard 106 and display screen 110 exposed....” EX1001, 16:64-17:2.

75. In some of these display modes, the '229 Patent describes rotating the information displayed on display screen 110 “such that the information appears ‘right-way-up,’ even though the display screen is upside-down compared to when the portable computer is in the laptop mode.” EX1001, 8:31-36. In addition, in some modes, the portable computer of the '229 Patent can be configured to permit a user to rotate the information displayed (automatically or manually) by 90 or 180 degrees. EX1001, 17:12-28.

76. The '229 Patent describes including an orientation sensor, such as an accelerometer, in the display or base. EX1001, 8:41-59, 9:58-64. The orientation sensor provides an indication of orientation of the display, which may trigger inversion or flipping of the display. EX1001, 8:41-59. The patent acknowledges

that such accelerometers were known in the art and that it was conventional to use the output of the accelerometer “to switch the display between portrait and landscape mode” prior to the patent’s earliest priority date in 2008. EX1001, 8:60-63, 9:3-7.

B. The Prosecution History

77. The ’229 Patent was issued based on Patent Application No. 13/651,636, which was filed on October 15, 2012. The application contained 19 claims, including 3 independent claims (i.e., application claims 1, 13, and 17).

78. On September 19, 2014, the examiner issued an Office Action rejecting all application claims. EX1002, 604-612. The examiner rejected most of the application claims (i.e., claims 1, 4-10, and 12-18) as anticipated by U.S. Patent Application Publication No. 2005/0134717 (“Misawa”). EX1002, 605-609. The examiner rejected the remaining claims as obvious over Misawa alone or combined with Japanese Patent Application Publication No. 08-179851 (“Takagi”) or U.S. Patent Application Publication No. 2005/0221865 (“Nishiyama”). EX1002, 609-611.

79. On March 18, 2015, the applicant filed a response making certain amendments to the application claims and asserting various arguments to distinguish the prior art. EX1002, 642-655. Among other things, the applicant amended application claim 1 to change it from reciting a portable computer that

can be configured in “a laptop mode and an easel mode” to one that can be configured in “a laptop mode and a frame mode” and similarly amended the other independent claims to require a frame mode. EX1002, 643-647. The applicant also cancelled a claim and added several new claims. EX1002, 647-648.

80. The applicant argued that Misawa did not anticipate application claim 1 because, while Misawa disclosed a configuration equivalent to easel mode, it did not disclose “a frame mode” or changing the display in response “to a transition to frame mode.” EX1002, 650. The applicant argued, with regard to application claims 13 and 17, that “Misawa cannot teach the frame mode as recited and does not determine an orientation of content responsive to a transition between display modes.” EX1002, 651-652. The applicant further argued that combining Misawa with Takagi or Nishiyama would not “cure the deficiencies” with Misawa because neither Takagi nor Nishiyama discloses “a frame mode” as recited in the claims. EX1002, 653. Finally, the applicant argued that a person of ordinary skill in the art would not have combined Misawa with Nishiyama because “Nishiyama teaches away from Misawa and claim 1....” EX1002, 653-654.

81. On May 18, 2015, the examiner issued a Final Office Action rejecting all application claims. EX1002, 681-698. The examiner rejected most of the application claims (i.e., claims 1-4, 6-10, 12-19, 22, and 25-26) as obvious over Misawa combined with Takagi. EX1002, 684-692. The examiner rejected several

of the remaining application claims (i.e., claims 11 and 24) as obvious over Misawa, Takagi, and Nishiyama and another claim (i.e., claim 23) as obvious over Misawa, Takagi, and U.S. Patent No. 7,382,607 (“Skillman”). EX1002, 693-694. The examiner identified two dependent application claims (i.e., claims 20 and 21) that would be allowable if rewritten in independent form to include all limitations of the underlying claims. EX1002, 694. According to the examiner, the prior art did not disclose the limitation requiring that “the display orientation module further disables the keyboard in response to the mode sensor detecting the portable computer is in the frame mode....” EX1002, 694-696.

82. On July 20, 2015, the applicant filed a response making certain amendments to the application claims and arguing that all application claims should be allowed in light of the amendments. EX1002, 717-730. Among other things, the applicant amended application claim 20 to incorporate the limitations of the base claims (i.e., claims 1 and 3) as the examiner had suggested. EX1002, 722-723. The applicant also amended application claim 1 to require that the portable computer “disable the keyboard when the portable computer is in the frame mode.” EX1002, 718. The applicant similarly amended the other independent application claims to recite disabling the keyboard when in the frame mode. EX1002, 720-722. The applicant argued that based on these amendments the application claims should be allowed. EX1002, 727-729.

83. On August 10, 2015, the examiner issued a Notice of Allowance. EX1002, 739-747. The examiner explained that the allowance was based on limitations in the independent application claims regarding detecting a transition to the frame mode and disabling the keyboard when the portable computer is configured in the frame mode. EX1002, 744-746.

84. On January 7, 2016, the applicant submitted a request to withdraw the application from issuance and continue prosecution. EX1002, 792-793. The applicant also submitted an Information Disclosure Statement. EX1002, 795-799.

85. On February 19, 2016, the examiner issued an Office Action rejecting all application claims. EX1002, 818-835. The examiner found most of the application claims (i.e., claims 1-4, 6-10, 12-18, 20-22, and 25-26) invalid as obvious over Misawa combined with Takagi and U.S. Patent No. 6,154,359 (“Kamikakai”). EX1002, 820-832. The Kamikakai reference had been identified in the Information Disclosure Statement submitted by the applicant on January 7, 2016. EX1002, 797-799. The examiner found the remaining application claims (i.e., claims 11, 23, and 24) invalid as obvious by adding Nishiyama or Skillman. EX1002, 832-834.

86. On May 19, 2016, the applicant filed a response making certain amendments to the application claims and asserting various arguments to distinguish the cited prior art. EX1002, 851-879. Among other things, the

applicant amended the claims to again require that the portable computer can be configured into an “easel mode” (in addition to laptop mode and frame mode) and that it must have an “accelerometer” that generates orientation information indicative of the current display mode. EX1002, 852-858.

87. The applicant argued that the claim amendments distinguished the cited prior art. For example, the applicant argued that the cited references do not disclose multiple modes of operation including “the frame mode or the easel mode” because the references do “not teach or suggest multiple modes of operation with the same (or similar) angle between the base and the display at least because such delineation between modes could not be determined based on hinge position alone (as taught by Takagi).” EX1002, 862. The applicant also argued that the cited prior art does not disclose an “accelerometer” as recited in the amended claims. EX1002, 862-863. The applicant’s arguments focused on application claim 1, but it argued that each of the independent claims had been amended similarly and was allowable for similar reasons. EX1002, 863.

88. On June 23, 2016, the examiner issued a Final Office Action rejecting all application claims. EX1002, 886-906. The examiner rejected most of the application claims (i.e., claims 1-4, 5-10, 13-18, 20-22, and 25-27) as obvious over Misawa combined with Takagi and Kamikakai, as in the prior Office Action, but added U.S. Patent No. 6,882,335 (“Saarinen”). EX1002, 887-903. The examiner

again rejected the remaining claims (i.e., claims 11, 23, and 24) as obvious by adding Nishiyama or Stillman. EX1002, 903-904.

89. On September 12, 2016, the applicant filed a response making certain amendments to the application claims and asserting various arguments to distinguish the cited prior art. EX1002, 933-948. Among other things, the applicant amended application claim 1 to recite “a display manager configured to display computer content on the display component and vary the computer content displayed responsive to detecting a transition between at least the laptop and easel modes, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode....” EX1002, 934. The applicant amended the other independent claims with the same or similar language. EX1002, 937, 939-940.

90. The applicant also argued the cited prior art does not disclose all claim limitations. For example, the applicant argued that the newly added reference Saarinen teaches the use of an accelerometer only to “detect portrait and landscape modes where the screen is rotated 90 degrees” and not to detect display modes including “a laptop mode, a frame mode, and an easel mode.” EX1002, 943. The applicant also argued that a person of ordinary skill in the art would not have combined the four cited prior art references as the examiner asserted. EX1002,

943-944. The applicant relied on the amendments to the application claims and argued that “[n]one of the cited references disclose enlarging content responsive to a transition between two modes of operation.” EX1002, 945. Again, the applicant focused on application claim 1 but argued that all the independent claims were amended similarly and should be allowed for similar reasons. EX1002, 945-946.

91. On September 30, 2016, the examiner issued a Notice of Allowance. EX1002, 953-955. With the allowance, the examiner provided several “Examiner’s Amendments.” The examiner replaced the word “detecting” in the “display manager” limitation of application claims 1, 13, and 20 with “the orientation information indicating.” EX1002, 960, 963, 966. The examiner made a similar change to application claim 17 by amending the “detecting” step to change the word “detecting” to “generating...orientation information indicative of” and amending the “displaying” step by changing the word “detecting” to “the orientation information indicating.” EX1002, 965.

92. The examiner also provided “Reasons for Allowance.” EX1002, 968-971. The examiner identified two limitations in application claim 1, and similarly in application claims 13, 17, and 20, that were “not anticipated or made obvious by the prior art of record in the examiner’s opinion.” EX1002, 968. In particular, the examiner identified the following two limitations: (1) “an accelerometer configured to generate orientation information indicative of a current display mode

among the plurality of display modes of the portable computer” and (2) “a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating detecting a transition between at least the laptop and easel modes, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode....” EX1002, 968. The examiner also stated that the Misawa references did not disclose “wherein the portable computer is configured to detect a transition to the frame mode and automatically determine a display orientation of content responsive to detecting the transition to the frame mode,” and that it does not disclose “wherein the display orientation module further disables the keyboard in response to the mode sensor detecting the portable computer is in the frame mode.” EX1002, 969.

93. The applicant submitted an Information Disclosure Statement on December 15, 2016, identifying several prior art references including WO 95/24007 (“Lane”), which I discuss in more detail below. EX1002, 1002. Thus, I note that, based on the file history, Lane was not before the examiner when he allowed the application claims and provided “Reasons for Allowance” on September 30, 2016. The examiner did not discuss or base any rejection on Lane during prosecution.

94. The '229 Patent issued on February 7, 2017. EX1001, cover.

C. The Patent Claims

95. The '229 Patent contains 25 claims, including 4 independent claims (i.e., 1, 12, 16, and 18).

96. Independent claims 1 and 18 are quite similar. Indeed, there are only a few different words between the two claims, as indicated in the table below (identifying differences in claim language with bold and underlying).

Claim 1	Claim 18
[1pre] A portable computer configurable between a plurality of display modes including at least a laptop mode, a frame mode, and an easel mode, the portable computer comprising:	[18pre] A portable computer configurable between a plurality of display modes including at least a laptop mode, a frame mode, and an easel mode, the portable computer comprising:
[1a] a display component;	[18a] a display component;
[1b] a base;	[18b] a base;
[1c] an accelerometer configured to generate orientation information indicative of a current <u>display mode among the plurality of display modes of the portable computer;</u>	[18c] an accelerometer configured to generate orientation information indicative of a current <u>mode of operation;</u>

Claim 1	Claim 18
[1d] a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least the laptop and easel modes, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode;	[18d] a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least the laptop and easel modes, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode;
[1e] an interface between the display component and the base defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;	[18e] an interface between the display component and the base defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;
[1f] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis	[18f] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis

Claim 1	Claim 18
up to approximately 180 degrees from a closed mode configures the portable computer into the laptop mode, wherein in the laptop mode the display component is oriented towards an operator and a keyboard disposed within the base is oriented to receive input from the operator;	up to approximately 180 degrees from a closed mode configures the portable computer into a laptop mode, wherein in the laptop mode the display component is oriented towards an operator and a keyboard disposed within the base is oriented to receive input from the operator;
[1g] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis beyond approximately 270 degrees from the closed mode transitions the portable computer for viewing in the frame mode or the easel mode, wherein during operation in the frame mode the display component is positioned toward the operator, the base contacts a substantially horizontal surface, and the keyboard is directed towards the substantially horizontal surface, and wherein during operation in the easel mode the display component is	[18g] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis beyond approximately 270 degrees from the closed mode transitions the portable computer for viewing in the frame mode or the easel mode, wherein during operation in the frame mode the display component is positioned toward the operator, the base contacts a substantially horizontal surface, and the keyboard is directed towards the substantially horizontal surface, and wherein during operation in the easel mode the display component is

Claim 1	Claim 18
oriented facing the operator with the keyboard oriented away from the operator; and	oriented facing the operator with the keyboard oriented away from the operator; and
[1h] wherein the portable computer is configured to detect a transition to at least the easel mode and the frame mode based on the orientation information, automatically determine a display orientation of content, and disable the keyboard <u>when</u> the portable computer is in the frame mode.	[18h] wherein the portable computer is configured to detect a transition to at least <u>one of</u> the easel mode and the frame mode based on the orientation information, automatically determine a display orientation of content, and disable the keyboard <u>in response to detecting</u> the portable computer is in the frame mode.

97. Independent claims 1 and 12 are also similar. Both recite a “portable computer configurable between a plurality of [operating] display modes.” The first few limitations are quite similar while the wording of the final limitations is different, as indicated in the table below (identifying differences in claim language with bold and underlying).

Claim 1	Claim 12
[1pre] A portable computer configurable between a plurality of display modes <u>including at least a</u>	[12pre] A portable computer configurable between a plurality of

Claim 1	Claim 12
<u>laptop mode, a frame mode, and an easel mode</u> , the portable computer comprising:	<u>operating</u> display modes, the portable computer comprising:
[1a] a display component;	[12a] a display component <u>including a single display screen for viewing content</u> ;
[1b] a base;	[12b] a base;
[1c] an accelerometer configured to generate orientation information indicative of a current display mode among the plurality of display modes of the portable computer;	[12c] an accelerometer configured to generate orientation information indicative of a current display mode among the plurality of display modes of the portable computer;
[1d] a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least <u>the laptop and easel modes</u> , wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition	[12d] a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least <u>two operating display modes of the plurality of operating display modes</u> , wherein the display manager is further configured to enlarge the computer content displayed on the display

Claim 1	Claim 12
from <u>the laptop mode to the easel mode;</u>	component responsive to a transition from <u>a first operating display mode of the plurality of operating display modes to a second operating display mode of the plurality of operating display modes;</u>
[1e] an interface <u>between</u> the display component and the base defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;	[12e] an interface <u>connecting</u> the display component and the base, defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;
[1f] wherein the interface is constructed and arranged such that <u>rotating either the display component or the base about the longitudinal axis up to approximately 180 degrees from a closed mode configures the portable computer into the laptop mode, wherein in the laptop mode the display component is oriented towards an operator and a keyboard</u>	[12f] wherein the interface is constructed and arranged so that <u>the display component and the base are rotatable with respect to each other about the longitudinal axis;</u>

Claim 1	Claim 12
<u>disposed within the base is oriented to receive input from the operator;</u>	
[1g] wherein the interface is constructed and arranged <u>such</u> that rotating either the display component or the base about the longitudinal axis <u>beyond approximately 270 degrees from the closed mode transitions the portable computer for viewing in the frame mode or the easel mode, wherein during operation in the frame mode the display component is positioned toward the operator, the base contacts a substantially horizontal surface, and the keyboard is directed towards the substantially horizontal surface, and wherein during operation in the easel mode the display component is oriented facing the operator with the keyboard oriented away from the operator;</u> and	[12g] wherein the interface is constructed and arranged <u>so</u> that rotating either the display component or the base about the longitudinal axis <u>from a closed mode to a first position configures the portable computer into the first operating display mode of the plurality of operating display modes, wherein in the first operating display mode the display component is oriented towards an operator of the portable computer, and the base is disposed on an opposite side of the display, wherein at least a portion of the base is configured to support the display in position when in the first operating display mode;</u>
[1h] wherein <u>the portable computer is configured to detect a transition to at</u>	[12h] wherein <u>the interface is constructed and arranged so that</u>

Claim 1	Claim 12
<u>least the easel mode and the frame mode based on the orientation information, automatically determine a display orientation of content, and disable the keyboard when the portable computer is in the frame mode.</u>	<u>reorienting the portable computer while the display component and the base are in the first position configures the portable computer into the second operating display mode of the plurality of operating display modes, wherein in the second operating display mode the display component is oriented towards an operator of the portable computer, the base lies flat on a substantially horizontal surface, and a keyboard of the base is disabled and disposed towards the substantially horizontal surface, wherein at least a portion of the base is configured to support the portable computer in position when in the second operating display mode, a display orientation of content is automatically changed when transitioning between the first and second operating display modes.</u>

98. Independent claims 18 and 12 are also similar. Both recite a “portable computer configurable between a plurality of [operating] display modes.” As with

claims 1 and 12, the first few limitations are quite similar while the wording of the final limitations is different, as indicated in the table below (identifying differences in claim language with bold and underlying).

Claim 18	Claim 12
[18pre] A portable computer configurable between a plurality of display modes <u>including at least a laptop mode, a frame mode, and an easel mode</u> , the portable computer comprising:	[12pre] A portable computer configurable between a plurality of <u>operating</u> display modes, the portable computer comprising:
[18a] a display component;	[12a] a display component <u>including a single display screen for viewing content</u> ;
[18b] a base;	[12b] a base;
[18c] an accelerometer configured to generate orientation information indicative of a current <u>mode of operation</u> ;	[12c] an accelerometer configured to generate orientation information indicative of a current <u>display mode among the plurality of display modes of the portable computer</u> ;
[18d] a display manager configured to display computer content on the display component and vary the	[12d] a display manager configured to display computer content on the display component and vary the

Claim 18	Claim 12
computer content displayed responsive to the orientation information indicating a transition between at least <u>the laptop and easel modes</u>, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from <u>the laptop mode to the easel mode</u>;	computer content displayed responsive to the orientation information indicating a transition between at least <u>two operating display modes of the plurality of operating display modes</u>, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from <u>a first operating display mode of the plurality of operating display modes to a second operating display mode of the plurality of operating display modes</u>;
[18e] an interface <u>between</u> the display component and the base defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;	[12e] an interface <u>connecting</u> the display component and the base, defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;
[18f] wherein the interface is constructed and arranged such that <u>rotating either the display component or the base about the</u>	[12f] wherein the interface is constructed and arranged so that <u>the display component and the base are</u>

Claim 18	Claim 12
<u>longitudinal axis up to approximately 180 degrees from a closed mode configures the portable computer into the laptop mode, wherein in the laptop mode the display component is oriented towards an operator and a keyboard disposed within the base is oriented to receive input from the operator;</u>	<u>rotatable with respect to each other about the longitudinal axis;</u>
[18g] wherein the interface is constructed and arranged <u>such</u> that rotating either the display component or the base about the longitudinal axis <u>beyond approximately 270 degrees from the closed mode transitions the portable computer for viewing in the frame mode or the easel mode, wherein during operation in the frame mode the display component is positioned toward the operator, the base contacts a substantially horizontal surface, and the keyboard is directed towards the substantially horizontal surface, and wherein</u>	[12g] wherein the interface is constructed and arranged <u>so</u> that rotating either the display component or the base about the longitudinal axis <u>from a closed mode to a first position configures the portable computer into the first operating display mode of the plurality of operating display modes, wherein in the first operating display mode the display component is oriented towards an operator of the portable computer, and the base is disposed on an opposite side of the display, wherein at least a portion of the base is configured to support the</u>

Claim 18	Claim 12
<u>during operation in the easel mode the display component is oriented facing the operator with the keyboard oriented away from the operator</u>; and	<u>display in position when in the first operating display mode</u>;
[18h] wherein <u>the portable computer is configured to detect a transition to at least one of the easel mode and the frame mode based on the orientation information, automatically determine a display orientation of content, and disable the keyboard in response to detecting the portable computer is in the frame mode.</u>	[12h] wherein <u>the interface is constructed and arranged so that reorienting the portable computer while the display component and the base are in the first position configures the portable computer into the second operating display mode of the plurality of operating display modes, wherein in the second operating display mode the display component is oriented towards an operator of the portable computer, the base lies flat on a substantially horizontal surface, and a keyboard of the base is disabled and disposed towards the substantially horizontal surface, wherein at least a portion of the base is configured to support the portable computer in position when</u>

Claim 18	Claim 12
	<u>in the second operating display mode, a display orientation of content is automatically changed when transitioning between the first and second operating display modes.</u>

99. Independent claim 16 recites a “method of managing user interaction with content displayed on a portable computer having a plurality of display modes....”

100. Dependent claims 2-11 and 19-25 depend directly or indirectly from independent claim 1. Dependent claims 13-15 depend directly or indirectly from independent claim 12. Dependent claim 17 depends from independent claim 16.

D. Person of Ordinary Skill in the Art

101. As discussed above, I have been informed and understand that the level of ordinary skill in the relevant art at the time of the invention is relevant to inquiries such as the meaning of claim terms, the meaning of disclosures in prior art references, and the reasons that a person of ordinary skill in the art might have combined the teachings of certain prior art references.

102. In my opinion a person of ordinary skill in the art with regard to the ’229 Patent would have had a bachelor’s degree (or equivalent) in electrical engineering, computer engineering, computer science, or a comparable subject and

would have had two to three years of work experience in the design and architecture of laptop computers and other portable electronic devices.

Alternatively, a person of ordinary skill in the art would have had an advanced degree (or equivalent) in electrical engineering, computer engineering, computer science, or a comparable subject and would have had one year of post-graduate research or work experience in the design and architecture of laptop computers and other portable electronic devices. A person of ordinary skill in the art would have been familiar with the structural hardware aspects of laptop computers and other portable electronic devices as well as designs of user interfaces employed and displayed by computer operating systems and their organization of content and functionality. Similar skills and knowledge could be acquired by other means.

103. In view of my educational background as well as my decades of academic and professional experience (as discussed above), I was a person of more than the ordinary level of skill in the art in the 2008 timeframe. My opinions expressed in this declaration were formed, however, by taking into account the perspective of a person of ordinary skill in the art in 2008. I was, and am, well acquainted with the level of knowledge of a person of ordinary skill under this definition. As noted above, I have worked with many individuals during my time in the industry and taught many who would meet the definition of a person of ordinary skill in the art. As a result, I am comfortable applying this viewpoint in

assessing the '229 Patent and the state of the art in the relevant timeframe, including the prior art references I discuss below.

104. I have also considered whether my opinions expressed in this declaration would change if the level of ordinary skill in the art was varied by a few years or varied somewhat with respect to subject matter. My opinions would not change in light of such minor variations.

E. Claim Construction

105. I have been advised and understand that patent claims in an *inter partes* review are interpreted by applying the same standard that applies in federal district court proceedings, which I understand is referred to as the *Phillips* standard.

106. I understand that under the *Phillips* standard, claim terms are typically given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention based on the language of the claims, the patent specification, and the prosecution history. I understand that these sources of evidence are often referred to as “intrinsic evidence” or the “intrinsic record” of the patent. I understand that under the *Phillips* standard, extrinsic evidence such as expert or inventor testimony, dictionary definitions, and prior art publications can also be considered but are given less weight than the intrinsic evidence.

107. I understand that when a claim limitation recites a generic term (e.g., “means”) with associated functional language it may invoke means-plus-function treatment under Section 112 of the Patent Act. I also understand that when a claim limitation uses the term “means” and functional language, a presumption arises that means-plus-function treatment applies. I understand that means-plus-function language typically begins with “means for” followed by functional language. I also understand that other generic nonce words can substitute for “means” and may still invoke means-plus-function treatment. I further understand that means-plus-function treatment is not appropriate where the claim language supplies sufficient structure for performing the claimed function.

108. I understand that when claim language invokes means-plus-function treatment, the specification must provide corresponding structure such that a person of ordinary skill in the art will understand the structure that performs the recited function. I also understand that the scope of means-plus-function terms will be construed to cover that corresponding structure and equivalents of it. As such, I understand that construction of means-plus-function terms requires identification of a function as well as corresponding structure for that function. I also understand that, for a reference to anticipate or render obvious a means-plus-function term, it must provide equivalent structure for performing an equivalent function.

109. I have been asked to provide my opinion regarding the meaning of the following terms to a person of ordinary skill in the art at the time of the '229 Patent based on the standard that applies in this proceeding.

110. I do not contend that these proposed constructions are complete constructions of these terms or for the claims for any other purpose, including for issues that may be raised in related litigation. For claim terms not listed below, I have used the plain and ordinary meaning to a POSITA.

1. “accelerometer”

111. Claims 1, 12, and 18 recite a portable computer including an “accelerometer configured to generate orientation information indicative of a current display mode” (claims 1 and 12) or “mode of operation” (claim 18). EX1001, 17:59-60, 19:16-17, 21:3-4. Claim 16 recites a method of managing user interaction with content displayed on a portable computer that includes the step of “generating, by an accelerometer, orientation information indicative of an orientation of the device.” EX1001, 20:39-40. A person of ordinary skill in the art would recognize that, as used in the challenged claims, an “accelerometer” is a device that identifies the direction of acceleration, in particular the accelerative force of gravity. By identifying the direction of gravity (i.e., which direction is down), the claimed accelerometer can generate “orientation information” indicating the configuration of the portable computer as recited in the claims.

112. The '229 Patent describes an “orientation sensor” including an “accelerometer” that triggers a display inversion when the display screen is turned over. EX1001, 8:31-59. For example, “when the portable computer 100 is configured into the easel mode, the visual display on the display screen 110 is automatically rotated 180 degrees such that the information appears ‘right-way-up,’ even though the display screen is upside-down compared to when the portable computer is in the laptop mode.” EX1001, 8:31-36. The patent states that the accelerometer “is not used to detect motion of the overall computer, but rather to detect a configuration of the portable computer 100 (e.g., laptop mode or easel mode), particularly, to detect an orientation of the display component 102 relative to the base component 104.” EX1001, 8:63-9:3. The accelerometer can also indicate whether to “switch the display between portrait and landscape mode...” EX1001, 9:3-7. Thus, the accelerometer of the '229 Patent is used to determine the direction of gravity so that the display screen can present content “right-way-up” even if the screen is rotated by 90 or 180 degrees.

113. My opinion regarding the meaning of the term “accelerometer” is consistent with Patent Owner’s description. I have reviewed an appeal brief filed by Patent Owner in a reexamination proceeding involving the '688 Patent, which is a parent of the '229 Patent. In a section of the appeal brief discussing the '688 Patent, the Patent Owner quotes its expert witness, Mr. Bear, as saying that

“an accelerometer mounted to an object is used to determine the angle of the object with respect to the surface of the Earth (i.e., gravity).” EX1037, 25. Patent Owner and its expert appear to understand the term “accelerometer” with respect to this patent in the same way that I do.

2. “display orientation module that displays content on the display screen in one of a plurality of content orientations relative to the longitudinal axis”

114. Dependent claim 3 recites a “display orientation module that displays content on the display screen in one of a plurality of content orientations relative to the longitudinal axis....” EX1001, 18:39-41.

115. I understand that in the reexamination proceeding regarding the parent ’688 Patent, the examiner determined that very similar claim limitations invoked means-plus-function treatment. EX1038, 7-9. The examiner explained that “[w]hile the term does not recite a ‘means’ or ‘step’ for performing the recited functionality, the ‘*display orientation module*’ is just a generic placeholder for the term and the term does not convey any particular or sufficiently definite structure.” EX1038, 9. Because the term “display orientation module” is not modified by sufficient structure in the claim, the examiner concluded that means-plus-function treatment applies and identified the corresponding structure in the patent specification as “a processor programmed with an algorithm for carrying out the function recited in” the various claims in which it appears in the ’688 Patent.

EX1038, 9-10. I have been instructed by counsel to analyze the term “display orientation module” as a means-plus-function term and to apply a construction consistent with the one adopted by the examiner in the ’688 Patent reexamination proceeding.

116. I have therefore interpreted the structure corresponding to the claimed “display orientation module” to be “a processor programmed with an algorithm for carrying out the function recited in” claim 3. I understand that equivalent structures also fall within the scope of the limitation.

117. The function performed by the “display orientation device” is recited in the claim itself: “displaying content on the display screen in one of a plurality of content orientations relative to the longitudinal axis.”

3. “means for rotating the display component along the longitudinal axis relative to the base to transition the portable computer for viewing in the frame mode”

118. Dependent claim 9 recites the further limitation that the “interface” of claim 1 “comprises means for rotating the display component along the longitudinal axis relative to the base to transition the portable computer for viewing in the frame mode.” EX1001, 18:62-65. The claim recites “means for” performing a function without reciting any corresponding structure. I have been instructed by counsel to analyze this limitation as a means-plus-function limitation.

119. The function performed by the “means” is recited in the claim itself: “rotating the display component along the longitudinal axis relative to the base to transition the portable computer for viewing in the frame mode.”

120. The Abstract of the '229 Patent states that the “portable computer includes a hinge assembly that couples the display component to the base of the computer, and allows the display component to be rotated about an axis along an interface between the display component and the base to configure the portable computer....” EX1001, Abstract. The patent refers to a “hinge assembly” that “allows the display component 102 to be moved relative to the base 104” to configure the portable computer. EX1001, 11:7-12. The patent further explains that “[d]epending on the hinge assembly used, the longitudinal axis may comprise[] multiple parallel axes, and the hinge assembly may be configured to permit rotation of the display component about any of the multiple parallel axes to configure the portable computer between the plurality of display modes.” EX1001, 2:65-3:3. Based on at least these disclosures in the '229 Patent, the structure corresponding to the “means” recited in claim 9 is the disclosed “hinge assembly” and equivalent structures.

4. “means for rotating the display component relative to the base”

121. Dependent claim 14 recites the further limitation that the “interface” of claim 12 “comprises means for rotating the display component relative to the

base.” EX1001, 20:5-7. The claim recites “means for” performing a function without any corresponding structure. I have been instructed by counsel to analyze this limitation as a means-plus-function limitation.

122. The function performed by the “means” is recited in the claim itself: “rotating the display component relative to the base.”

123. As discussed above, the ’229 Patent discloses a “hinge assembly” that “allows the display component 102 to be moved relative to the base 104” to configure the portable computer. EX1001, 11:7-12; *see also* Abstract, 2:65-3:3. Thus, the structure corresponding to the “means” recited in claim 14 is the disclosed “hinge assembly” and equivalent structures.

5. “the display component is further configured to display a segmented user interface comprising a plurality of modes of content”

124. Dependent claim 23 recites this further limitation and in particular refers to “modes of content.” I understand that in the reexamination proceeding regarding the parent ’844 Patent, the examiner interpreted the terms “mode of content” and “content mode” to mean “displaying some information that represents a higher-level construct into which content is grouped,” which “is distinct from merely displaying individual things (e.g., applications) that may be grouped into a content mode.” EX1039, 2. This was the interpretation of the terms Patent Owner applied during reexamination to distinguish the prior art. EX1040, 9-31. I have

been instructed by counsel to apply the construction of “modes of content” applied by Patent Owner and the examiner.

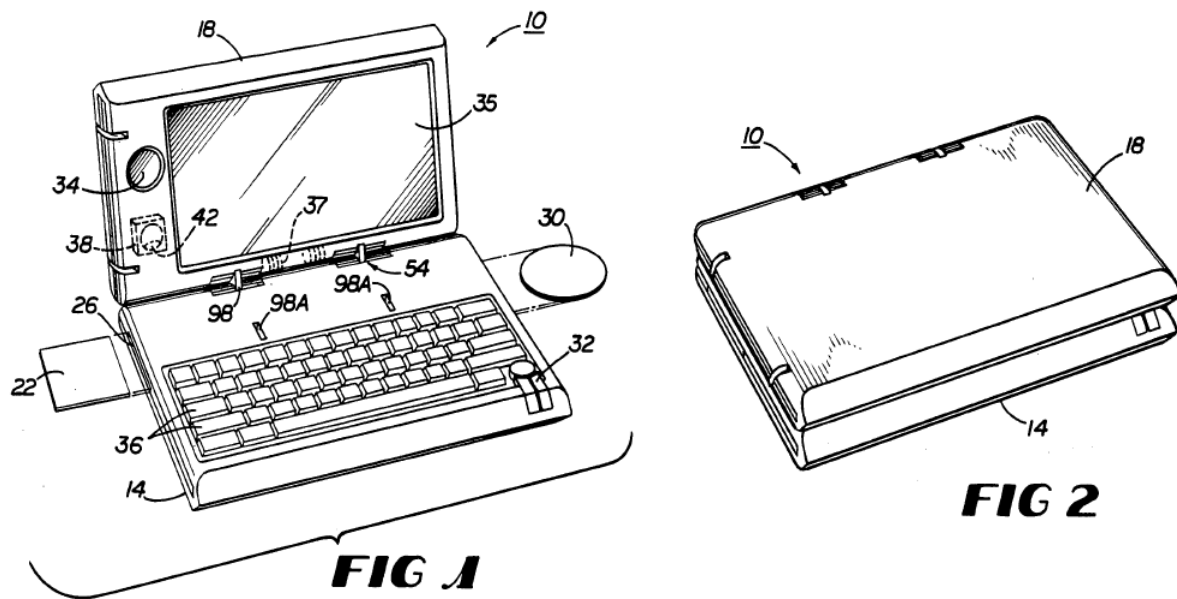
125. I have therefore understood the requirement in claim 23 that “the display component is further configured to display a segmented user interface comprising a plurality of modes of content” requires “displaying some information that represents a higher-level construct into which content is grouped,” which “is distinct from merely displaying individual things (e.g., applications) that may be grouped into a content mode.”

VI. PRIOR ART REFERENCES

A. Lane (EX1005)

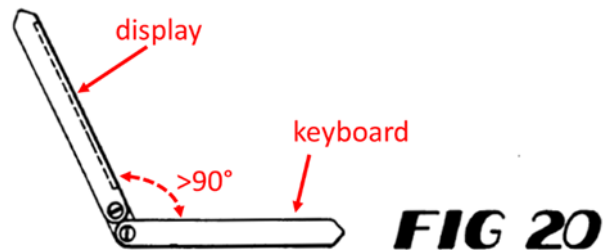
126. Lane is a publication of a PCT international patent application that was published on September 8, 1995. Lane is entitled “Module, Reconfigurable Devices.”

127. Lane discloses a portable computer having a “first module 14” (i.e., base) and a “second module 18” (i.e., display) that are rotatable relative to each other by up to approximately 360 degrees to transition the computer into various configurations. EX1005, 3:5-14, 10:24-31, Figs. 20, 25, 28. Figures 1 and 2 of Lane show the portable computer in an open, laptop configuration and closed. EX1005, 3:31-36, 5:2-6, 5:15-18.



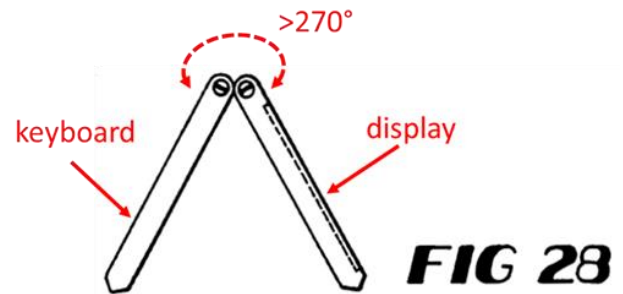
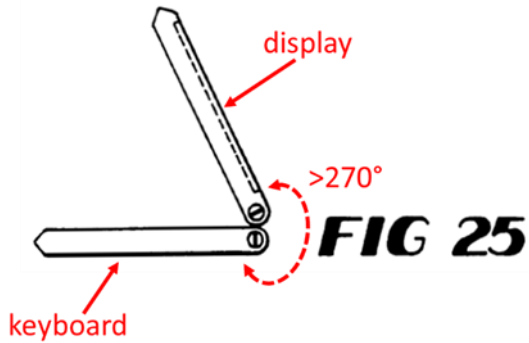
EX1005, Figs. 1-2.

128. Figure 20 illustrates Lane's portable computer positioned so that "second module 18 is rotated more than 90° to provide a standard 'desktop' orientation." EX1005, 10:24-28.



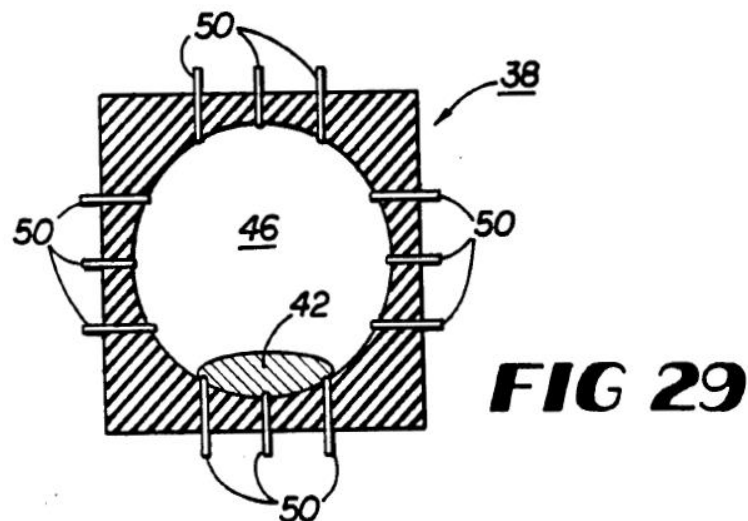
EX1005, Fig. 20 (annotated).

129. Figures 25 and 28 show Lane's portable computer oriented with second module 18 (display) "rotated more than 270, when only the visual display 35 need be accessible." EX1005, 10:28-31.



EX1005, Figs. 25 and 28 (annotated). Lane's Figure 25 illustrates the frame mode claimed in the '229 Patent. See EX1001, 16:44-57, Fig. 26. And Lane's Figure 28 illustrates the claimed easel mode. See EX1001, 8:5-18, Fig. 4.

130. Lane discloses a “position-indicating mechanism 38” illustrated in Figure 29 that can be incorporated in Lane's portable computer. EX1005, 4:33-35, 5:23-25.



EX1005, Fig. 29. “Mechanism 38 includes a moveable conductor 42 (such as liquid mercury) in a spherical cavity 46 having contacts 50 spaced about its periphery.” EX1005, 5:25-27. “Conductor 42 responds via gravitational forces to

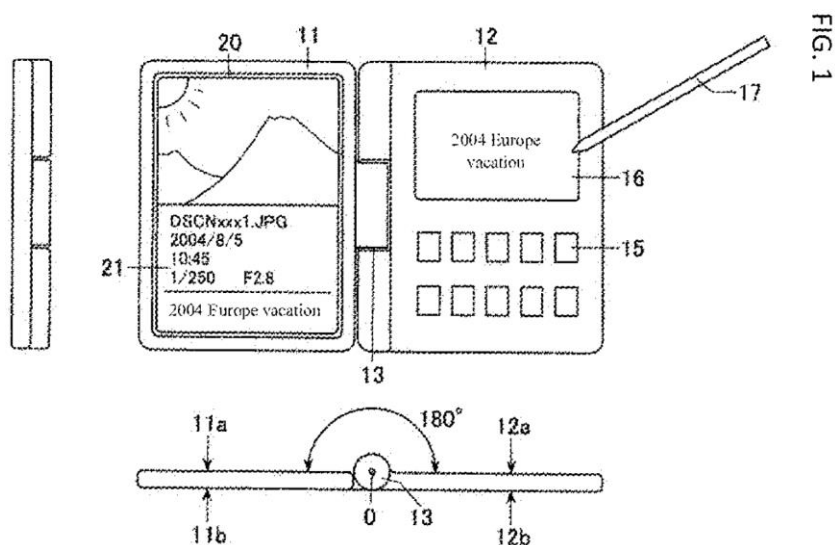
spatial reorientation of mechanism 38 by moving relative to contacts 50 (to contact at least one contact 50 to close its respective circuit).” EX1005, 5:28-31. A person of ordinary skill in the art would recognize that position-indicating mechanism 38 is a mercury switch, which is a type of accelerometer as that term is used in the ’229 Patent.

131. Lane explains that by including a position-indicating mechanism 38 in either module 14 (base) or module 18 (display) would permit “it to indicate the spatial orientation of that module.” EX1005, 5:32-35. Incorporating such a mechanism into one or both of modules 14 and 18 “would also allow mechanism 38 to assist device 10 (and its associated software) in determining, for example, whether the information to appear on visual display 35 should be in ‘landscape’ or ‘portrait’ position as the visual display 35 is spatially configured, the direction in which to move a cursor of second module 18 when a visual display, or whether to render keys 36 of first module 14 inoperable when unused.” EX1005, 5:35-6:6.

B. Fujinawa (EX1007)

132. Fujinawa is an English translation of a Japanese Patent Application that published on September 14, 2006. Fujinawa discloses a digital photo stand that enlarges a photograph from a smaller, window-view to a larger, full-screen view when the digital photo stand is transitioned from a book mode to a frame mode.

133. As shown in Fujinawa's Figure 1, the photo stand includes "a display part 11 having a liquid crystal display element 20 and an operating part (base part) 12 having operation keys 15 and stylus inputting member 16 integrated by a hinge 13." EX1007 ¶[0007]. In book mode (which is illustrated in Figure 1), "the liquid crystal display element 20 is viewed in portrait view." EX1007 ¶[0010].

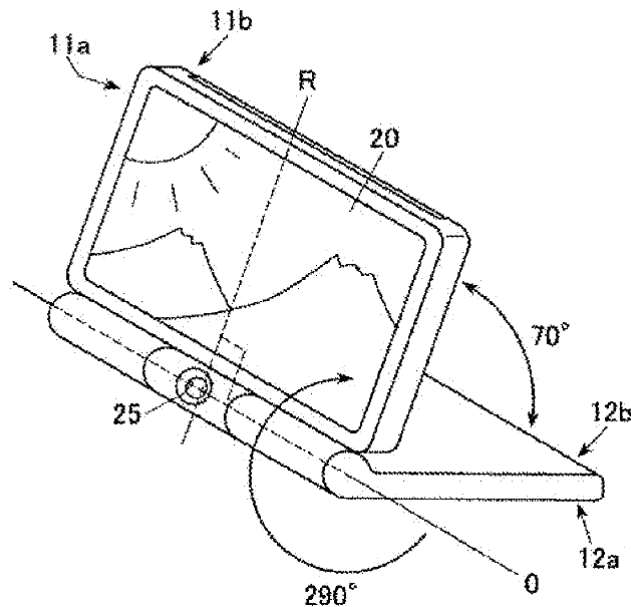


EX1007, Fig. 1. The digital photo is presented on the upper portion of liquid crystal display element 20 and information about the photo (e.g., file name, date the picture was taken, etc.) is presented below the photo and can be edited using operation keys 15 or stylus inputting means 16. EX1007 ¶¶[0010]-[0011].

134. When configured in "frame mode 1" (as illustrated in Figure 2), with operating keys 15 and stylus inputting member 16 inaccessible to the user, the photo information is omitted and the digital photograph "is displayed in full size as landscape view, filling the liquid crystal display element 20 screen so the user can

observe the display image from a position away from the photo stand.” EX1007 ¶[0039]; *see also* EX1007 ¶¶[0012]-[0014].

FIG. 2



EX1007, Fig. 2.

C. Tonouchi (EX1008)

135. Tonouchi is a U.S. Patent Application that published June 9, 2005. It is entitled “Data Processing Device.”

136. Tonouchi teaches enlarging displayed components, such as a mouse cursor, button, menu, or scroll bar, when transitioning from a standard laptop or notebook mode, where input can be performed by a keyboard 106, to a tablet mode, where the keyboard is inaccessible and “input is mainly performed by a pen on the [touch screen].” EX1008 ¶[0031]; *see also* EX1008 ¶¶[0027], [0030]-[0031], Figs. 2A-2B, 4A-4D. A person of ordinary skill in the art would have

understood that these displayed components are enlarged in tablet mode to improve the user experience, such as to make it easier for a user to select the displayed components with their stylus pen or finger.

D. Pröll (EX1010)

137. Pröll is an English translation of a German Patent Application that published on February 3, 2005.

138. Pröll discloses a mobile data processing device, such as a laptop computer, with two halves of a housing that are connected by a hinge and rotatable by almost 360 degrees. EX1010, 2 (Abstract), ¶[0002]. The mobile device can be connected to a “docking station” giving it access to peripheral devices “such as scanners and printers.” EX1010 ¶¶[0010]-[0011].

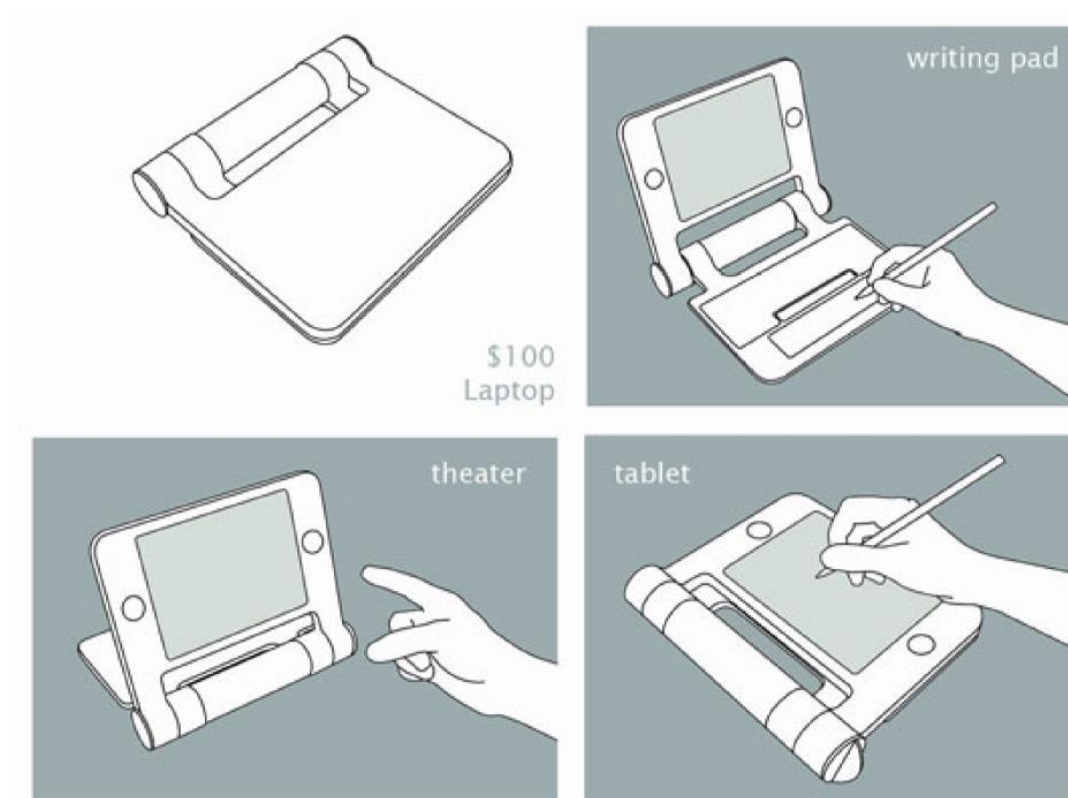
E. Santoro (EX1011)

139. Santoro is a U.S. Patent that issued on April 20, 2004. It is entitled “System and Method for Simultaneous Display of Multiple Information Sources.”

140. Santoro discloses a “computerized method of presenting information from a variety of sources on a display device.” EX1011, Abstract. In particular, Santoro describes “a graphical user interface which organizes content from a variety of information sources into a grid of tiles, each of which can refresh its content independently of the others.” EX1011, Abstract.

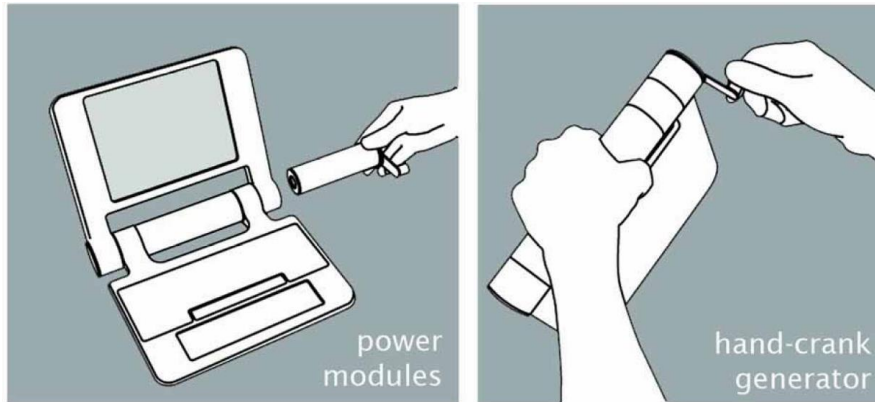
F. MIT (EX1048)

141. In 2005, MIT's Media Lab introduced a configurable computer designed for children that could function as "both an electronic book and a laptop." EX1012, 4; EX1013, 2; EX1048, 1. MIT discloses a laptop computer with a single axis hinge that allows approximately 360-degree rotation permitting the laptop to be converted from a closed mode to a tablet mode as well as modes between these two extremes, such as laptop mode and frame mode (referred to by MIT as "theater" mode), among others, as shown in the images below:



EX1048, 7; *see also* EX1048, 8; EX1012, 1-2; EX1013, 2.

142. A hand crank generator is located in the hinge assembly to provide power when electricity from a wall socket is not available.



EX1048, 9; *see also* EX1012, 3; EX1013, 2.

G. Wehrenberg (EX1023)

143. Wehrenberg is a U.S. Patent that was filed on November 12, 2004, and issued on March 30, 2010. It is entitled “Methods and Apparatuses for Operating a Portable Device Based on an Accelerometer.” Wehrenberg is the Apple patent I discussed above in Paragraph 63.

VII. THE CHALLENGED CLAIMS ARE OBVIOUS IN LIGHT OF THE PRIOR ART

144. It is my opinion that the challenged claims of the ’229 Patent are invalid as obvious in light of at least the prior art discussed below.

A. Lane and Fujinawa Render Claims 1-12, 14, 18, 19, 24, and 25 Obvious

145. Lane describes a configurable portable computer that meets nearly all the limitations of claims 1-12, 14, 18, 19, 24, and 25, as I discuss in detail below. While Lane describes varying content in response to changing the portable computer’s configuration, Lane does not explicitly describe varying and enlarging

content when transitioning the computer from laptop mode to easel mode as recited in independent claims 1 and 18 and recited in similar terms in independent claim 12. But Fujinawa teaches both varying and enlarging content (e.g., a digital photo) when transitioning the device configuration. Because a person of ordinary skill in the art would have been motivated to implement Fujinawa's teachings in Lane's portable computer, and could have done so without undue effort, the Lane-Fujinawa combination renders these claims obvious.

1. Motivation to Combine Lane and Fujinawa

146. It would have been natural for a person of ordinary skill in the art to consider both Lane and Fujinawa because, like the '229 Patent, both prior art references are directed to electronic computing devices. EX1001, Abstract; EX1005, 1:3-6, Fig. 1; EX1007 ¶[0001]. More particularly, like the '229 Patent, both prior art references relate to portable computing devices that can be configured in multiple display modes, some of which are similar or identical. EX1001, 2:6-24, Figs. 1, 4, 5, 26, 27; EX1005, 5:2-6, 7:30-8:23, Figs. 1, 2, 5-9, 19-28; EX1007 ¶¶[0005], [0007], Figs. 1-2.

147. A person of ordinary skill in the art would have been motivated to implement Lane's portable computer such that it would enlarge a digital photo to full-screen view, as taught by Fujinawa, when transitioning from the computer's laptop mode to its frame or easel mode to provide a better and more comfortable

viewing experience. Lane's display is well-suited for passive viewing in the easel and frame modes because, just as in Fujinawa's frame mode, Lane's display is positioned at the front of Lane's computer at a slightly reclined angle.

148. Further, like Fujinawa's keyboard when in frame mode, a user cannot utilize Lane's keyboard to input or edit photo information in Lane's easel or frame modes because the keyboard is not readily accessible. In these modes, there would be little need to display editable information about the photo because the user would not have access to the keyboard to edit it.

149. The most likely reason a user would transition away from the keyboard-accessible laptop mode to the keyboard-inaccessible modes would be to passively observe the photo from a comfortable viewing distance. It would be easier to observe an enlarged, full-screen photo from this passive viewing distance, as recognized and taught by Fujinawa. This benefit of enlarging content presented on the display screen for passive viewing from a greater distance would have been apparent to a person of ordinary skill in the art. EX1031 ¶[0039] (“[A]n increase in menu item size will make it possible for a user to sit further away from the display as, for example, when he or she is intending to passively view the content that is controlled by the GUI.”).

150. A person of ordinary skill in the art would have been able to implement Fujinawa's teaching in Lane's portable computer with a reasonable

expectation of success and without undue experimentation. It would have been well within the ability of such a person to modify the software on Lane's computer to change a digital photo display from a partial-screen, window-view to an enlarged, full-screen view (as taught by Fujinawa) in response to a change in configuration of Lane's portable computer.

151. The only discussion in the '229 Patent of enlarging displayed content is the following passage that describes automatically adjusting to a full screen view of a photograph or video when transitioning to easel mode.

In another example, for at least some activities within at least some modes of content (e.g., viewing a photograph or video), when the portable computer 100 is configured into the easel mode, the display may automatically adjust to "full screen view" (i.e., the displayed image or video is displayed on the full screen size, rather than in a window) to allow for comfortable viewing.

EX1001, 14:47-53. The patent does not discuss how to adjust to full screen view because a person of ordinary skill in the art would have known how to implement such a feature by 2008. This further supports my opinion that a person of ordinary skill in the art would have known how to implement Fujinawa's teaching of similarly transitioning from a window view to full screen view and could have implemented that teaching in Lane's portable computer with a reasonable expectation of success.

2. Independent Claims 1 and 18

152. As I showed above in Paragraph 96, independent claims 1 and 18 are quite similar with only a few words different between them. I will analyze the two claims together in this section.

a) **[1pre/18pre] A portable computer configurable between a plurality of display modes including at least a laptop mode, a frame mode, and an easel mode, the portable computer comprising:**

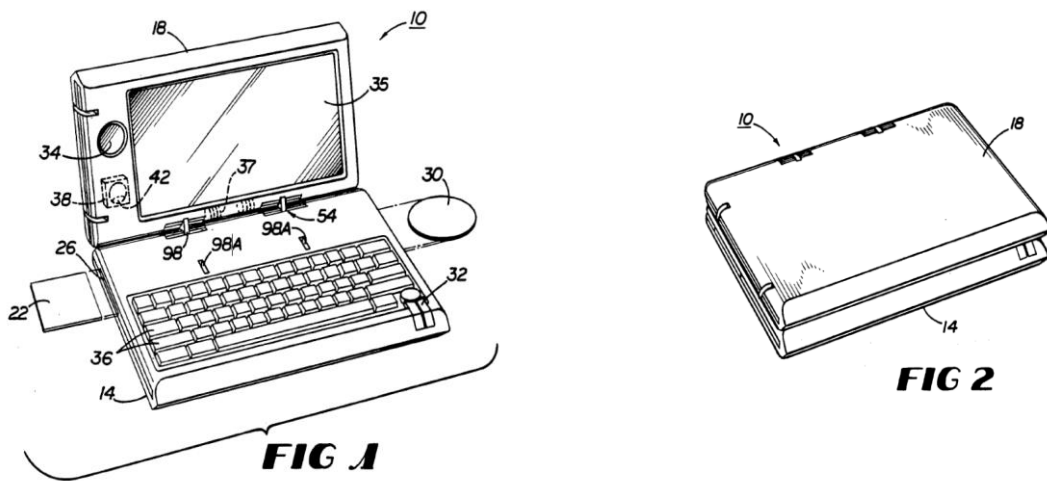
153. Lane discloses the preamble of claims 1 and 18.

154. Lane explicitly discloses a *portable computer* as recited in the preamble of both claims. (Note that I have italicized claim language in my analysis for ease of review.) Lane states that the disclosed invention particularly relates to “reconfigurable portable computers.” EX1005, 1:3-6; *see also* Abstract. Lane also states that “device 10” (illustrated in Figures 1 and 2) is a “portable computer.” EX1005, 5:3-6.

155. Lane’s *portable computer* is *configurable between a plurality of display modes*. Lane’s disclosed invention “permits components to be repositioned about each other throughout approximately 0-360°, allowing use of a visual display not only in a standard laptop computer format but also in formats facilitating use of the display as, for example, a television or telecommunications monitor or a pen-based computing tablet.” EX1005, 3:7-14. Lane describes “[a] modular, reconfigurable system” that can include “portable computers or other electrical

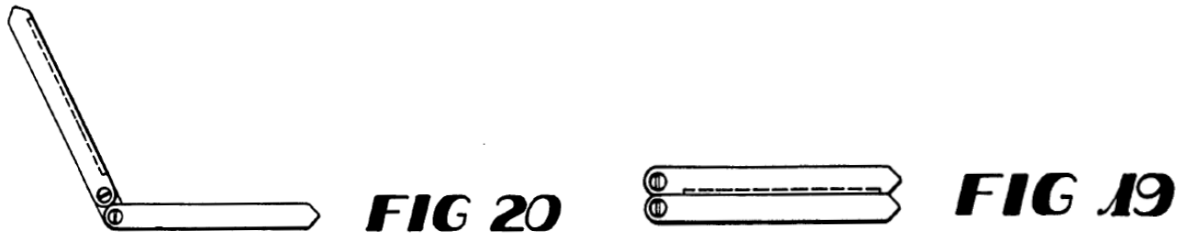
devices” that “is adapted to rotate about two adjacent, parallel axes...permitting components to be positioned throughout approximately 0-360 degrees.” EX1005, Abstract; *see also* EX1005, 3:22-25 (“It is also an object of the present invention to provide a system having two adjacent, parallel axes of rotation to facilitate component rotation about approximately 0-360°.”), 10:10-12 (“FIGS. 19-28 detail various couplings of the first and second modules 14 and 18 (or 214 and 218) useful with the present invention.”).

156. For instance, Figure 1 “illustrates device 10 in a nominally ‘open’ position permitting access both to visual display 35 and keys 36,” while Figure 2 “shows device 10 in a nominally ‘closed’ position.” EX1005, 5:15-18.



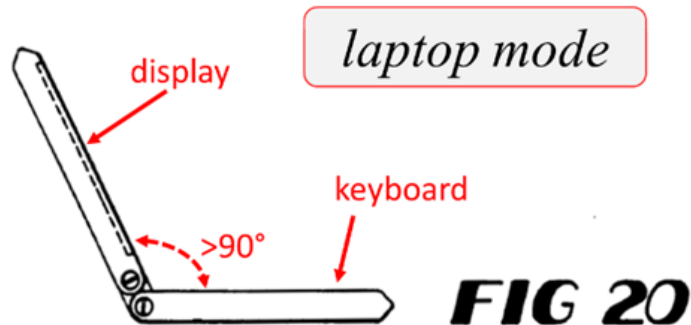
EX1005, Figs. 1 and 2.

157. The “open” and “closed” configurations are also illustrated in Figures 20 and 19, respectively.



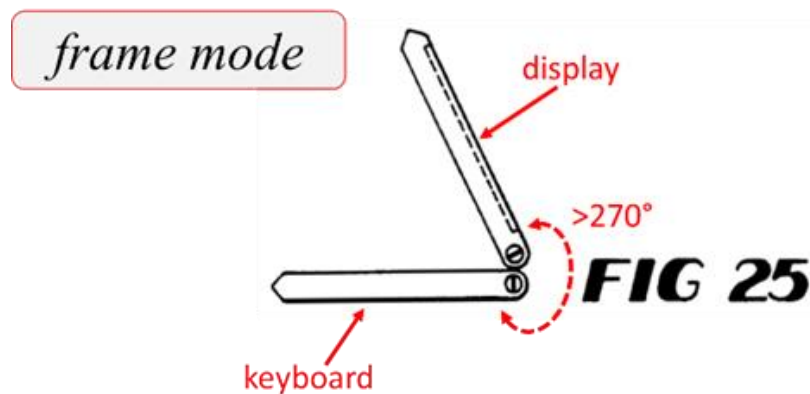
EX1005, Figs. 19 and 20. In Figure 20, the portable computer is oriented so that “second module 18 is rotated more than 90° to provide a standard ‘desktop’ orientation” (EX1005, 10:24-28), while “[i]n the nominally closed position of FIG. 19, second module 18 is unrotated relative to first module 14, protecting visual display 35 of second module 18 from damage by securing it within the interior of device 10.” EX1005, 10:12-17. I note that Lane’s description confirms that the dotted line in Figures 19 and 20 (and in Figures 21-28 showing additional configurations) indicates the location of visual display 35.

158. Lane’s *plurality of display modes* includes a *laptop mode*, a *frame mode*, and an *easel mode* as recited in the preamble of claims 1 and 18. Figures 1 and 20 illustrate Lane’s portable computer in a configuration that corresponds to the ’229 Patent’s *laptop mode* because the portable computer is in “a standard ‘desktop’ orientation” in which the display and keyboard are accessible to the user. EX1005, 10:24-28, Figs. 1, 20; *see also* EX1001, 6:49-52, Fig. 1.



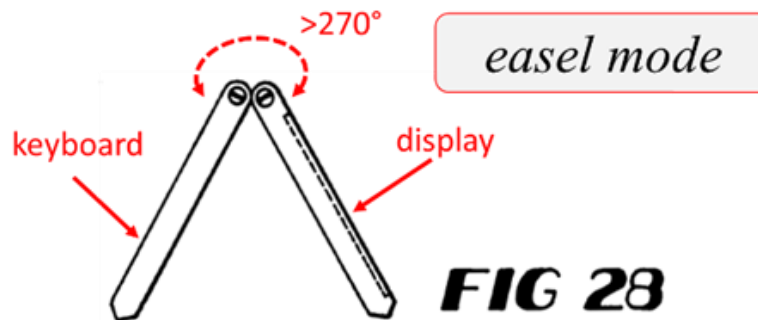
EX1005, Fig. 20 (annotated). Thus, a person of ordinary skill in the art would recognize that Lane's *portable computer* is *configurable between a plurality of display modes including at least a laptop mode....*

159. Figure 25 illustrates Lane's portable computer in a configuration that corresponds to the '229 Patent's *frame mode*. EX1005, 10:28-31, Fig. 25; see also EX1001, 16:44-57, Fig. 26.



EX1005, Fig. 25 (annotated). Thus, a person of ordinary skill in the art would recognize that Lane's *portable computer* is *configurable between a plurality of display modes including at least...a frame mode....*

160. Figure 28 illustrates Lane’s computer in a configuration that corresponds to the ’229 Patent’s *easel mode*. EX1005, 10:28-31, Fig. 28; *see also* EX1001, 8:5-18, Fig. 4.



EX1005, Fig. 28 (annotated). Thus, a person of ordinary skill in the art would recognize that Lane’s *portable computer* is *configurable between a plurality of display modes including at least...an easel mode....*

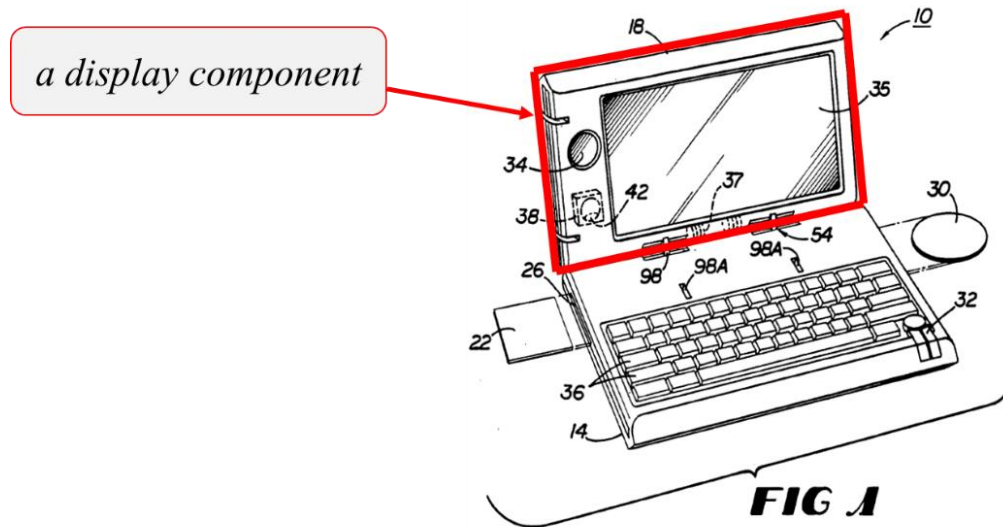
161. Lane states that when oriented as illustrated in Figures 25 and 28, second module 18 (display) “is rotated more than 270°, when only the visual display 35 need be accessible,” again confirming that the dotted lines in the figures indicate the location of visual display 35. EX1005, 10:28-31.

b) [1a/18a] a display component;

162. Lane discloses *a display component* as recited in claim limitations 1a and 18a.

163. Lane’s *portable computer* (as illustrated in Figure 1) includes “first module 14 (e.g. a keyboard) and second module 18 (e.g., a display).” EX1005,

5:4-6. Second module 18 (which Lane also refers to as second module 218) corresponds to the claimed *display component*.



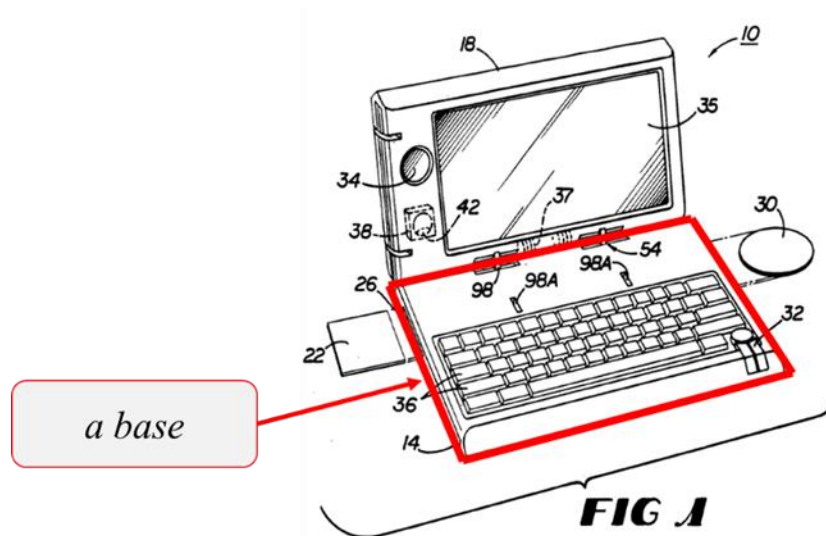
EX1005, Fig. 1 (annotated).

164. A person of ordinary skill in the art would have recognized from Lane's figures, including Figure 1, that second module 18 is a *display component* of the *portable computer*. Lane explains that second module 18 includes a display (i.e., "visual display 35"). EX1005, 5:4-15. The display operates like a standard laptop display screen. For example, Lane's portable computer can have an electronic mouse or other pointer used to move a cursor about visual display 35. EX1005, 5:10-15; *see also* EX1005, 5:37-6:1 ("information...appear[s] on visual display 35").

c) [1b/18b] a base;

165. Lane discloses a *portable computer with a base* as recited in claim limitations 1b and 18b.

166. Lane's *portable computer* (as illustrated in Figure 1) includes "first module 14 (e.g. a keyboard) and second module 18 (e.g., a display)." EX1005, 5:4-6. First module 14 (which Lane also refers to as first module 214) corresponds to the claimed *base*.



EX1005, Fig. 1 (annotated).

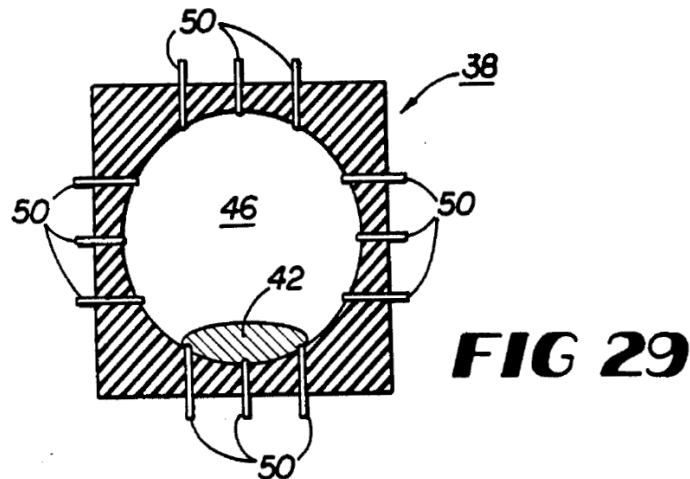
167. A person of ordinary skill in the art would recognize from Lane's figures, including Figure 1, that first module 14 provides a base for Lane's portable computer in most configurations. For example, it is commonly placed on the horizontal surface or desktop. Additionally, claim limitations 1f and 18f refer to *a keyboard disposed within the base*, and Lane's first module 14 includes a plurality

of “keys 36” that make up a keyboard. EX1005, 5:15-17, 6:5-6, 8:22-23, Figs. 1, 15, 17, 18.

- d) **[1c/18c] an accelerometer configured to generate orientation information indicative of a current [display mode among the plurality of display modes of the portable computer/mode of operation];**

168. Lane discloses a *portable computer* with an *accelerometer* as recited in claim limitations 1c and 18c.

169. Lane’s computer includes “position-indicating mechanism 38.” EX1005, 5:23-25, Fig. 29. Lane explains that “[m]echanism 38 includes a moveable conductor 42 (such as liquid mercury) in a spherical cavity 46 having contacts 50 spaced about its periphery.” EX1005, 5:23-27.



EX1005, Fig. 29. The moveable conductor 42 “responds via gravitational forces to spatial reorientation of mechanism 38 by moving relative to contacts 50 (to contact at least one contact 50 to close its respective circuit).” EX1005, 5:28-31.

170. A person of ordinary skill in the art would recognize Lane's position-indicating mechanism 38 as a mercury orientation switch and would know that such a mercury orientation switch is a type of *accelerometer* that measures the direction of gravity.² A number of prior art patents and publications confirm my understanding that a mercury switch, such as Lane's position-indicating mechanism 38, would have been understood to be an *accelerometer*.

171. For example, Digon (WO 2007/010481) is a published international patent application that was filed on July 18, 2006, and published on January 25, 2007. EX1027. It is entitled "Non-Linear Presentation of Content" and describes presenting digital media content on a media presentation device, which can be a portable optical disc player, personal video recorder, personal video recorder, personal computer, or mobile phone. EX1027, 1:28-2:4, 3:11-18. Digon describes an embodiment in which "player 10" includes "[a] movement sensor, such as an accelerometer (e.g. solid state, gyroscope, mercury switch) [that] can detect if the player is being moved/shaken." EX1027, 6:10-12.

172. Miller is a U.S. patent (U.S. Patent No. 7,408,506) that was filed on November 19, 2004, and issued on August 5, 2008. EX1026. It is entitled "Method and Apparatus for Conserving Power on a Mobile Device Through Motion Awareness" and describes a method for conserving power on a mobile

² Standard measures of acceleration include a magnitude and direction.

device using a “motion model that receives location information from one or more receivers and an accelerometer.” EX1026, Abstract. Miller describes a mobile device including “accelerometer 114” and explains that “[a]ccelerometer 114 is a device that measures the acceleration of a moving body, such as, for example, the acceleration of the mobile device.” EX1026, 3:12-14. “In an embodiment, accelerometer 114 may be in the form of a motion-triggered switch (i.e., a mercury switch, a micro-electronic mechanical switch, etc.).” EX1026, 3:14-16.

173. Menard is a published U.S. patent application (U.S. Patent Application Publication No. 2004/0066302) that was filed on June 20, 2003, and published on April 8, 2004. EX1028. It is entitled “Interactive Motion Sensitive Sensor” and describes a “[p]ortable accelerometer coupled to a processor and wireless transceiver providing remote monitoring of sensed acceleration.” EX1028, Abstract. Menard describes an embodiment employing a particular type of accelerometer and further states: “Other accelerometers are also contemplated, including but not limited to, for example those employing a micro-mechanical or nanofabricated structure, a mercury switch, a cantilevered beam, a flexible beam, a resistive element or a weighted switch.” EX1028 ¶[0030].

174. Matsunaga is a U.S. patent (U.S. Patent No. 6,230,564) that was filed in 1999 and issued on May 15, 2001. EX1029. It is entitled “Semiconductor Acceleration Sensor and Its Self-Diagnosing Method.” In a section entitled

“Background Art,” Matsunaga states: “In another example of the conventional acceleration sensor, a mercury switch is employed....” EX1029, 1:15-19.

175. Cotton is a U.S. patent (U.S. Patent No. 2,880,617) that provides a much earlier description of a mercury switch as an accelerometer. EX1024.

Cotton issued in 1959, and states: “A tilt detector, or accelerometer, such as a mercury switch or a pendulum constrained to move in one plane, has what may be called an axis of response.” EX1024, 1:34-36.

176. Lane’s position-indicating mechanism 38 constitutes an *accelerometer* as that term is used in the ’229 Patent. As I discussed above, the term *accelerometer* as used in the patent means “a device that identifies the direction of acceleration, in particular the accelerative force of gravity.” See Section V.E.1, above. Lane states:

Mechanism 38 includes a movable conductor 42 (such as liquid mercury) in a spherical cavity 46 having contacts 50 spaced about its periphery. Conductor 42 responds via gravitational forces to spatial reorientation of mechanism 38 by moving relative to contacts 50 (to contact at least one contact 50 to close its respective circuit).

Including mechanism 38 as a component of either first or second modules 14 or 18 would thus permit it to indicate the spatial orientation of that module.

EX1005, 5:25-35. Thus, Lane’s position-indicating mechanism 38 is a device that identifies the direction of acceleration, in particular the acceleration caused by

gravity, and it therefore constitutes an *accelerometer* as that term is used in the '229 Patent.

177. Lane's *accelerometer* (position-indicating mechanism 38) is *configured to generate orientation information indicative of a current display mode among the plurality of display modes of the portable computer* as recited in claim limitation 1c. Lane states:

Including mechanism 38 as a component of either first or second modules 14 or 18 would thus permit it to indicate the spatial orientation of that module. Doing so would also allow mechanism 38 to assist device 10 (and its associated software) in determining, for example, whether the information to appear on visual display 35 should be in 'landscape' or 'portrait' position as the visual display 35 is spatially configured, the direction in which to move a cursor [sic] of second module 18 when a visual display, or whether to render keys 36 of first module 14 inoperable when unused.

EX1005, 5:32-6:6. Lane explains that mechanism 38 (*accelerometer*) is used "to indicate the spatial orientation of" second module 18 (*display component*) and/or first module 14 (*base*). EX1005, 5:23-6:6. Lane also refers to this component as "position-indicating mechanism 38" (i.e., a mechanism used to indicate the position or orientation of the device). EX1005, 5:24-25. A person of ordinary skill in the art would understand that Lane's *accelerometer* (position-indicating mechanism 38) is *configured to generate orientation information indicative of a*

current display mode among the plurality of display modes of the portable computer.

178. For example, Lane teaches including an *accelerometer* (position-indicating mechanism 38) in the *base* of the *portable computer* as one option. EX1005, 5:32-35 (“Including mechanism 38 as a component of either first or second modules 14 or 18 would thus permit it to indicate the spatial orientation of that module.”). Locating an *accelerometer* in the *base*, as taught by Lane, would allow Lane’s computer and its associated software to render the keyboard inoperable when unused. EX1005, 5:35-6:6 (“Doing so would also allow mechanism 38 to assist device 10 (and its associated software) in determining, for example, ... whether to render the keys 36 of first module 14 inoperable when unused.”).

179. Locating an *accelerometer* in the *base* would provide *orientation information indicative of a current display mode*, as claimed, because it would provide unique orientation information in each of the three claimed display modes (i.e., laptop, frame, and easel). In laptop mode, the *accelerometer* would *generate orientation information* indicating that the keyboard is horizontal and facing up (i.e., *orientation information indicative of ... laptop mode*). In frame mode, the *accelerometer* would *generate orientation information* indicating that the keyboard is horizontal and facing down (i.e., *orientation information indicative of ... frame*

mode). In easel mode, the *accelerometer* would *generate orientation information* indicating that the keyboard is facing upward but at an approximately 45-degree angle (i.e., *orientation information indicative of ... easel mode*). Thus, Lane discloses and suggests *an accelerometer configured to generate orientation information indicative of a current display mode among the plurality of display modes of the portable computer* (i.e., a laptop mode, a frame mode, and an easel mode).

180. Claim limitation 18c is worded slightly different than claim limitation 1c. Claim 1c refers to *an accelerometer configured to generate orientation information indicative of a current display mode*, while claim 18c refers to an *accelerometer configured to generate orientation information indicative of a current mode of operation*. The phrase “mode of operation” does not appear in the patent specification, and it does not appear in the claims other than in claim limitation 18c.

181. Based on the use of the term in 18c, a person of ordinary skill in the art would recognize that the term *mode of operation* is interchangeable with the term *display mode* used elsewhere in claim 18 as well as in claim 1. For example, the preamble of claim 18 recites a *portable computer configurable between a plurality of display modes including at least a laptop mode, a frame mode, and an easel mode* (as does claim 1). Claim 18c recites *an accelerometer configured to*

generate orientation information indicative of a current mode of operation and then recites using that orientation information as an indication of transition between at least the laptop and easel modes. Thus, the claim refers to laptop mode and easel mode as both a display mode and a mode of operation, indicating to a person of ordinary skill in the art that these terms are interchangeable.

182. Because the term *mode of operation* in 18c is used interchangeably with *display mode* in 1c, Lane discloses 18c for the same reasons I provided for 1c.

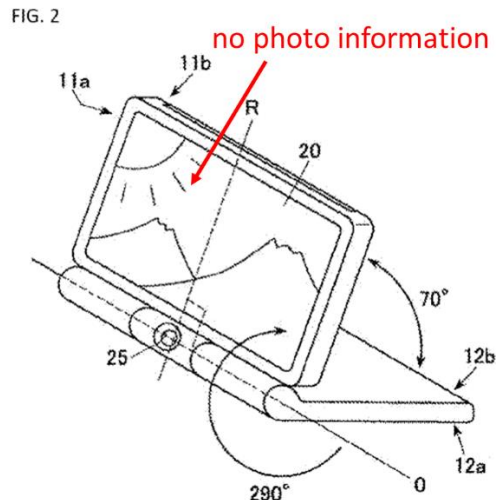
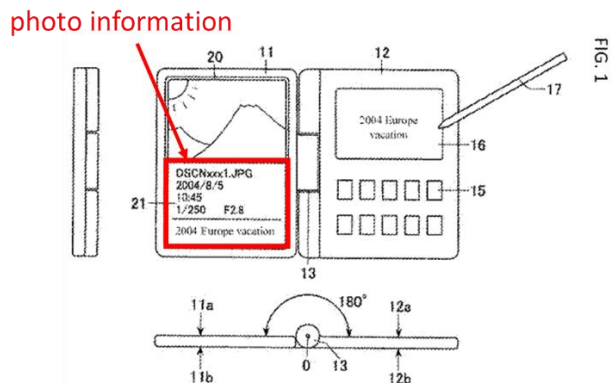
- e) **[1d/18d] a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least the laptop and easel modes, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode;**

183. The combination of Lane and Fujinawa discloses claim limitations 1d and 18d.

184. Lane discloses a computer with a “visual display 35 provided by second module 18” (*the display component*). EX1005, 5:10-15, Fig. 1. Lane also discloses that “device 10 (and its associated software)” determines the proper orientation to display content and for moving the cursor on the visual display. EX1005, 5:35-6:6. Thus, Lane discloses *a display manager configured to display computer content on the display component.*

185. Lane also discloses *vary[ing] the computer content displayed responsive to the orientation information indicating a transition between at least the laptop and easel modes*. Again, Lane discloses using information provided by position-indicating mechanism 38 (*accelerometer*) to determine the orientation of the display screen content and direction to move the cursor. EX1005, 5:32-6:6. When Lane's portable computer is transitioned from laptop to easel modes (e.g., from Figure 20 to Figure 28), the display screen would be inverted, and Lane's portable computer would use the orientation information to invert the location and direction of the cursor and other content on the screen.

186. Fujinawa also discloses *vary[ing] the computer content displayed responsive to the orientation information indicating a transition between display modes*. For instance, Fujinawa's Figure 1 illustrates a display including both a digital photo and information about the photo. EX1007 ¶¶[0007]-[0011], Fig. 1. Fujinawa refers to this as "book mode." Fujinawa then shows the device re-configured so that the digital photo alone is displayed on the screen. EX1007 ¶¶[0012]-[0014], Fig. 2. Fujinawa refers to this as "frame mode."



EX1007, Fig. 1 (annotated), Fig. 2 (annotated). The content is varied because both the photo and information about the photo is displayed when in book mode (Figure 1), but only the photo is displayed when in frame mode (Figure 2).

187. It would have been obvious to a person of ordinary skill in the art to vary the display content, as taught by Fujinawa, on Lane's computer display. In particular, such a person would have recognized that when a digital photo is shown in a partial-screen view and the keyboard (or other means of data entry) is available to the user—as in Lane's laptop mode or Fujinawa's book mode—the display can also provide editable information about the photo. For example, Fujinawa's Figure 1 shows that the user has edited a field at the bottom of the screen to state "2004 Europe vacation." When the device is reconfigured so that the digital photo can be shown in full-screen view and the keyboard (or other means of data entry) is not available to the user—as in Lane's easel mode and Fujinawa's frame mode—there is no room on the screen for editable information

about the photo and no ready means to edit it in any event. Thus, the Lane-Fujinawa combination discloses, suggests, and teaches a person of ordinary skill in the art to *vary the computer content displayed responsive to the orientation information indicating a transition between at least the laptop and easel modes.*

188. Fujinawa also discloses, suggests, and teaches *enlarge[ing] the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode.* Fujinawa describes and illustrates adjusting the presentation of a digital photo to a full screen view when transitioning from one display mode to another. EX1007 ¶¶[0010]-[0014], [0039], Figs. 1, 2.

partial screen view

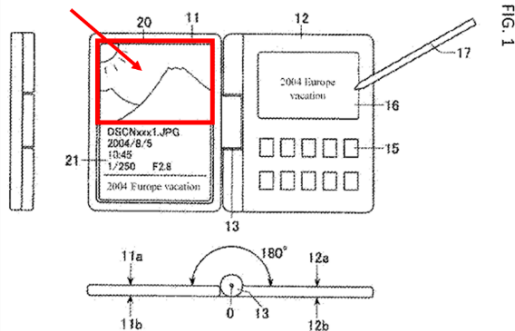
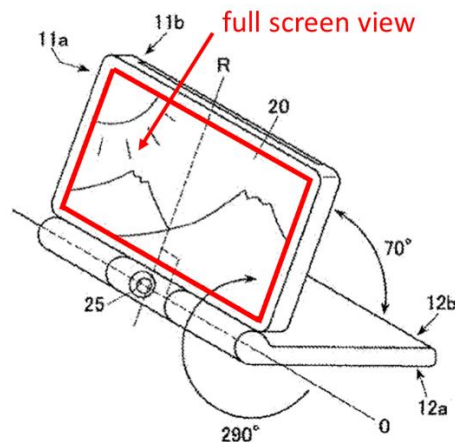


FIG. 2



EX1007, Fig. 1 (annotated), Fig. 2 (annotated).

189. It would have been obvious to a person of ordinary skill in the art to incorporate Fujinawa's content enlargement teachings (i.e., adjusting a digital photo to full screen view) in Lane's portable computer when transitioned from

laptop mode to easel mode so that photos or other digital media content would be easier to view. Indeed, this is exactly what the '229 Patent itself contemplated:

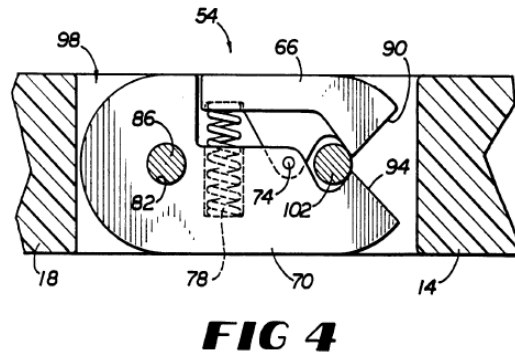
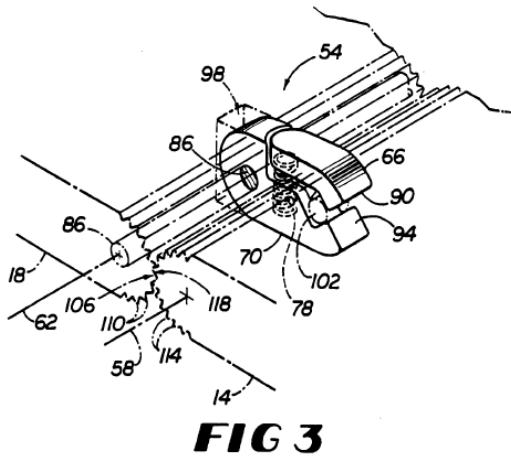
In another example, for at least some activities within at least some modes of content (e.g., viewing a photograph or video), when the portable computer 100 is configured into the easel mode, the display may automatically adjust to “full screen view” (i.e., the displayed image or video is displayed on the full screen size, rather than in a window) to allow for comfortable viewing.

EX1001, 14:47-53. This passage confirms that Fujinawa’s disclosure of adjusting a digital photo to full screen view is exactly what is contemplated by the claims’ reference to *enlarge[ing] the computer content displayed on the display component responsive to a transition from the laptop mode to the easel mode*.

f) [1e/18e] an interface between the display component and the base defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;

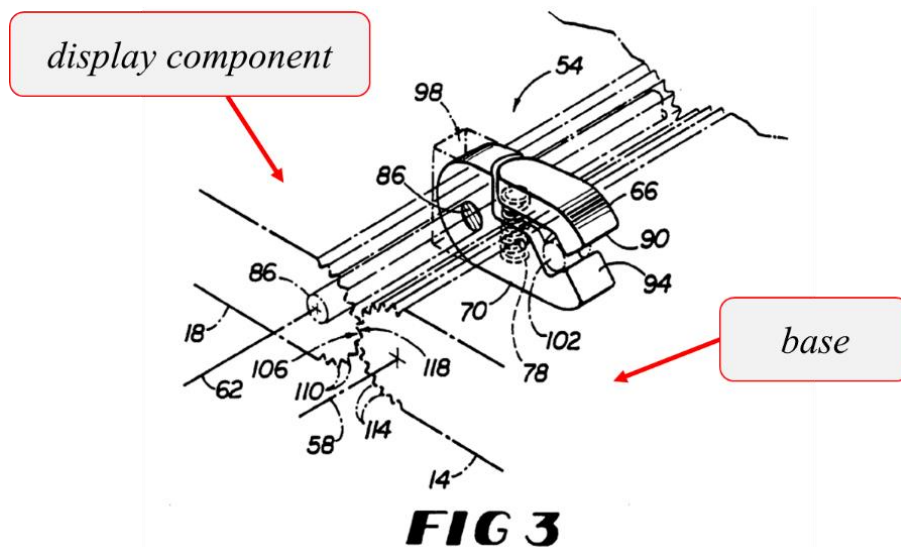
190. Lane discloses *an interface* as recited in claim limitations 1e and 18e.

191. Lane discloses a hinge assembly including two connectors 54 that can be permanently attached to second module 18 (*display component*) and that clamp onto an axle 102 located in first module 14 (*the base*) as illustrated in Figures 3 and 4. EX1005, 6:25-36.



EX1005, Figs. 3 and 4. The hinge assembly couples the first module 14 (*the base*) and second module 18 (*the display component*) together. EX1005, 6:32-7:2.

192. As shown in Figure 3, Lane describes a multiple axis hinge assembly located at, and forming part of, the *interface between the display component and the base* as recited in 1e/18e.



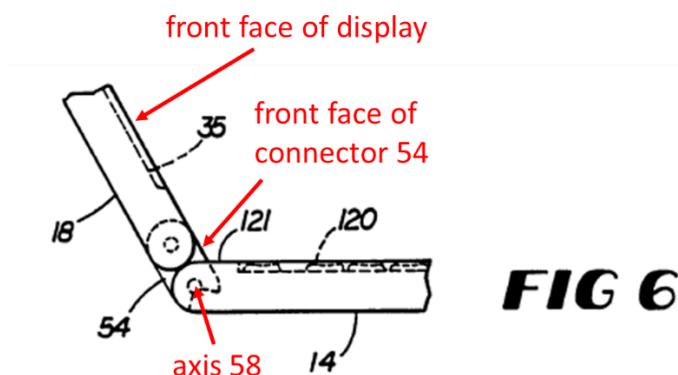
EX1005, Fig. 3 (annotated).

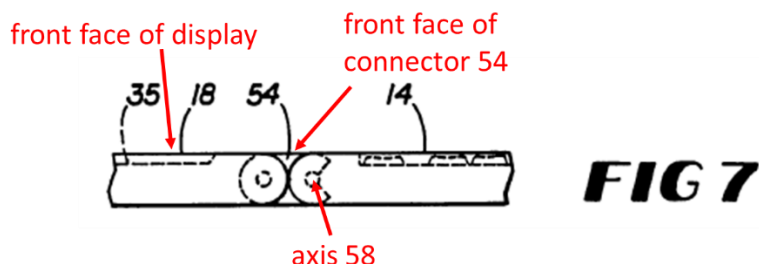
193. The '229 Patent confirms that the claimed *interface* can be a multiple axis hinge assembly as disclosed by Lane. For instance, the patent states:

Depending on the hinge assembly used, the longitudinal axis may comprise[] multiple parallel axes, and the hinge assembly may be configured to permit rotation of the display component about any of the multiple parallel axes to configure the portable computer between the plurality of display modes.

EX1001, 2:65-3:3. Further, dependent claim 5 states that the *interface* of claim 1 (which is recited identically in claim 18) *comprises a multiple axis hinge*, further confirming that Lane's multiple axis hinge assembly satisfies the *interface* limitation of 1e and 18e.

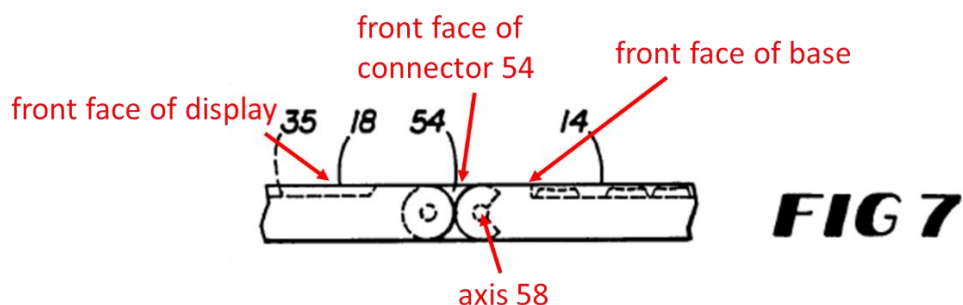
194. Axle 102 defines an axis of rotation 58 (as illustrated in Figure 3) that constitutes the claimed *longitudinal axis*. The *interface*, including axle 102/axis of rotation 58, runs *along the display component* (second module 18) *and the base* (first module 14) *about which the display component and the base are rotatable*. This can be seen by comparing the annotated versions of Figures 6 and 7 below.

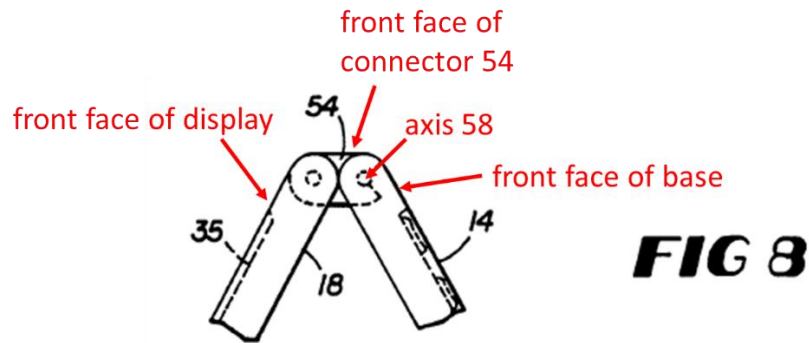




EX1005, Fig. 6 (annotated), Fig. 7 (annotated). In both figures, the front face of connectors 54 are parallel to the front face of second module 18 (*the display component*). In Figure 6 (depicting laptop mode), the second module 18 (*the display component*) as well as the connectors 54 are at an angle between 90 degrees and 180 degrees with respect to first module 14 (*the base*). In Figure 7, by contrast, second module 18 (*the display component*) and connectors 54 are at an angle of 180 degrees with respect to first module 14 (*the base*). This indicates that, as between Figure 6 and Figure 7, second module 18 and connectors 54 have rotated about the *longitudinal axis* defined by the axle 102/axis 58.

195. In addition, first module 14 also rotates about axis 58 defined by axle 102. This can be seen by comparing the annotated versions of Figures 7 and 8 below.





EX1005, Figs. 7-8 (annotated). In Figure 7, the front faces of first module 14 (*the base*) and second module 18 (*the display component*) are both parallel to the horizontal face of connectors 54. In Figure 8 (depicting the easel mode), the front faces of both first module 14 and second module 18 have been rotated downward with respect to the horizontal face of connectors 54. This indicates that, as between Figure 7 and Figure 8, first module 14 and connectors 54 have rotated about the *longitudinal axis* defined by the axle 102/axis 58.

196. The teeth on the edge of first module 14 and second module 18 shown in Figure 3 do not preclude rotation of first module 14 or second module 18 about axis 58 for at least two reasons. First, teeth 110, 118 are optional. EX1005, 7:3-7 (“[S]econd module 18 **may** also include teeth 110. ... ***If present***, teeth 110 and 114....”) (emphasis added). (I note that in embodiments without teeth, Lane discloses the use of two torque generating devices 37, such as springs, that work together with friction to maintain the portable computer in various different configurations. EX1005, 5:19-22, 7:6-12.) Second, the connectors 54 allow first

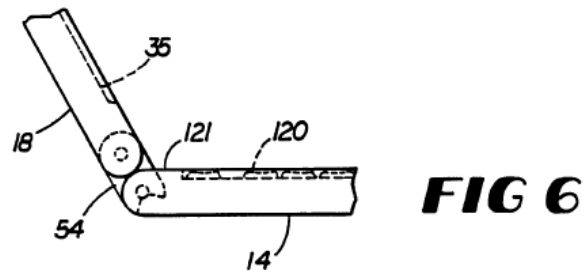
module 14 and second module 18 to be separated, and thus would allow those modules to be pulled apart a slight distance to separate the teeth 110, 114 to allow such rotation of the second module 18 about axis 58. EX1005, 6:26-36 (explaining that connector 54 of Fig. 4 includes a movable leg 66 that pivots about a pin 74 to allow the connector 54 to detach from axle 102), 10:32-11:16 (discussing detachability of modules 14 and 18).

197. Thus, as Lane's portable computer transitions from the laptop mode of Figure 6 through the flat mode of Figure 7 to the easel mode of Figure 8, both the second module 18 (*the display component*) and the first module 14 (*the base*) rotate about axis 58 defined by axle 102. That second module 18 also rotates about a second axis 62 defined by axle 86 in that module does not preclude an unpatentability determination because the claim is not limited to a single axis of rotation as I discuss above.

- g) [1f/18f] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis up to approximately 180 degrees from a closed mode configures the portable computer into the laptop mode, wherein in the laptop mode the display component is oriented towards an operator and a keyboard disposed within the base is oriented to receive input from the operator;**

198. Lane discloses this limitation.

199. For example, Lane's Figure 6 illustrates Lane's portable computer configured in *the laptop mode*, in which *either the display component or the base* is rotated *about the longitudinal axis up to approximately 180 degrees from a closed mode* (i.e., rotated more than 0 degrees and less than 180 degrees).

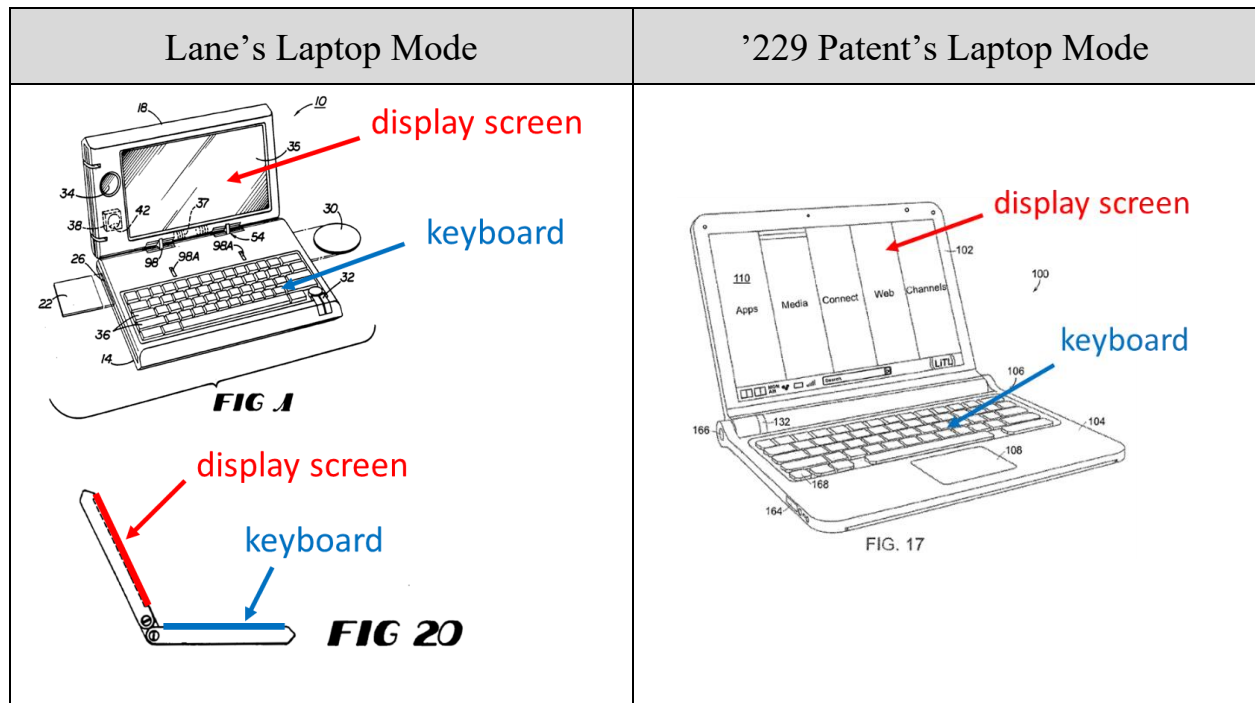


EX1005, Fig. 6; *see also* EX1005, Fig. 1. In contrast, Figure 5 shows Lane's portable computer unrotated (i.e., in *a closed mode*) and Figure 7 shows it rotated a full 180 degrees. Regarding Figure 6, Lane explains that it “illustrates second module 18 rotated about axis 62 to form an obtuse angle relative to first module 14 (described...as a nominally ‘open’ position), positions representative of those assumed by the displays and keyboards of many operating laptop computers.” EX1005, 8:2-8; *see also* EX1005, 10:24-28 (Figure 20 shows that “second module 18 is rotated more than 90° to provide a standard ‘desktop’ orientation”), Figs. 1, 6, 15-18, 20.

200. In this configuration, Lane's *display component* (second module 18) is *oriented towards an operator and a keyboard* (keys 36) *disposed within the base* (first module 14) *is oriented to receive input from the operator*. EX1005, 5:15-17

(“FIG. 1 illustrates device 10 in a nominally ‘open’ position permitting access both to visual display 35 and keys 36....”).

201. Further, Lane’s *laptop mode* mirrors the *laptop mode* of the ’229 Patent, as illustrated below.



EX1005, Fig. 1 (annotated), Fig. 20 (annotated); EX1001, Fig. 17 (annotated).

Thus, Lane discloses the same *laptop mode* described by the ’229 Patent and recited in claims 1 and 18.

- h) [1g/18g] wherein the interface is constructed and arranged such that rotating either the display component or the base about the longitudinal axis beyond approximately 270 degrees from the closed mode transitions the portable computer for viewing in the frame mode or the easel mode, wherein during operation in the frame mode the display component is positioned toward the operator, the base contacts a substantially horizontal surface, and the keyboard is

directed towards the substantially horizontal surface, and wherein during operation in the easel mode the display component is oriented facing the operator with the keyboard oriented away from the operator; and

202. Lane discloses this limitation.

203. For example, Figure 8 illustrates Lane's portable computer configured such that *either the display component or the base is rotated about the longitudinal axis beyond approximately 270 degrees from the closed mode.*

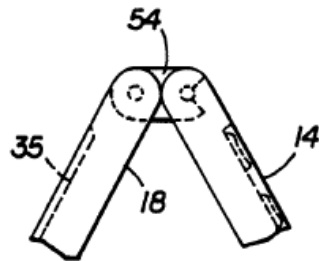
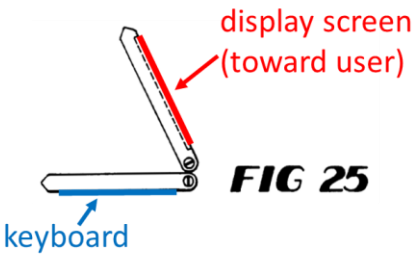
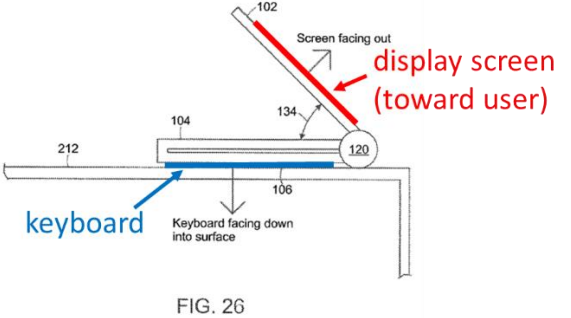


FIG 8

EX1005, Fig. 8.

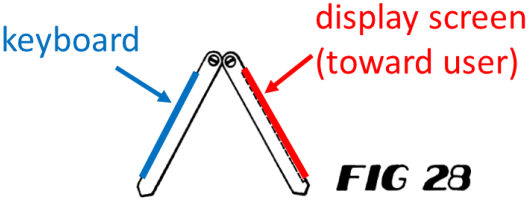
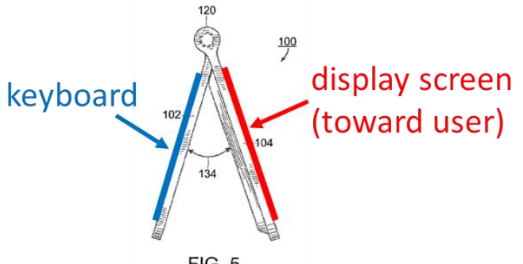
204. Lane explains that, as illustrated in Figure 8, the “rotation of second module 18 exceeds 270°, [which is] useful particularly when only visual display 35 need be accessible.” EX1005, 8:12-15; *see also* EX1005, 10:29-31 (In Figures 25 and 28, “second module 18 is rotated more than 270°, when only the visual display 35 need be accessible....”). When rotated more than 270 degrees, Lane's portable computer can be configured *for viewing in the frame mode or the easel mode* as illustrated in Figure 25 (*frame mode*) and Figure 28 (*easel mode*).

205. Lane's *frame mode* mirrors the *frame mode* of the '229 Patent, as illustrated below.

Lane's Frame Mode	'229 Patent's Frame Mode
 FIG 25	 FIG. 26

EX1005, Fig. 25 (annotated); EX1001, Fig. 26 (annotated). As illustrated in Lane's Figure 25, when the computer is configured in *the frame mode the display component is positioned toward the operator, the base contacts a substantially horizontal surface, and the keyboard is directed towards the substantially horizontal surface, as claimed.*

206. Lane's *easel mode* mirrors the *easel mode* of the '229 Patent, as illustrated below.

Lane's Easel Mode	'229 Patent's Easel Mode
 FIG 28	 FIG. 5

EX1005, Fig. 28 (annotated); EX1001, Fig. 5 (annotated). As illustrated in Lane's Figure 28, when the computer is configured in *the easel mode the display component is oriented facing the operator with the keyboard oriented away from the operator*, as claimed.

- i) **[1h/18h] wherein the portable computer is configured to detect a transition to at least [one of] the easel mode and the frame mode based on the orientation information, automatically determine a display orientation of content, and disable the keyboard [when/in response to detecting] the portable computer is in the frame mode.**

207. Lane discloses this limitation.

208. As discussed above, Lane's computer can be configured in *easel mode* and *frame mode* as illustrated, for example, in Figures 25 and 28.

209. Lane also teaches using position-indicating mechanism 38 to provide *orientation information* to the portable computer and related software in order to disable the keyboard when the computer/software detect a configuration in which the keyboard is not accessible to the user. EX1005, 5:35-6:6. Lane also teaches and illustrates that the keyboard is not readily accessible to the user in both *easel mode* and *frame mode*. EX1005, 10:28-31, Figs. 25, 28. Thus, Lane discloses that the computer and associated software is *configured to detect a transition to at least the easel mode and the frame mode based on the orientation information* so that the keyboard can be disabled.

210. Lane's computer will also *automatically determine a display orientation of content*. As Lane explains, the computer and its associated software use information from position-indicating mechanism 38 to determine "whether the information to appear on visual display 35 should be in 'landscape' or 'portrait' position as the visual display 35 is spatially configured, [and] the direction in which to move a curser [sic]" on the visual display. EX1005, 5:35-6:6. Thus, Lane discloses determining the orientation of the display so that the content will be displayed correctly (i.e., right-way-up) and the cursor will move in the correct direction.

211. Finally, as discussed above, Lane also discloses *disabl[ing] the keyboard when (or in response to detecting) the portable computer is in the frame mode* as claimed. Lane describes using information from position-indicating mechanism 38 to determine "whether to render keys 36 of first module 14 inoperable when unused." EX1005, 5:35-6:6. Lane also discloses that the computer can be configured in *frame mode* (as illustrated in Figure 25) in which the keyboard is inaccessible to the user because it is facing down toward the desktop. EX1005, 10:24-31 (in Figure 25, "second module 18 is rotated more than 270°, when only the visual display 35 need be accessible"). Thus, Lane teaches *disabl[ing] the keyboard* when the computer is configured *in the frame mode*.

212. To the extent that Patent Owner may argue that Lane describes including position-indicating mechanism 38 in either *the display component* or *the base* so that Lane's computer can either *automatically determine a display orientation of content* or *disable the keyboard* but not both, I would disagree with such an argument. Lane states in relevant part:

Including mechanism 38 as a component of either first or second modules 14 or 18 would thus permit it to indicate the spatial orientation of that module.

EX1005, 5:32-35. A person of ordinary skill in the art would understand this sentence to mean that a position-indicating mechanism 38 can be included as a component in the first module 14 (*base*), a component in the second module 18 (*display component*), or a component in both first module 14 and in second module 18. Lane suggests to a person of ordinary skill in the art including a position-indicating mechanism 38 in both because the next sentence recites using information from position-indicating mechanism 38 to determine the orientation of the display and the orientation of the keyboard. EX1005, 5:35-6:6. Further, it would be obvious to a person of ordinary skill in the art to try such a configuration because there are only three possibilities: (1) include a position-indicating mechanism 38 in first module 14 (*base*); (2) include a position-indicating mechanism 38 in second module 18 (*display component*); or (3) include a position-indicating mechanism 38 in both the first and second module (*base* and *display*

component). A person of ordinary skill in the art would immediately recognize the benefit of obtaining orientation information about both the display and the keyboard to provide all the functionality described by Lane.

213. Claim limitation 18h recites detecting *a transition to at least one of the easel mode and the frame mode* while claim limitation 1h refers to detecting *a transition to at least the easel mode and the frame mode*. (emphasis added). Thus, Lane discloses 18h for the same reasons I have provided for 1h.

3. Independent Claim 12

214. As I showed above in Paragraphs 97-98, independent claim 12 includes a number of limitations that are the same as, or quite similar to, corresponding limitations in claims 1 and 18. In some parts of my analysis of claim 12 below, I will refer back to and rely on my analysis of claims 1/18 without repeating my earlier analysis.

a) [12pre] A portable computer configurable between a plurality of operating display modes, the portable computer comprising:

215. Lane discloses the preamble of claim 12 for the same reasons I discussed in connection with the preambles of claims 1 and 18.

216. I note that claims 1 and 18 refer to “display modes,” while claim 12 refers to “operating display modes.” The ’229 Patent specification does not refer to “operating display modes,” and the term appears only in claim 12 and 13 in

which they are used in the same manner as “display modes” in claim 1/18.

Therefore, my discussion of “display modes” in claims 1 and 18 applies to “operating display modes” in claims 12 and 13.

217. As I explained in connection with the preamble of claims 1 and 18, Lane discloses *a portable computer configurable between a plurality of operating display modes* including a laptop mode, a frame mode, and an easel mode. Lane discloses other *operating display modes* as well, including a tablet mode illustrated in Figures 9 and 27.

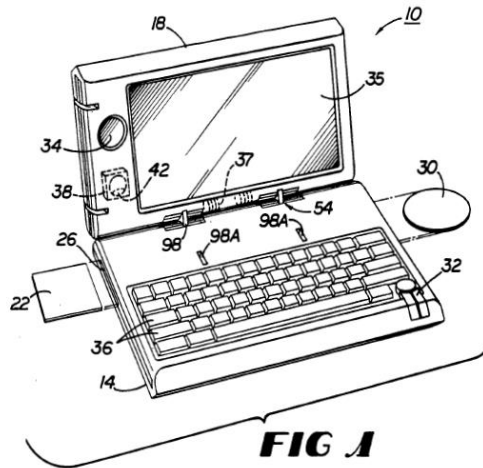


EX1005, Fig. 9 and 27; *see also* EX1005, 3:7-14 (“[T]he present invention permits components to be repositioned...allowing use of a visual display...[as] a pen-based computing tablet.”), 8:15-19 (Figure 9 illustrates “a tablet for pen-based computing....”), 10:17-20 (Figure 27 illustrates “a tablet for pen-based computing....”).

b) [12a] a display component including a single display screen for viewing content;

218. This limitation is similar to claim limitation 1a/18a, but it additionally recites that there is *a single display screen for viewing content*. See Paragraphs 97-98, above.

219. Lane discloses *a display component* (second module 18) including *a single display screen for viewing content* (visual display 35) as illustrated in Figure 1, for example. EX1005, 5:10-18, 5:35-6:6.



EX1005, Fig. 1.

c) [12b] a base;

220. This limitation is identical to claim limitation 1b/18b. See Paragraphs 97-98, above. It is disclosed for the same reasons I explained in connection with 1b/18b.

d) [12c] an accelerometer configured to generate orientation information indicative of a current display

mode among the plurality of display modes of the portable computer;

221. This limitation is identical to claim limitation 1c. See Paragraph 97, above. It is similar to limitation 18c but refers to “display modes” rather than the interchangeable term “modes of operation.” It is disclosed for the same reasons I explained in connection with 1c/18c.

- e) **[12d] a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least two operating display modes of the plurality of operating display modes, wherein the display manager is further configured to enlarge the computer content displayed on the display component responsive to a transition from a first operating display mode of the plurality of operating display modes to a second operating display mode of the plurality of operating display modes;**

222. The combination of Lane and Fujinawa discloses this limitation for the same reasons I explained in connection with 1d/18d. This limitation is similar to 1d/18d, but it is broader as it refers to *at least two operating display modes* while 1d/18d specifically recites “the laptop and easel modes.” See Paragraphs 97-98, above.

223. Lane discloses a *plurality of operating display modes* including laptop, easel, frame, and tablet modes. EX1005, Figs. 1, 6-9, 20-21, 25, 27.

224. Lane also discloses *vary the computer content displayed responsive to the orientation information indicating a transition between at least two operating display modes of the plurality of operating display modes*, as I discussed in connection with claim limitation 1d/18d. EX1005, 5:35-6:6.

225. In addition, Fujinawa discloses *vary[ing] the computer content displayed* in response to a transition *between at least two operating display modes*, as I also explained in connection with claim limitation 1d/18d.

226. Thus, the Lane-Fujinawa combination discloses *a display manager configured to display computer content on the display component and vary the computer content displayed responsive to the orientation information indicating a transition between at least two operating display modes of the plurality of operating display modes* for the reasons I explained in connection with 1d/18d.

227. Further, the combination of Lane and Fujinawa discloses *enlarg[ing] the computer content displayed on the display component responsive to a transition from a first operating display mode of the plurality of operating display modes to a second operating display mode of the plurality of operating display modes* for the reasons I discussed for 1d/18d.

228. A person of ordinary skill in the art would understand Fujinawa to broadly teach varying and enlarging content (e.g., a digital photo) when changing the display from a partial screen view to full screen view, which could apply

whenever Lane's computer is reconfigured or reoriented so that visual display 35 is in landscape orientation, for example.

- f) **[12e] an interface connecting the display component and the base, defining a longitudinal axis running along the display component and the base about which the display component and the base are rotatable;**

229. This limitation is virtually identical to claim limitations 1e and 18e. See Paragraphs 97-98, above. It is disclosed for the same reasons I explained in connection with 1e/18e.

- g) **[12f] wherein the interface is constructed and arranged so that the display component and the base are rotatable with respect to each other about the longitudinal axis;**

230. Lane discloses this limitation for at least the reasons I discussed in connection with claim limitations 1e/18e and 1f/18f.

231. As I discussed for 1e/18e, Lane discloses the claimed *interface* between *the display component* and *the base*. Further, the *interface is constructed and arranged so that the display component and the base are rotatable with respect to each other about the longitudinal axis* for at least the reasons discussed for 1e/18e and 1f/18f.

232. For example, Figures 5-9 show *the display component and the base* being rotated *with respect to each other about the longitudinal axis*.

- h) [12g] wherein the interface is constructed and arranged so that rotating either the display component or the base about the longitudinal axis from a closed mode to a first position configures the portable computer into the first operating display mode of the plurality of operating display modes, wherein in the first operating display mode the display component is oriented towards an operator of the portable computer, and the base is disposed on an opposite side of the display, wherein at least a portion of the base is configured to support the display in position when in the first operating display mode;**

233. Lane discloses this limitation.

234. The claim recites transitioning from *a closed mode to a first position*.

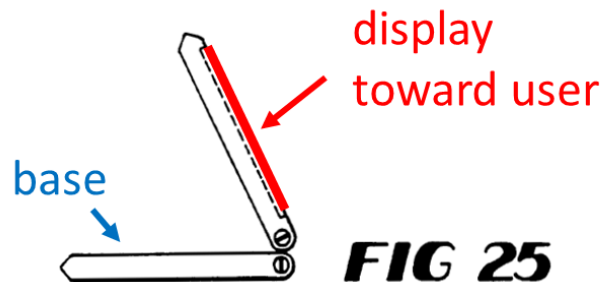
Lane discloses *a closed mode*. EX1005, 5:17-18 (“FIG. 2 shows device 10 in a nominally ‘closed’ position.”), Figs. 2, 5, 16, 19. Lane also discloses *rotating either the display component or the base about the longitudinal axis* into other positions. EX1005, Figs. 5-9.

235. The claim then states that transitioning to *a first position* puts the *portable computer into the first operating display mode of the plurality of operating display modes* (e.g., laptop, easel, etc.). Lane discloses a *plurality of operating display modes* as I have discussed.

236. This limitation then states that *the first operating display mode* is one in which (i) *the display component is oriented towards an operator*, (ii) *the base is disposed on an opposite side of the display*, and (iii) *at least a portion of the base is configured to support the display in position*. Lane discloses at least three

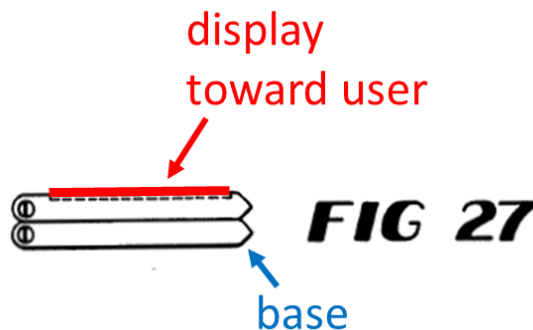
operating display modes that meet these requirements: frame mode, tablet mode, and easel mode.

237. Lane discloses a frame mode illustrated in Figure 25.



EX1005, Fig. 25 (annotated). In Lane's frame mode (i) *the display component is oriented towards an operator*, (ii) *the base is disposed on an opposite side of the display*, and (iii) *at least a portion of the base is configured to support the display in position*.

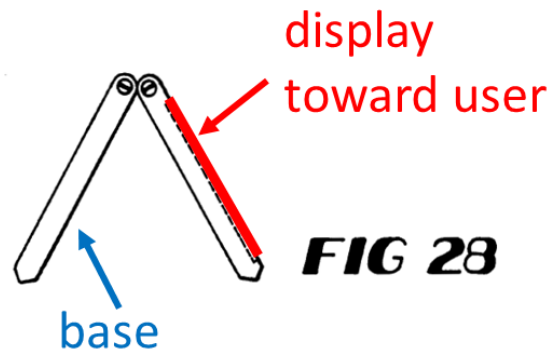
238. Lane discloses a table mode illustrated in Figure 27.



EX1005, Fig. 27 (annotated). In Lane's tablet mode (i) *the display component is oriented towards an operator*, (ii) *the base is disposed on an opposite side of the*

display, and (iii) at least a portion of the base is configured to support the display in position.

239. Lane discloses an easel mode illustrated in Figure 28.



EX1005, Fig. 28 (annotated). In Lane's easel mode (i) *the display component is oriented towards an operator*, (ii) *the base is disposed on an opposite side of the display*, and (iii) *at least a portion of the base is configured to support the display in position.*

240. Thus, Lane's portable computer can be opened *from a closed mode to a first position that configures the portable computer into the first operating display mode of the plurality of operating display modes* (i.e., frame mode, tablet mode, or easel mode).

241. In addition to the *operating display modes* illustrated in Lane's Figures 25, 27, and 28, a person of ordinary skill in the art would recognize that Lane's portable computer can be rotated 90 degrees, for example, changing from landscape view to portrait view (or vice versa). Lane contemplates these additional

operating display modes by disclosing that the portable computer reorients the content on the display by 90 degrees when changing between landscape and portrait views. EX1005, 5:35-6:6.

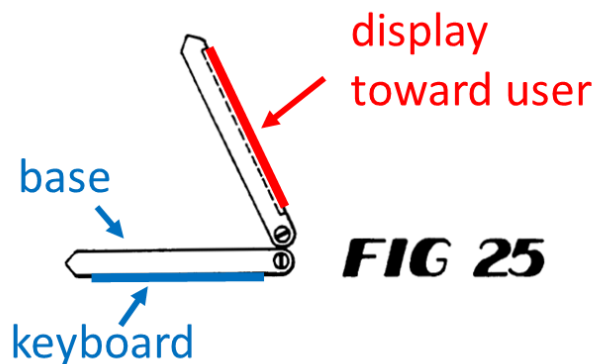
- i) **[12h] wherein the interface is constructed and arranged so that reorienting the portable computer while the display component and the base are in the first position configures the portable computer into the second operating display mode of the plurality of operating display modes, wherein in the second operating display mode the display component is oriented towards an operator of the portable computer, the base lies flat on a substantially horizontal surface, and a keyboard of the base is disabled and disposed towards the substantially horizontal surface, wherein at least a portion of the base is configured to support the portable computer in position when in the second operating display mode, a display orientation of content is automatically changed when transitioning between the first and second operating display modes.**

242. Lane discloses this limitation.

243. The claim recites *reorienting the portable computer* while leaving it in *the first position* so that the computer is configured *into the second operating display mode of the plurality of operating display modes*. In other words, the claim recites leaving the base and display in the same configuration relative to each other (*the first position*) but *reorienting the portable computer* into a different *operating display mode*.

244. The claim then limits *the second operating display mode* to one in which (i) *the display component is oriented towards an operator of the portable computer*, (ii) *the base lies flat on a substantially horizontal surface*, (iii) *a keyboard of the base is disabled and disposed towards the substantially horizontal surface*, and (iv) *at least a portion of the base is configured to support the portable computer in position*. Lane discloses at least two operating display modes that meet these requirements for *the second operating display mode*: frame mode and tablet mode.

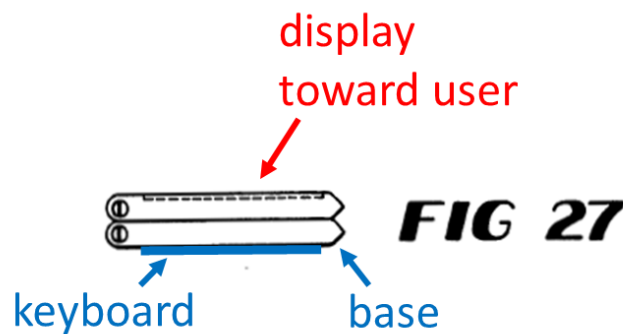
245. Lane discloses a frame mode illustrated in Figure 25. As I explained in connection with claim limitation 1h/18h, Lane discloses disabling the keyboard when it is unused as in frame mode. EX1005, 5:35-6:6, 10:24-31.



EX1005, Fig. 25 (annotated). In Lane's frame mode (i) *the display component is oriented towards an operator of the portable computer*, (ii) *the base lies flat on a substantially horizontal surface*, (iii) *a keyboard of the base is disabled and*

disposed towards the substantially horizontal surface, and (iv) at least a portion of the base is configured to support the portable computer in position.

246. Lane discloses a tablet mode illustrated in Figure 27. As I have explained, Lane teaches disabling the keys of the keyboard when they are unused (EX1005, 5:35-6:6), which is true in tablet mode as in frame mode as I discussed in connection with 1h/18h.



EX1005, Fig. 27 (annotated). In Lane's tablet mode (i) *the display component is oriented towards an operator of the portable computer*, (ii) *the base lies flat on a substantially horizontal surface*, (iii) *a keyboard of the base is disabled and disposed towards the substantially horizontal surface*, and (iv) *at least a portion of the base is configured to support the portable computer in position.*

247. Lane discloses *reorienting the portable computer* while leaving it in *the first position* so that the computer is configured *into the second operating display mode* in at least two different ways.

248. First, Lane's computer can be *reorient[ed]* from the easel mode (*first operating display mode*) to frame mode (*second operating display mode*) while leaving it in *the first position* (i.e., without rotating the display and base relative to each other).

249. Second, Lane's computer can be *reorient[ed]* from the tablet mode with the display in portrait view (*first operating display mode*) to tablet mode oriented so that the display is in landscape view (*second operating display mode*) while leaving it in *the first position*. Similarly, Lane's computer can also be *reorient[ed]* from tablet mode in landscape view (*first operating display mode*) to tablet mode in portrait view (*second operating display mode*) while leaving it in *the first position*. In other words, Lane's computer can be turned 90 degrees when in tablet mode to change the screen orientation from portrait to landscape (or vice versa).

250. Finally, this limitation requires that *a display orientation of content is automatically changed when transitioning between the first and second operating display modes*, which Lane discloses. A person of ordinary skill in the art would understand that when Lane's portable computer is reoriented from easel mode to frame mode (for example), the content displayed on visual display 35 would be automatically inverted so that it is right-way-up. EX1005, 5:35-6:6. Such a person would also understand that when Lane's portable computer is reoriented from

tablet mode in landscape view to tablet mode in portrait view (or vice versa), the content displayed on visual display 35 would be rotated accordingly. EX1005, 5:35-6:6. In either example, the *display orientation of content is automatically changed* when Lane's computer is transitioned *between the first and second operating display modes*.

4. Dependent Claims 2-11, 14, 19, 24, 25

251. Claims 2-11, 19, 24, and 25 all depend directly or indirectly from independent claim 1. Claim 14 depends from independent claim 12. These claims are obvious based on the combination of Lane and Fujinawa for the reasons discussed below.

a) Claim 2: The portable computer of claim 1, wherein the display component is rotatable about the longitudinal axis up to approximately 320 degrees from the closed mode.

252. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim.

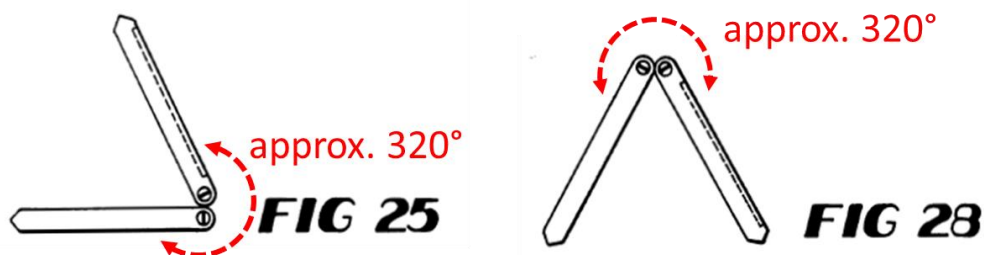
253. Lane discloses that *the display component is rotatable about the longitudinal axis up to approximately 320 degrees from the closed mode* in two different ways depending on how the claim language is read.

254. **Option 1:** In my opinion, the plain meaning of this claim limitation is that the display of the *portable computer* can be opened from a closed position to a

point at which the base and display are *up to approximately 320 degrees* apart but not more. I have been asked to consider, however, whether Lane discloses this limitation if Patent Owner contends that it is met by a configurable laptop that can open to 360 degrees so long as it can be positioned at *approximately 320 degrees*. Lane does.

255. Second module 18 (*the display component*) of Lane’s portable computer can be rotated around an axis from 0 to 360 degrees. EX1005, Abstract, 3:7-14, Figs. 5-9. Lane discloses a “[t]orque-generating device 37, such as a spring, [that] is designed to retain second module 18 in a selected position relative to first module 14 when device 10 is in use.” EX1005, 5:19-22. Thus, Lane discloses a portable computer that can be opened by any amount of rotation from 0 to 360 degrees and will retain the configuration.

256. Lane explicitly discloses at least two configurations in which the display is rotated *approximately 320 degrees from the closed mode*.

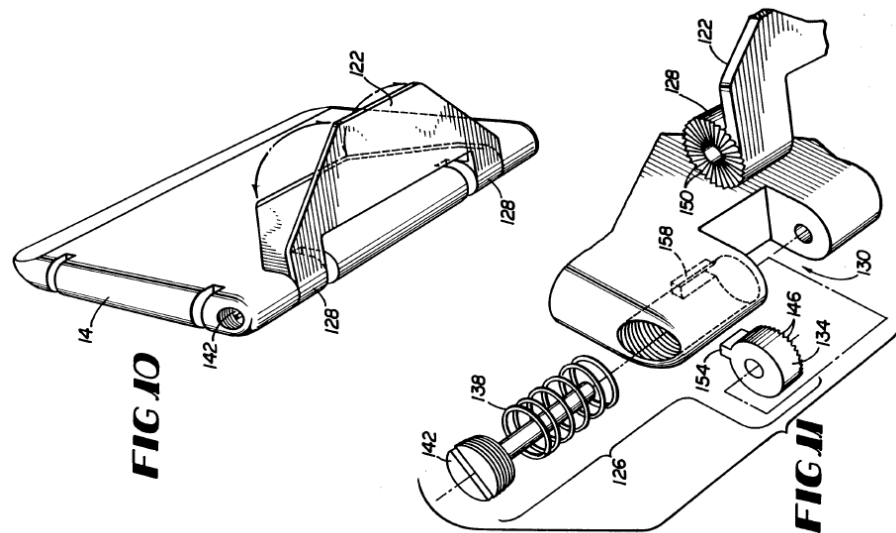


EX1005, Fig. 25 (annotated), Fig. 28 (annotated). In the configurations illustrated in Figure 25 (frame mode) and Figure 28 (easel mode), Lane’s display is rotated by

approximately 320 degrees from a closed mode. The illustrated angle is actually closer to 300 degrees, which a person of ordinary skill in the art would recognize is *approximately 320 degrees* in this context. Such a person would also recognize that the components can be rotated further than illustrated to an angle of 320 degrees while achieving the same configurations.

257. **Option 2:** As I stated above, the plain meaning of this claim limitation is that the display of the *portable computer* can be opened from a closed position to a point at which the base and display are *up to approximately 320 degrees* apart but not more. Lane discloses and suggests this limitation under its plain meaning.

258. Lane describes an embodiment of the portable computer that incorporates an optional support 122. EX1005, 8:24-25, Fig. 10. “Support 122 rotates away from second module 18 and is held in position by mechanism 126....” EX1005, 8:25-30.



EX1005, Figs. 10 and 11. Lane states that “knobs 128 of support 122 may be fitted into recesses 130, with key 134, spring 138, and tension-adjustment screw 142 of mechanism 126 utilized to retain them in place” and that “key 134 includes radial teeth 146 that engage similar teeth 150 on knob 128, with protrusion 154 of key 134 fitting into keyway 158 for rotational stability.” EX1005, 8:34-9:4. Thus, Lane describes an optional support that can be rotated away from the display and then held firmly in position using tension-adjustment screw 142.

259. Lane illustrates several configurations of the portable computer utilizing the optional support 122. For instance, Figure 12 shows support 122 used to “brace second module 18.” EX1005, 8:25-28. Figure 13 shows support 122 used to “elevate, for instance, a keyboard used as first module 14...to facilitate information or data entry.” EX1005, 8:28-30.

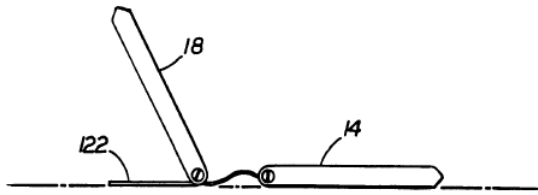


FIG 12

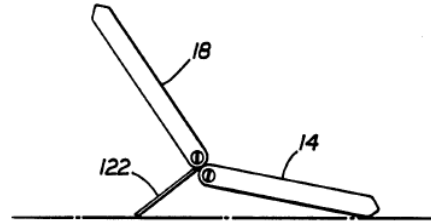


FIG 13

EX1005, Figs. 12 and 13. In these exemplary figures, the support presses against the desktop to support the display or elevate the keyboard. EX1005, 8:25-30. A person of ordinary skill in the art would recognize, however, that the support could also be used in other configurations.

260. For example, a person of ordinary skill in the art would recognize that if the portable computer illustrated in Figure 13 is rotated beyond 180 degrees to place it in easel mode, the support would press against the back of the base of the computer and prevent it from rotating beyond about 270 degrees. With a minor adjustment, support 122 could be configured to permit *the display component* to rotate *about the longitudinal axis up to approximately 320 degrees from the closed mode* but not more, as required by claim 2.

261. A person of ordinary skill in the art would recognize the benefit of using the support to prevent Lane's portable computer from rotating past *approximately 320 degrees from the closed mode* when in easel or frame modes. Rotating Lane's portable computer past about 320 degrees in easel mode would tend to make it less stable (i.e., there would be greater risk of the computer falling

over). Using the support to prevent the computer from rotating past about 320 degrees would reduce this risk and keep the computer more stable when in easel mode. This would be particularly important in a mobile environment such as the automobile example illustrated in Proell. EX1010, ¶¶[0052], [0054], Fig. 7. It would also allow the user to move the computer from one location to another while maintaining the same desired viewing angle without having to readjust the angle between the base and display. Similarly, using the support to brace the display when in frame mode would allow the user to maintain a desired viewing angle even when moving the computer from one place to another, and it would also reduce the pressure—and therefore wear and tear—on the hinge assembly and connectors 54.

b) Claim 3: The portable computer of claim 1, further comprising:

262. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim.

- (1) **[3a] a display orientation module that displays content on the display screen in one of a plurality of content orientations relative to the longitudinal axis;**

263. Lane discloses this limitation.

264. Lane’s portable computer and “its associated software” use information provided by “position-indicating mechanism 38” to determine “whether the information to appear on visual display 35 should be in ‘landscape’ or ‘portrait’ position as the visual display 35 is spatially configured....” EX1005, 5:35-6:3. The computer and software also determine “the direction in which to move a curser [sic] of second module 18” based on its orientation. EX1005, 5:35-6:6. These disclosures teach and suggest to a person of ordinary skill in the art that as Lane’s computer display is reoriented by a *display orientation module* so that the *content orientations relative to the longitudinal axis* change to keep the displayed content right-way-up. Thus, Lane discloses this limitation based on its plain meaning.

265. Further, Lane discloses this limitation if interpreted as a means-plus-function term as I discussed above. Lane’s reference to the computer’s “associated software” would suggest to a person of ordinary skill in the art that Lane’s portable computer includes a “processor programmed with an algorithm for carrying out the function recited in claim 3” (i.e., displaying content on the display screen in one of a plurality of content orientations relative to the longitudinal axis). See Section V.E.2, above. A person of ordinary skill in the art would know that Lane’s portable computer—like essentially all computers—uses a processor programmed to execute software (including algorithms). Lane’s reference to “associated

software” confirms that this is so. And as I have explained, the associated software is used to perform the claimed function (i.e., displaying content on the display screen in one of a plurality of content orientations relative to the longitudinal axis).

(2) **[3b] a mode sensor which incorporates the accelerometer and detects the current display mode of the portable computer based on the orientation information; and**

266. Lane discloses and suggests this limitation for the reasons I explained in connection with claim limitations 1c/18c.

267. Lane describes “position-indicating mechanism 38,” which is an *accelerometer* and generates orientation information. The orientation information is used by Lane’s device 10 (*portable computer*) and its associated software to ensure that the content on the display screen is oriented right-way-up, to make sure the mouse cursor moves in the correct direction depending on the display’s orientation, and to disable the keyboard when unused. EX1005, 5:35-6:6. As I explained for 1h/18h, the orientation information is used to detect a transition to different display modes (e.g., laptop mode, frame mode, easel mode). Thus, Lane’s computer and its software include *a mode sensor* that uses orientation information supplied by position-indicating mechanism 38 (*a mode sensor which incorporates the accelerometer*) to detect *the current display mode*.

268. To the extent Patent Owner may argue that a single *accelerometer* cannot distinguish between each of Lane’s plurality of display modes because a

single accelerometer will only provide orientation information for the base or the display but not both, I disagree with the premise that Lane's disclosure is so limited. As I discussed above in 1h/18h, Lane discloses or at least suggests incorporating a position-indicating mechanism 38 in both the base and the display. Lane states in relevant part:

Including mechanism 38 as a component of either first or second modules 14 or 18 would thus permit it to indicate the spatial orientation of that module.

EX1005, 5:32-35. A person of ordinary skill in the art would not understand this sentence to teach using only one position-indicating mechanism 38 in either the first or the second module. Instead, a person of ordinary skill in the art would understand the sentence to explain that including a position-indicating mechanism 38 in first module 14 would permit it to indicate the spatial orientation of first module 14 and including one in second module 18 would permit it to indicate the spatial orientation of second module 18. The sentence tells a person of ordinary skill in the art that a position-indicating mechanism 38 can be included in the first module 14 (base), in the second module 18 (display), or in both.

269. The next sentence in Lane confirms to a person of ordinary skill in the art that a position-indicating device 38 is included in first module 14 (base) and also in second module 18 (display). Lane explains that placing position-indicating device 38 in the base and/or the display:

would also allow mechanism 38 to assist device 10 (and its associated software) in determining, for example, whether the information to appear on visual display 35 should be in ‘landscape’ or ‘portrait’ position as the visual display 35 is spatially configured, the direction in which to move a curser [sic] of second module 18 when a visual display, or whether to render the keys 36 of first module 14 inoperable when unused.

EX1005, 3:35-6:6. A person of ordinary skill in the art would understand that achieving the described functionality would require a position-indicating mechanism 38 in second module 18 (display) to make sure the content and cursor are oriented on the screen right-way-up and also a position-indicating mechanism 38 in first module 14 (base) to determine when to disable the keyboard.

270. The alternative—with only one position-indicating mechanism 38 in one module or the other—would make little sense to a person of ordinary skill in the art. For example, including a position-indicating mechanism 38 in only first module 14 (base) would allow Lane’s computer to disable the keyboard but unable to keep the content and cursor on the visual display right-way-up.

271. Further, as I explained in connection with 1h/18h, it would be obvious to a person of ordinary skill in the art to try such a configuration because there are only three possibilities: (1) include a position-indicating mechanism 38 in first module 14 (base); (2) include a position-indicating mechanism 38 in second module 18 (display); or (3) include a position-indicating mechanism 38 in both. A

person of ordinary skill in the art would immediately recognize the benefit of obtaining orientation information about both the display and the base to provide all of the functionality described by Lane.

272. Further, a person of ordinary skill in the art would have been familiar with *a mode sensor* used to detect *the current display mode* of a configurable computer as claimed. For example, Tonouchi describes a “mode determination section 105” that determines the current mode of the disclosed portable computer based on multiple sensor inputs. EX1008 ¶[0029]. Similarly, Wehrenberg describes using input from an accelerometer to determine the orientation of a portable computer. EX1023, 7:26-8:26.

273. Thus, Lane discloses and renders obvious to a person of ordinary skill in the art claim limitation 3b.

- (3) **[3c] wherein the display orientation module displays content on the display screen in the one of the plurality of content orientations dependent on the current display mode detected by the mode sensor.**

274. Lane also discloses this limitation for the reasons discussed in connection with claim limitations 3a and 3b. Lane explains that device 10 and its associated software uses orientation information from position-indicating mechanism 38 to, for example, keep content on the display screen right-way-up when the display is rotated. EX1005, 5:35-6:6.

275. When Lane's second module 18 (display) is reoriented by 90 degrees from landscape view to portrait view (or vice versa), the content on the display screen will reorient to remain right-way-up. In this example, *the display orientation module* discussed in 3a *displays content on the display screen* in a *content orientation* based on *the current display mode* that is *detected by the mode sensor* discussed in 3b.

c) Claim 4: The portable computer of claim 1, wherein the base and the display are only rotatable with respect to each other at the interface.

276. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim. Lane discloses the additional limitation of dependent claim 4 for the same reasons I discussed in connection with claim 1; in particular, with the preamble of claim 1 and limitations 1a, 1b, and 1e.

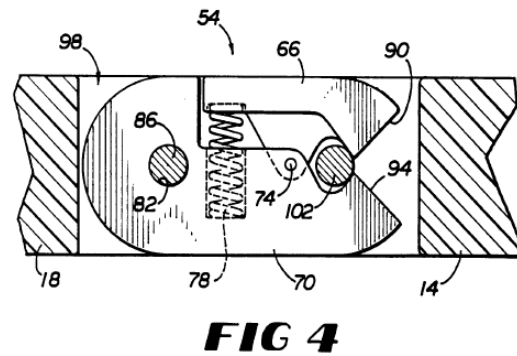
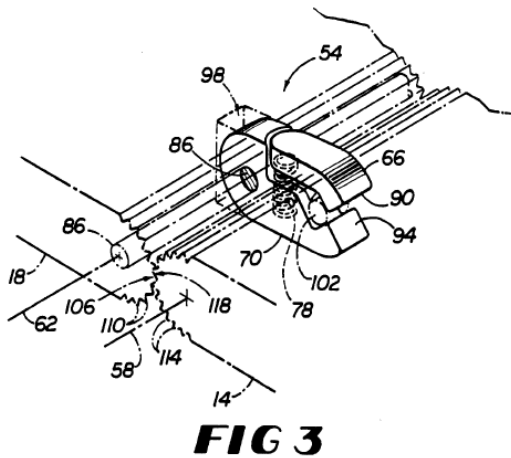
277. Lane discloses a *portable computer* with a first module 14 (*the base*) and second module 18 (*the display*) that are *only rotatable with respect to each other at the interface*. For example, such a *portable computer* is illustrated in Figure 1. EX1005, 2-22; *see also* Figs. 1-9.

d) Claim 5: The portable computer of claim 1, wherein the interface further comprises a multiple axis hinge.

278. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that

claim. Lane discloses the additional limitation of dependent claim 5 for the same reasons I discussed in connection with claim 1; in particular, with the preamble of claim 1 and limitation 1e.

279. Lane discloses an *interface* that includes *a multiple axis hinge* as illustrated in Figures 3 and 4. EX1005, 6:7-19, 7:3-8, Figs. 3-9.



EX1005, Figs. 3 and 4. As Lane states: “[F]irst module 14 defines a primary axis of rotation 58, while second module 18 defines a corresponding primary axis of rotation 62 parallel to axis 58.” EX1005, 6:8-12. Thus, Lane discloses a hinge assembly with two axes: axis of rotation 58 and axis of rotation 62.

e) Claim 6: The portable computer of claim 5, wherein the interface further comprises multiple hinges.

280. The combination of Lane and Fujinawa discloses the *portable computer* of claims 1 and 5 for the reasons I discussed above in connection with those claims. Lane discloses the additional limitation of dependent claim 6 for the

same reasons I discussed in connection with claims 1 and 5; in particular, with the preamble of claim 1 and limitation 1e as well as dependent claim 5.

281. Lane discloses an *interface* that includes *multiple hinges* as illustrated in Figures 1 and 3, for example. A person of ordinary skill in the art would recognize connector 54 (along with other components identified in Figure 3) as a hinge, and Lane's Figure 1 confirms that the portable computer includes two such connectors 54 (*multiple hinges*). EX1005, 6:7-19, 6:25-7:2. Similarly, Figures 17 and 18 illustrate an embodiment of Lane's computer in which "[f]irst and second modules 214 and 218 may be connected...using either of the mechanical connectors 226 and 230" (*multiple hinges*). EX1005, 9:18-21, Figs. 17-18.

f) Claim 7: The portable computer of claim 1, wherein the interface defines a single longitudinal axis.

282. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim.

283. To the extent Patent Owner contends that this claim is met by a multiple axis hinge assembly, Lane discloses it for the reasons I explained for claim limitation 1e.

g) Claim 8: The portable computer of claim 1, wherein the interface includes a hinge assembly, wherein the

hinge assembly is at least partially housed within one of the base and the display component.

284. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim. Lane discloses the additional limitation of dependent claim 8 for the same reasons I discussed in connection with claim 1; in particular, with the preamble of claim 1 and limitation 1e.

285. For example, Lane discloses an *interface* that includes connectors 54, which are part of *a hinge assembly*. EX1005, 6:25-7:2, Figs. 3-4. Two connectors 54 are integrated into first module 14 (*the base*) and second module 18 (*the display component*) as shown in Figure 1. EX1005, 6:25-7:2, Figs. 1, 3-9. Figures 3 and 4 further illustrate that each connector 54 is integrated into *the base* and *the display component*, as are axle 86 and axle 102. EX1005, 6:25-29 (referring to “axle 86 embedded within second module 18”), 6:32-36. Thus, Lane discloses a *hinge assembly that is at least partially housed within one of the base and the display component*.

h) Claim 9: The portable computer of claim 1, wherein the interface comprises means for rotating the display component along the longitudinal axis relative to the base to transition the portable computer for viewing in the frame mode.

286. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that

claim. Lane discloses the additional limitation of dependent claim 9 for the same reasons I discussed in connection with claim 1; in particular, with the preamble of claim 1 and limitations 1e and 1g.

287. For example, Lane discloses an *interface* that includes connectors 54, which are part of a hinge assembly as illustrated in Figures 1 and 3. EX1005, 6:25-7:2, Figs. 5-9. Lane's hinge assembly is a *means for rotating the display component along the longitudinal axis relative to the base to transition the portable computer for viewing in the frame mode* as that claim phrase should be construed (i.e., as a means-plus-function limitation). See Section V.E.3, above.

Lane's hinge assembly performs the function described in claim 9 (i.e., *rotating the display component along the longitudinal axis relative to the base to transition the portable computer for viewing in the frame mode*) for at least the reasons I discussed in connection with limitation 1g.

i) Claim 10: The portable computer of claim 1, wherein the interface comprises a plurality of axles.

288. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim. Lane discloses the additional limitation of dependent claim 10 for the same reasons I discussed in connection with claim 1; in particular, with the preamble of claim 1 and limitations 1e.

289. Lane discloses an *interface* that includes connectors 54, which are part of a hinge assembly as illustrated in Figures 1 and 3, for example. EX1005, 6:25-7:2, Figs. 5-9. The hinge assembly includes axle 86 and axle 102 (*a plurality of axles*) illustrated in Figures 3 and 4. EX1005, 6:25-36.

- j) **Claim 11: The portable computer of claim 1, further comprising at least one integrated navigation hardware control, wherein at least one of the at least one integrated navigation hardware control is accessible in at least the laptop and frame modes, and wherein the integrated navigation hardware can be operated by a user to control features and manipulate content displayed on the portable computer, including in any mode wherein the keyboard is inaccessible or oriented away from the user.**

290. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim. Lane discloses and renders obvious the additional limitation of dependent claim 11 because Lane describes an *integrated navigation hardware control* in the form of a touch-sensitive input screen that would allow users to *control features and manipulate content displayed on the portable computer*.

291. Lane's portable computer can be configured as a "tablet for pen-based computing." EX1005, 8:15-19. Lane's Figure 27 "shows second module 18 rotated approximately 360° relative to first module 14 (or vice-versa), exposing visual display 35 for use as, for example, a tablet for pen-based computing." EX1005, 10:15-19.

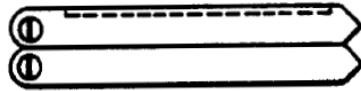


FIG 27

EX1005, Fig. 27; *see also* EX1005, 3:7-14 (“[T]he present invention permits components to be repositioned about each other throughout approximately 0-360°, allowing use of a visual display not only in a standard laptop computer format but also in formats facilitating use of the display as, for example,...a pen-based computing tablet.”).

292. A person of ordinary skill in the art would have understood this to require a touch-sensitive display capable of receiving user input via the user touching the display, for example, with a stylus (i.e., pen-based) or with their finger. The '229 Patent itself admits that “[t]he use of a touch screen to input data is sometimes referred to as operating in ‘tablet mode’ because the computer is being used in a manner similar to a tablet of paper.” EX1001, 1:48-51.

293. That Lane discloses a touch-sensitive display is further confirmed by the fact that the keyboard is disabled in certain display modes. EX1005, 6:5-6. A person of ordinary skill in the art would have understood that, when Lane’s keyboard is disabled (e.g., in easel, frame, or tablet modes) a touch display would be required to allow for control of the device. Lane expressly discloses modes in which “only visual display 35 need be accessible” (EX1005, 8:12-15, 10:29-31), and a person of ordinary skill in the art would have understood that at least in those

modes device control would take place through the touch screen display. Thus, Lane discloses making the *integrated navigation hardware control* available to the user *including in any mode wherein the keyboard is inaccessible or oriented away from the user* as recited in claim 11.

294. Though Lane describes the touch-sensitive display in the context of certain display modes, a person of ordinary skill in the art would have recognized that the touch-sensitive display could be available in display modes including *at least the laptop and frame modes*. Indeed, providing touchscreen functionality in display modes including those with keyboard access would merely provide the user with multiple means of interacting with Lane's computer (e.g., using the keyboard or using the touchscreen) as a person of ordinary skill in the art would have recognized. A touchscreen also provides functionality not available from keys such as the ability to write directly on the touch-sensitive screen with a pen/stylus, for example. Further, making touchscreen functionality available in all display modes would simplify the design as it would not require software programming to turn the touchscreen on and off in different configurations.

295. While Lane does not explicitly disclose that its touch-sensitive display screen is configured *to control features and manipulate content displayed on the screen*, this would have been apparent to a person of ordinary skill in the art based on Lane's disclosure because any user interaction through the screen would

necessarily involve controlling features and manipulating displayed content. In an ordinary touch screen interface, every time a user touches a touch-sensitive screen (or manipulates any input device/navigation control for that matter) the computer and its associated software responds by changing an operating parameter or changing what is displayed on the screen. Without such associated software functionality, the touchscreen would be virtually useless as a means of interacting with Lane's computer. A person of ordinary skill in the art would have implemented Lane's computer such that its touch-sensitive display was configured to control the computer, including controlling features and manipulating content in the same manner as a user would with a computer mouse or navigation keys, for example. Because a computer mouse or keyboard conventionally functions to allow users to control features and manipulate displayed content, a person of ordinary skill in the art would have understood that incorporating functionality from Lane's mouse or keyboard into the display screen, particularly in display modes in which the keyboard is inaccessible, would necessarily have entailed including their ability to permit *a user to control features and manipulate content displayed on the portable computer* as recited in the claim.

k) Claim 14: The portable computer of claim 12, wherein the interface comprises means for rotating the display component relative to the base.

296. The combination of Lane and Fujinawa discloses the *portable computer* of claim 12 for the reasons I discussed above in connection with that claim. Lane discloses the additional limitation of dependent claim 14 for the same reasons I discussed in connection with claim 12; in particular, with 12e, 12f, 12g, and 12h.

297. For example, Lane discloses an *interface* that includes connectors 54, which are part of a hinge assembly as illustrated in Figures 1 and 3. EX1005, 6:25-7:2, Figs. 5-9. Lane's hinge assembly is a *means for rotating the display component relative to the base* as that claim phrase should be construed (i.e., as a means-plus-function limitation). See Section V.E.4, above. Lane's hinge assembly performs the function described in claim 14 (i.e., *rotating the display component relative to the base*) for at least the reasons I discussed in connection with limitations 12e-12h.

l) Claim 19: The portable computer of claim 1, wherein the portable computer further disables the keyboard in response to an orientation of the portable computer.

298. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that

claim. Lane discloses the additional limitation of dependent claim 19 for the same reasons I discussed in connection with claim 1; in particular, with limitation 1h.

299. Lane teaches using position-indicating mechanism 38 to provide orientation information to the portable computer and related software in order to disable the keyboard when the computer/software detect a configuration in which the keyboard is not accessible to the user. EX1005, 5:35-6:6. Lane also teaches and illustrates that the keyboard is not readily accessible to the user in both easel and frame modes. EX1005, 10:28-31, Figs. 25, 28. Thus, Lane discloses that the computer and associated software *disables the keyboard in response to an orientation of the portable computer.*

m) Claim 24: The portable computer of claim 1, wherein the display component and base include an overlapping portion such that responsive to rotation of display component and base, the display component contacts the base preventing further rotation, and the base directly supports the display in the frame mode configuration.

300. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim. Lane discloses and renders obvious the additional limitation of dependent claim 24.

301. Lane states that “[e]dge 106 of second module 18 may also include teeth 110 which are complementary to and designed to engage corresponding teeth 114 of edge 118 of first module 14” as illustrated in Figure 3. EX1005, 7:3-6.

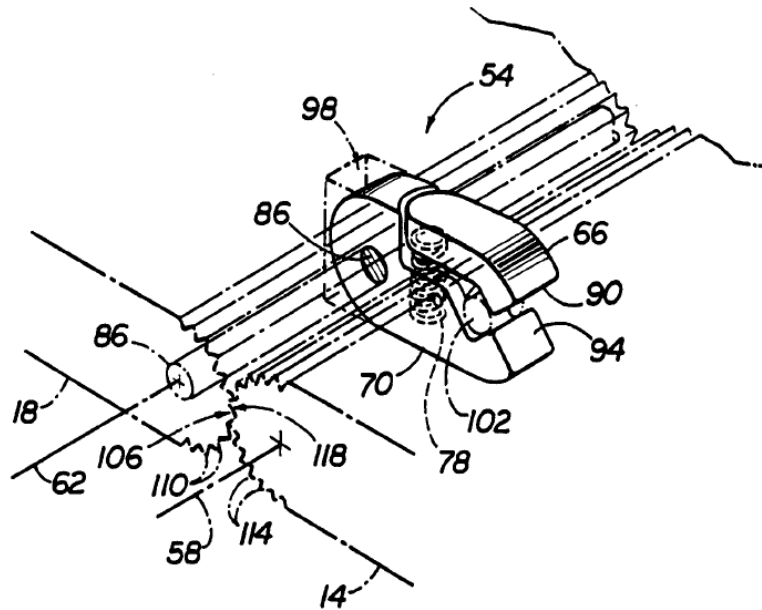


FIG 3

EX1005, Fig. 3. “[T]eeth 110 and 114 permit more consistent rotation of first and second modules 14 and 18.” EX1005, 7:6-8. Thus, *the display component and base include an overlapping portion, i.e., the teeth on the edges of the first module 14 and second module 18, such that responsive to rotation of display component and base, the display component contacts the base as recited.*

302. Further, the contact between the teeth on the edge of the base and the teeth on the edge of the display component helps to hold Lane’s portable computer in various configurations (*preventing further rotation*) including in *the frame mode configuration*. Lane states: “Engaging the teeth 110 and 114 also permits use of a

torque-generating device 37 in only one of first and second modules 14 and 18, providing a commensurate savings in space, weight, and cost.” EX1005, 7:8-12.

A person of ordinary skill in the art would recognize from this disclosure that torque-generating device 37 will create pressure between the engaged teeth of modules 14 and 18 to hold Lane’s portable computer in the current configuration.

303. Lane also states that “[u]se of teeth 110 and 114 may also reduce stress on connectors 54, stabilizing device 10 when in use by supporting the upper of first or second modules 14 or 18 along a greater length of the lower of axes 58 or 62.” EX1005, 7:12-16. Thus, the teeth on first and second modules 14 and 18 (*overlapping portion*) are in contact *preventing further rotation, and the base directly supports the display* in configurations in which the display is “the upper of first and second modules 14 and 18” as *in the frame mode configuration*.

- n) **Claim 25: The portable computer of claim 3, wherein the display module is configured to display content in a first orientation during the frame and laptop display modes of operation and display content in a second orientation during the easel display mode, the second orientation being rotated 180 degrees relative to the first orientation.**

304. The combination of Lane and Fujinawa discloses the *portable computer* of claims 1 and 3 for the reasons I discussed above in connection with those claims; particularly in connection with limitation 1h.

305. Lane discloses using orientation information to adjust displayed content to keep it right-way-up on the display screen. Lane states that orientation information provided by position-indicating mechanism 38 can “assist device 10 (and its associated software) in determining, for example, whether the information to appear on visual display 35 should be in ‘landscape’ or ‘portrait’ position as the visual display 35 is spatially configured, [and] the direction in which to move a cursor [sic] of second module 18 when a visual display....” EX1005, 5:35-6:6. A person of ordinary skill in the art would understand based on Lane’s disclosure that the content on the display screen rotates to remain right-way-up as the screen is rotated 90 degrees (e.g., from landscape to portrait) or 180 degrees (e.g., from laptop or frame mode to easel mode). Thus, Lane discloses and renders obvious *display content in a first orientation during the frame and laptop display modes of operation and display content in a second orientation during the easel display mode with the second orientation being rotated 180 degrees relative to the first orientation.*

B. Lane and Tonouchi Render Claims 16 and 17 Obvious

306. Lane describes a configurable portable computer that meets nearly all the limitations of claims 16 and 17, as I discuss in detail below. Lane does not, however, describe *enlarging the computer content displayed on the display component responsive to detecting a transition into a tablet mode*, which meets the

limitations recited in these claims (as discussed below). But Tonouchi teaches automatically enlarging content (e.g., mouse cursor, icons, etc.) when transitioning the device configuration into tablet mode. Because a person of ordinary skill in the art would have been motivated to implement Tonouchi's teachings in Lane's portable computer, and could have done so without undue effort, the Lane-Tonouchi combination renders these claims obvious.

1. Motivation to Combine Lane and Tonouchi

307. A person of ordinary skill in the art would have naturally considered both Lane and Tonouchi because, like the '229 Patent, both prior art references are directed to electronic computing devices. EX1001, Abstract; EX1005, 1:3-6, Fig. 1; EX1008 ¶[0003]. In fact, like the '229 Patent, both prior art references relate to portable computing devices that can be configured in multiple display orientations. EX1001, 2:6-24, Figs. 1, 4, 5, 26, 27; EX1005, 5:2-6, 7:30-8:23, Figs. 1, 2, 5-9, 19-28; EX1008, Abstract, ¶¶[0003], [0009], Figs. 4A-4D.

308. Tonouchi discloses enlarging displayed components (e.g., mouse cursor, buttons, menu, scroll bar) when the configurable portable computer is transitioned into tablet mode in which the user will make inputs through the touch screen because the keyboard is hidden underneath or behind the device. EX1008 ¶[0031] ("Displayed components, such as a mouse cursor, a button, a menu, and a

scroll bar, in the tablet mode are displayed in a magnified manner as compared to those in the normal notebook mode.”).

309. The benefit of enlarging displayed components in tablet mode would have been apparent to a person of ordinary skill in the art. For instance, such a person would have recognized that in tablet mode the user interacts with the computer through the touch screen using finger or pen/stylus and enlarging selected content on the screen would make it easier to use and less prone to error. Touch screens in and around 2008 would not always accurately and reliably interpret a user’s finger or pen presses due to the relatively large size of the finger/pen compared to the content on the screen. EX1036, 1-2. This could lead the computer to misinterpret the user’s finger or pen input or miss it altogether. The user might have to repeat the finger/pen press, sometimes over and over again, or potentially have to undo unwanted actions. This was a well-known problem in the industry by 2008. EX1036, 1 (referring to “known issues” with touch screens including “relatively high error rates, arm fatigue, and lack of precision”).

310. Thus, a person of ordinary skill in the art would have recognized the benefit of enlarging certain content on the touch screen to address these types of known problems. A person of ordinary skill in the art would have known that enlarging the mouse cursor and/or other selectable icons and controls would make it easier for the user to identify, locate, and touch those items. By enlarging such

items, as taught by Tonouchi, Lane's computer would be less likely to misinterpret—or simply miss—input by the user via the touch screen. Thus, a person of ordinary skill in the art would have understood that Tonouchi's teachings regarding enlarging certain content (e.g., icons) would be advantageous when Lane's portable computer is being used in tablet mode because the enlarged icons, etc. would improve the functionality of the touch screen and enhance the user's experience.

311. Further, a person of ordinary skill in the art could have implemented Tonouchi's content enlargement on Lane's portable computer with a reasonable expectation of success and without undue experimentation because it would have required only minor updates to the software on Lane's computer that would have been within the programming skill level of a person of ordinary skill in the art. By 2008, computers commonly displayed graphical user interfaces with the type of content enlarged by Tonouchi (e.g., mouse cursor, buttons, menu, scroll bar). Thus, all a person of ordinary skill in the art would have had to do to implement Tonouchi's content enlargement teachings is write or modify software on Lane's computer to instruct the computer to automatically enlarge selected content when the laptop transitions to tablet mode. The basic code needed to implement this functionality would have been well within the programming skill of a person of ordinary skill in the art.

312. My opinion that a person of ordinary skill in the art would have known how to implement Tonouchi's teachings to enlarge certain content is supported by the fact that the '229 Patent discusses enlarging content without describing how to do so. EX1001, 14:47-53.

2. Independent Claim 16

- a) **[16pre] A method of managing user interaction with content displayed on a portable computer having a plurality of display modes, the portable computer comprising a display component including a display screen, a base including a keyboard, and an interface connecting the display component and the base defining a longitudinal axis, the method comprising:**

313. Lane discloses the preamble of claim 16.

314. The preamble recites a *method* for use on a *portable computer*. The *portable computer* has a *plurality of display modes*, which Lane discloses for at least the reasons I explained in connection with the preambles of claims 1, 18, and 12 as well as claim limitations 1f/18f, 1g/18g, 12g, and 12h. The *portable computer* has a *display component including a display screen*, which Lane discloses for at least the reasons I explained in connection with claim limitations 1a/18a and 12a. The *portable computer* has a *base including a keyboard*, which Lane discloses for at least the reasons I explained in connection with claim limitations 1b/18b, 1f/18f, and 12b. The *portable computer* has an *interface connecting the display component and the base defining a longitudinal axis*, which

Lane discloses for at least the reasons I explained in connection with claim limitations 1e/18e.

315. Lane also discloses a *method of managing user interaction with content displayed on such a portable computer* at least by discussing how the computer and associated software use orientation information to appropriately adjust the user interface and/or keyboard based on the current configuration. EX1005, 5:35-6:6.

316. Tonouchi also discloses a *method of managing user interaction with content displayed on a portable computer having a plurality of display modes*. EX1008 ¶¶[0027], [0030], Fig. 2A (“notebook mode”), Fig. 2B (“tablet mode”), Figs. 4A-4D. Tonouchi discloses a *portable computer comprising a display component including a display screen*. EX1008 ¶[0025] (“screen display 101”), Fig. 1. Tonouchi discloses a *portable computer with a base including a keyboard*. EX1008 ¶[0025] (“keyboard 106”), Fig. 1. Tonouchi also discloses *an interface connecting the display component and the base defining a longitudinal axis*. EX1008, Figs. 4A-4B (showing the display screen rotated from a closed to open position).

- b) [16a] rotating at least one of the display component and the base of the portable computer about the longitudinal axis to configure the portable computer in at least one of the plurality of display modes, wherein the longitudinal axis is configured to run**

along the connection between the display component and the base of the portable computer;

317. Lane discloses this limitation.

318. Lane discloses *rotating at least one of the display component and the base of the portable computer about the longitudinal axis to configure the portable computer in at least one of the plurality of display modes* for at least the reasons discussed in connection with the preambles of claims 1, 18, and 12 as well as claim limitations 1f/18f and 1g/18g.

319. Lane discloses that *the longitudinal axis is configured to run along the connection between the display component and the base of the portable computer* for at least the reasons discussed in connection with claim limitation 1e/18e.

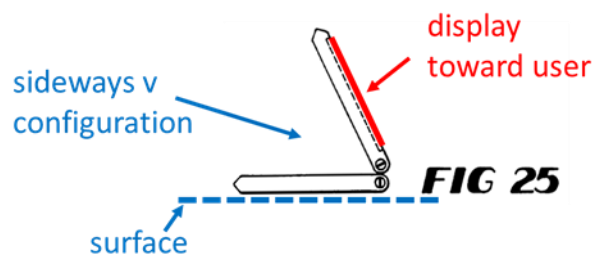
c) **[16b] positioning at least a portion of the portable computer in a sideways v configuration for operation by a user, responsive to the act of rotating, wherein the act of positioning includes acts of: positioning the display component in an orientation directed towards the user; and positioning the base to lie flat on a surface and support the portable computer in the sideways v configuration;**

320. Lane discloses this limitation.

321. The claim recites *positioning at least a portion of the portable computer in a sideways v configuration for operation by a user*. While the '229 Patent refers to an “inverted ‘V’” to describe easel mode (EX1001, 2:6-11), the patent specification does not refer to “a sideways v configuration.” Presumably the

reference to *a sideways v configuration* in claim 16 is intended to refer to the '229 Patent's frame mode. There is no other display mode disclosed by the patent that suggests a sideways v configuration. Lane discloses *positioning at least a portion of the portable computer in a sideways v configuration for operation by a user* when Lane's portable computer is positioned in frame mode for at least the reasons I explained in connection with claim limitations 1g/18g. The claim then requires that *the act of positioning includes: (1) positioning the display component in an orientation directed towards the user; and (2) positioning the base to lie flat on a surface and support the portable computer in the sideways v configuration*, which is also disclosed by Lane's frame mode.

322. Lane's frame mode is illustrated in Figure 25.



EX1005, Fig. 25 (annotated). Placing Lane's portable computer in the frame mode, as shown in Figure 25, requires (1) *positioning the display component in an orientation directed towards the user*; and (2) *positioning the base to lie flat on a surface and support the portable computer in the sideways v configuration*.

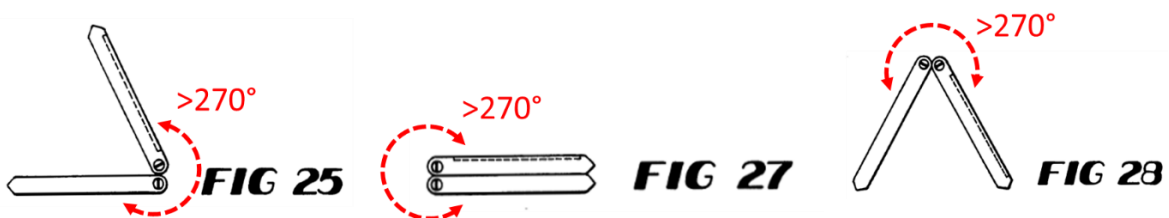
- d) [16c] generating, by an accelerometer, orientation information indicative of an orientation of the device;

323. Lane discloses this limitation for at least the reasons I explained in connection with claim limitation 1c/18c.

- e) [16d] determining a current display mode of the plurality of display modes based on the orientation of the device, including distinguishing between a first display mode and a second display mode of the plurality of display modes where either the display component or the base is rotated about the longitudinal axis beyond approximately 270 degrees from the closed state;

324. Lane discloses this limitation.

325. The claim recites *determining a current display mode of the plurality of display modes based on the orientation of the device*. The claim states this can be done by *distinguishing between a first display mode and a second display mode of the plurality of display modes* and that in these display modes *either the display component or the base is rotated about the longitudinal axis beyond approximately 270 degrees from a closed state*. Lane discloses at least three display modes in which the display or base is rotated *beyond approximately 270 degrees from a closed state*: frame mode, tablet mode, and easel mode.



EX1005, Fig. 25 (annotated), Fig. 27 (annotated), Fig. 28 (annotated).

326. As I explained in connection with 1h/18h, Lane teaches locating a position-indicating mechanism 38 in first module 14 (base), and by doing so Lane's computer and associated software can distinguish between frame mode and easel mode. That is so because in frame mode position-indicating mechanism 38 would indicate that the base is flat on the desktop and facing down while in easel mode it would indicate that the base is diagonal.

327. Lane also teaches locating a position-indicating mechanism 38 in second module 18 (display). By doing so Lane's computer and associated software can distinguish between frame, tablet, and easel modes because the display is positioned differently in each of those three modes. In frame mode, the display is at a reclined angle with the hinge end down toward the desktop. In tablet mode, the display is horizontal. In easel mode, the display is at a reclined angle with the hinge end up away from the desktop.

328. Thus, Lane's disclosure of using position-indicating mechanism in the base or the display discloses *determining a current display mode of the plurality of display modes based on the orientation of the device by distinguishing between a first display mode and a second display mode of the plurality of display modes as recited in 16d.*

329. Further, as I have explained in connection with claim limitations 1h/18h and 3b, Lane discloses and suggests to a person of ordinary skill in the art locating a position-indicating mechanism 38 in both the base and display of Lane's portable computer. By doing so, Lane's portable computer and associated software can *distinguish[] between a first display mode and a second display mode of the plurality of display modes* because the orientation of the base and display is different in each of the display modes. In frame mode, the base is flat and facing down toward the table while the display is at a reclined angle with the hinge end toward the desktop. In tablet mode, the base is flat and facing down toward the table as in frame mode, but unlike frame mode the display is horizontal and facing upward. In easel mode, the base and display are both at a diagonal as compared to the desktop with the hinge end of the base/display upward.

330. Thus, locating a position-indicating mechanism in the base and display—as suggested and taught by Lane—permits the portable computer and its associated software to distinguish between these three display modes. In this way too, Lane discloses *determining a current display mode of the plurality of display modes based on the orientation of the device by distinguishing between a first display mode and a second display mode of the plurality of display modes* as recited in 16d.

f) [16e] executing software protection configured to disable the keyboard when the portable computer is in the sideways v configuration; and

331. Lane discloses this limitation.

332. Lane discloses *disabl[ing] the keyboard when the portable computer is in the sideways v configuration* (frame mode) for at least the reasons I explained in connection with claim limitations 1h/18h.

333. Lane also discloses *executing software to disable the keyboard*. Lane states that orientation information provided by position-indicating mechanism 38 “assist[s] device 10 (and its associated software) in determining, for example,...whether to render keys 36 of first module 14 inoperable when unused.” EX1005, 5:35-6:6. The keyboard is unused in frame mode (EX1005, 10:24-31, Fig. 25), so Lane’s portable computer and “associated software” disable it.

g) [16f] displaying computer content and varying the computer content displayed responsive to the orientation information indicating a transition between at least two display modes of the plurality of display modes, wherein the act of varying the computer content includes: enlarging the computer content displayed on the display component responsive to detecting a transition from the first display mode to the second display mode.

334. The combination of Lane and Tonouchi discloses this limitation.

335. Lane discloses *displaying computer content and varying the computer content displayed responsive to the orientation information indicating a transition*

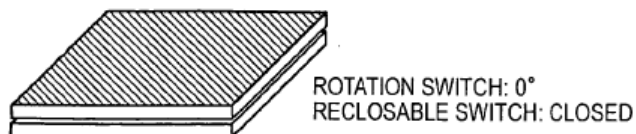
between at least two display modes of the plurality of display modes for at least the reasons I explained in connection with claim limitation 1d/18d.

336. The claim clarifies that *the act of varying the computer content is performed by enlarging the computer content displayed on the display component responsive to detecting a transition from the first display mode to the second display mode*. As discussed above for claim limitation 16d, the *first and second display modes* can be Lane’s frame mode, easel mode, or tablet mode. Thus, this limitation would be met by *enlarging the computer content displayed on the display component responsive to detecting a transition from frame/easel mode into tablet mode*.

337. Tonouchi teaches *enlarging the computer content displayed on the display component responsive to detecting a transition into a tablet mode*. Tonouchi specifically discloses and illustrates transitioning a configurable laptop from a closed position, to a standard laptop mode, to a frame-like mode, to a tablet mode. Tonouchi illustrates these transitions in Figures 4A-4D. EX1008 ¶[0030].

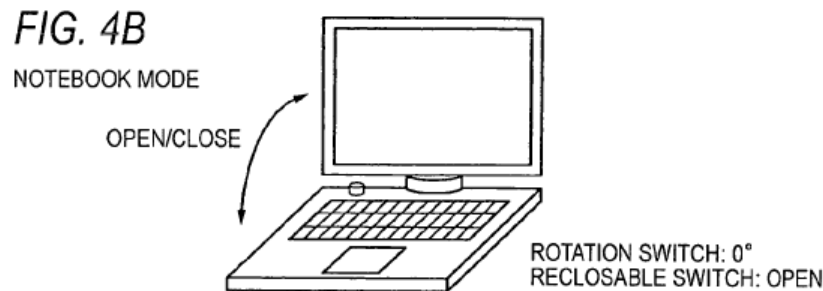
338. Tonouchi’s Figure 4A shows the convertible computer in a “power-off” or closed mode.

FIG. 4A
POWER-OFF



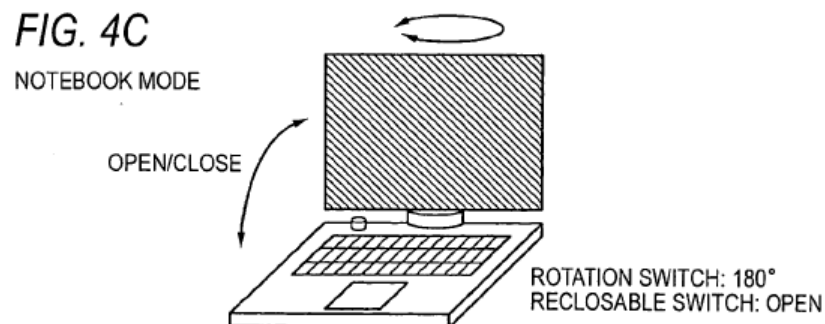
EX1008, Fig. 4A.

339. Tonouchi's Figure 4B shows the convertible computer opened into a standard laptop mode that Tonouchi refers to as "notebook mode."



EX1008, Fig. 4B.

340. Tonouchi's Figure 4C shows the convertible computer opened and configured so that the display screen is swiveled so that it is directed to the opposite side away from the keyboard.

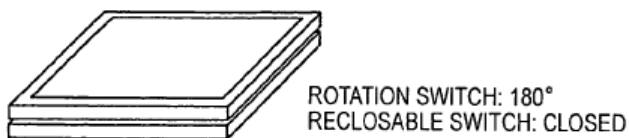


EX1008, Fig. 4C. Tonouchi refers to this configuration again as "notebook mode" though it is different from the configuration in Figure 4B and similar to the frame mode described in the '229 Patent. As in frame mode, the base is flat on the work

surface and the display component is oriented so that the keyboard is behind the display screen.

341. Tonouchi's Figure 4D shows the convertible computer opened into a standard laptop mode that Tonouchi refers to as "tablet mode."

FIG. 4D
TABLET MODE



EX1008, Fig. 4D.

342. Further, Tonouchi teaches that when the convertible computer is transitioned into tablet mode, "[d]isplayed components, such as a mouse cursor, a button, a menu, and a scroll bar,...are displayed in a magnified manner as compared to those in the normal notebook mode." EX1008 ¶[0030]. Tonouchi explicitly describes enlarging components (e.g., mouse cursor, buttons, etc.) upon transitioning from notebook mode to tablet mode, but a person of ordinary skill in the art would recognize that Tonouchi's teaching is focused on transitioning into tablet mode (where magnification is beneficial) and not the mode being transitioned from. In other words, while Tonouchi does not explicitly describe a transition from frame or easel mode into tablet mode—though Tonouchi does illustrate a transition from a frame-like mode into tablet mode—a person of ordinary skill in the art would recognize that Tonouchi teaches enlarging

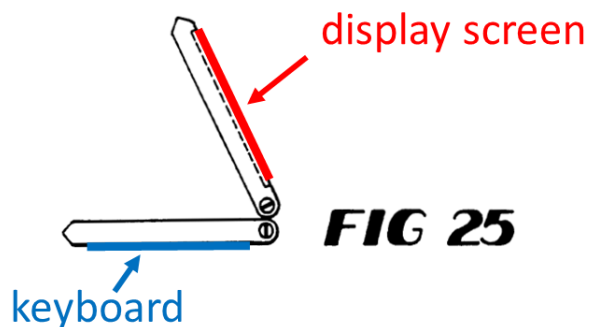
components when transitioning from any mode (including frame or easel modes) into tablet mode. Thus, Tonouchi discloses, suggests, and teaches *enlarging the computer content displayed on the display component responsive to detecting a transition from the first display mode (frame or easel) to the second display mode (tablet).*

3. **Dependent Claim 17: The method of claim 16, wherein the base includes a keyboard and the act of positioning the base on the opposite side of the display component includes positioning the keyboard such that the keyboard towards the surface.**

343. The combination of Lane and Tonouchi discloses the *method* of claim 16 for the reasons I discussed above in connection with that claim.

344. Lane discloses a *base* that *includes a keyboard* for at least the reasons I explained in connection with claim limitations 1b/18b, 1f/18f, and 12b.

345. Lane also discloses placing the portable computer in frame mode, as illustrated in Figure 25, which requires *positioning the base on the opposite side of the display component* and *positioning the keyboard such that the keyboard is towards the surface.*



EX1005, Fig. 25 (annotated).

C. Lane, Fujinawa, and Pröll Render Claims 20 and 21 Obvious

1. Motivation to Combine

346. Pröll, like Lane, Fujinawa, and the '229 Patent, is directed to portable computing devices. EX1010 ¶¶[0001]-[0002]; *see also* EX1001, Abstract, 1:28-30; EX1005, Abstract, 1:3-6; EX1007 ¶[0001]. Further, each of these prior art references and the '229 Patent describe configurable computing devices. EX1001, Abstract, 1:28-30; EX1005, 2 (Abstract), 1:3-6; EX1007 ¶¶[0005], [0007], Figs. 1-2; EX1010, Abstract, ¶[0033].

347. A person of ordinary skill in the art would have been motivated to implement the teachings of Pröll regarding the use of a docking station to connect Lane's portable computer to peripheral devices such as a printer or scanner. EX1010 ¶[0019] ("These peripheral units are therefore connected to the mobile data processing device using a docking station."), ¶[0041] ("Peripheral devices such as a keyboard, mouse, printer, etc. can be connected to the mobile data processing device 1 using this device," i.e., a docking station). Pröll explains that

the disclosed portable computer “offers the advantage that a user can firstly operate the mobile data processing device at home using a docking station, with additional peripheral devices, and secondly can also carry along the mobile data processing device while on the go, wherein the docking station is then not available and the device can be used as a portable computer.” EX1010 ¶[0018]. Thus, the computer can be used as both a stationary, home computer and a portable computer “on the go,” and the user can avoid the cost of purchasing two different computers for these purposes. EX1010 ¶[0003], ¶¶[0009]-[0011]. A person of ordinary skill would be motivated by this benefit.

348. A person of ordinary skill in the art could implement a docking station for Lane’s portable computer with a reasonable expectation of success and without unreasonable experimentation. Docking stations for portable computers were well known in the art before 2008. EX1010 ¶[0010]; EX1032 (“Universal Docking Station”); EX1033 (“Docking System for Portable Computer”); EX1034 (“Wired and Wireless Docking Station”); EX1035 (“Portable Computer with Docking Station”). Implementing an interface for Lane’s portable computer to connect to a wired or wireless docking station would have been well within the competence of a person of ordinary skill in the art. EX1032, Abstract, 1:64-2:42; EX1033, Abstract, 2:8-22; EX1034, Abstract, 2:60-3:48; EX1035, Abstract, 1:58-2:35.

349. In addition to docking station teachings, Pröll also discloses and renders obvious the use of a cushioning strip to stabilize the portable computer. In particular, the Pröll computer “can be provided with a hook & loop strap [i.e., Velcro] wherein a corresponding mating part is then present...to fix the mobile processing device 1.” EX1010 ¶[0054]. Pröll also discloses providing the computer “with anti-slip protection.” EX1010 ¶[0054].

350. A person of ordinary skill in the art would have recognized the benefit of using Velcro or similar anti-slip protection (e.g., a rubber strip or nubs) for Lane’s portable computer as it would reduce the risk of the computer slipping off a surface and being damaged. Such a person could have easily implemented such anti-slip protection with a high expectation of success and no need for unreasonable experimentation.

2. Dependent Claims 20 and 21

- a) Claim 20: The portable computer of claim 1, wherein the portable computer is further configured to connect to a docking station in the plurality of display modes, including the laptop mode and the frame mode.**

351. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim.

352. Pröll discloses a *portable computer* that is *configured to connect to a docking station* as recited in claim 20. EX1010, Abstract, ¶[0002], ¶[0010], ¶¶[0018]-[0019], ¶[0041]. In addition, Pröll discloses and suggests to a person of ordinary skill in the art connecting to a docking station when in *the laptop mode and the frame mode*. Pröll describes “interfaces,” such as a USB or FireWire connector, used to connect the portable computer to the docking station. EX1010 ¶[0043]. It also discloses embodiments in which these interfaces are located on the side of the hinge connecting the display and base of the portable computer (EX1010, Figs. 1, 5) or on the opposite end of the display or base away from the hinge (EX1010, Fig. 9). A person of ordinary skill in the art would recognize that a docking station connected at either location would permit Lane’s portable computer to transition between display modes, including *the laptop mode and the frame mode*, while connected to the docking station.

353. A person of ordinary skill in the art would also have recognized that Lane’s portable computer could be connected to a wireless docking station (e.g., EX1034) in any configuration including *the laptop mode and the frame mode*.

b) Claim 21: The portable computer of claim 1, further comprising a cushioning strip configured to stabilize the portable computer in a plurality of modes.

354. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim.

355. Pröll discloses and suggests to a person of ordinary skill in the art using *a cushioning strip configured to stabilize the portable computer*. It specifically describes using Velcro³ or other “anti-slip protection” (i.e., *a cushioning strip*) to hold the computer in place (i.e., *to stabilize the portable computer*). EX1010 ¶[0054]. The disclosure is in the context of the portable computer being placed in easel mode, but a person of ordinary skill in the art would recognize from the discussion that one or more *cushioning strip[s]* (e.g., Velcro, rubber strips) would help stabilize Lane’s portable computer in multiple other configurations as well (*stabilize the portable computer in a plurality of modes*).

³ Pröll explicitly refers to a “hook and loop” fastener, and Velcro is the commonly used brand name for a “hook and loop” fastener. EX1045, 3.

D. Lane, Fujinawa, and Santoro Render Claim 23 Obvious

1. Motivation to Combine

356. Lane, Fujinawa, and the '229 Patent are all directed to portable computing devices. EX1001, Abstract, 1:28-30; EX1005, Abstract, 1:3-6; EX1007 ¶[0001]. Santoro is directed to a graphical user interface for use on devices including portable computing devices. EX1011, 5:14-16 (“The application program of the present invention runs on many different devices, including, but not limited to set-top box, personal computer and held-held device.”), 7:9-11 (“In one embodiment of the present invention, system 100 is a personal computer such as a desktop workstation or a portable notebook computer.”).

357. Lane discloses a portable computer with display screen for displaying content to the user. EX1005, 3:7-14, 5:35-6:6. Lane also discloses “moving a cursor about the visual display 35” (EX1005, 5:10-15), which discloses and suggests to a person of ordinary skill in the art that Lane’s computer has a graphical user interface. Further, by 2008, a person of ordinary skill in the art would have known that most portable computers provided a graphical user interface, which was by then standard on virtually all portable computer products for consumer. While Lane does not explicitly describe such a graphical user interface, Santoro does. EX1011, Abstract, 1:11-15 (“the present invention describes a graphical user interface”).

358. A person of ordinary skill in the art would have been motivated to implement Santoro's graphical user interface on Lane's portable computer for reasons provided in Santoro itself. For example, Santoro states that "the present invention provides an easy to use graphical interface that facilitates the organization and management of multiple data sources corresponding to a user's needs and interests." EX1011, 4:34-37. The graphical user interface employs a "grid of tiles" that "provides a uniform, graphical environment in which a user can access, operate, and/or control multiple data sources on electronic devices." EX1011, 4:37-41. A person of ordinary skill in the art would recognize the benefit of employing such an "easy to use" and "organized" interface on Lane's portable computer. Further, a person of ordinary skill in the art would recognize the benefit of presenting information from multiple different sources on Lane's computer interface.

359. Santoro also states that the tiles in the disclosed graphical user interface "lead to a reduction in clutter on the display screen because many tiles may be displayed simultaneously without overlapping with one another in the way that windows must necessarily do." EX1011, 8:45-49. According to Santoro, the "[t]iles are superior to icons because they give an immediate indication of the current state of the file or program...." EX1011, 8:49-52. Santoro also states that a further "advantage of using tiles is a uniformity of appearance between tiles

which correspond to different programs and datastreams.” EX1011, 8:52-54.

These benefits and advantages would have motivated a person of ordinary skill in the art to implement Santoro’s graphical user interface on Lane’s portable computer.

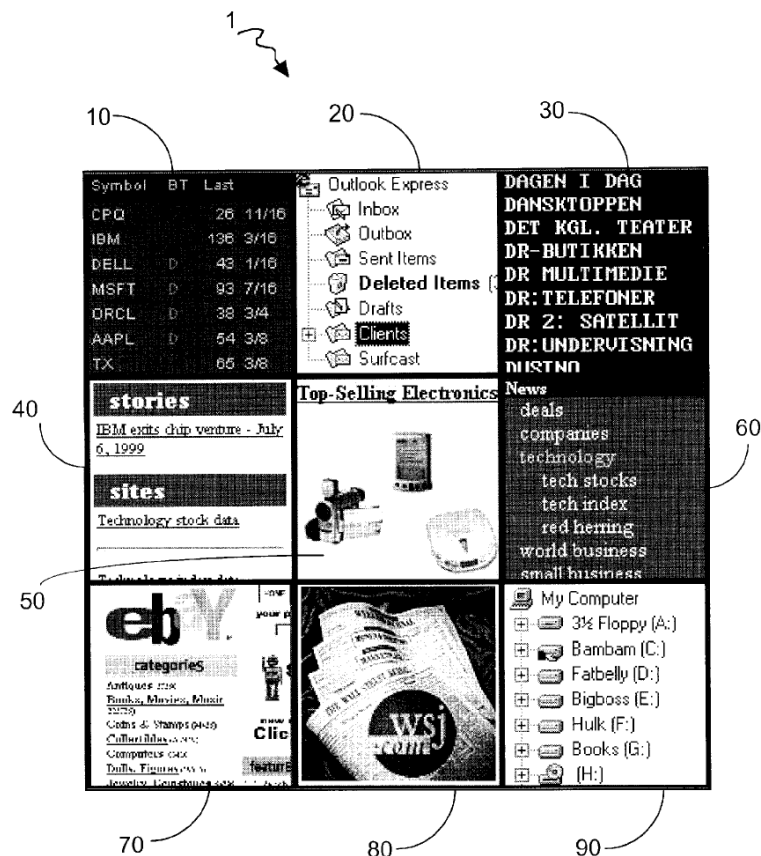
360. A person of ordinary skill in the art could have implemented Santoro’s graphical user interface on Lane’s portable computer with a reasonable expectation of success and without undue experimentation. Santoro provides sufficient detail to instruct a person of ordinary skill in the art in implementing the disclosed interface on a standard computer processor as one would expect to exist on Lane’s computer (given that Lane describes “device 10” and “associated software”).

2. Dependent Claim 23: The portable computer of claim 1, wherein the display component is further configured to display a segmented user interface comprising a plurality of modes of content.

361. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim.

362. Santoro discloses a *segmented user interface* as recited in claim 23. For example, Santoro’s Figure 1 “shows an illustrative configuration of the graphical user interface of the present invention” including a “grid 1 consisting of a

3 by 3 matrix of nine tiles demonstrating some of the different contents that tiles can display.” EX1011, 6:39-42.



EX1011, Fig. 1. Thus, Santoro’s interface is *segmented* into a grid of multiple tiles.

363. Santoro’s graphical user interface also includes *a plurality of modes of content* as that term is used in the ’229 Patent. As I discussed above, the claim’s reference to *modes of content* refers to “displaying some information that represents a higher-level construct into which content is grouped,” which “is

distinct from merely displaying individual things (e.g., applications) that may be grouped into a content mode.” See Section V.E.5, above.

364. Santoro’s Figure 1 illustrates such *modes of content*. For example, “[t]ile 20 displays the active folders in an electronic mail utility.” EX1011, 6:43-44. Each email folder “represents a higher-level construct into which content is grouped” (i.e., the content—email—is grouped in each folder) and is distinct from displaying the content itself (i.e., email messages) that may be grouped into the folder. Similarly, “[t]ile 90 points to the file-viewer of a windows-based operating system and displays the currently accessible disc drives.” EX1011, 6:49-51. Again, each disc drive in tile 90 “represents a higher-level construct into which content is grouped” (i.e., the content—files, applications, etc.—is grouped in each disc drive) and is distinct from the content that may be contained in each drive. As Santoro explains, a “tile instantly provides the user with access to the underlying information,” which can be “a hierarchical menuing system leading the user to a different level or tiles....” EX1011, 9:25-32.

365. Further, the tiles themselves can constitute *modes of content* because a tile can be configured to access another grid of tiles. For example, Santoro states that tile 710 (in Figure 7) “is associated with another grid object 720, thereby permitting a ‘layering’ of information hierarchies.” EX1011, 10:63-65; *see also* EX1011, 12:2-21 (“FIG. 10 shows an arrangement of tiles in which Tile 802-M-1

is associated with a further grid 1000.”). “The fact that a tile may refer to a separate grid permits nesting of grids and consequently a hierarchy of organized information sources.” EX1011, 11:43-45. Thus, a tile can be “a higher-level construct into which content is grouped” that is distinct from the content itself (i.e., *a mode of content*).

E. Further Adding MIT to Each Combination Renders All Challenged Claims Obvious

366. To the extent that any of the challenged claims may be construed to require a single longitudinal axis of rotation, it would have been obvious to modify Lane’s portable computer by substituting the single axle hinge disclosed in MIT for Lane’s dual axle hinge assembly.

1. Motivation to Combine

367. MIT, Lane, Fujinawa, Tonouchi, and the ’229 Patent are all directed to reconfigurable portable computing devices. EX1001, Abstract, 1:28-30, 2:6-24, Figs. 1, 4, 5, 26, 27; EX1005, Abstract, 1:3-6, 5:2-6, 7:30-8:23, Figs. 1, 2, 5-9, 19-28; EX1007 ¶[0001], Figs. 1-2; EX1008, Abstract, ¶[0003], ¶[0009], Figs. 4A-4D; EX1048, 1-2, 7-8.

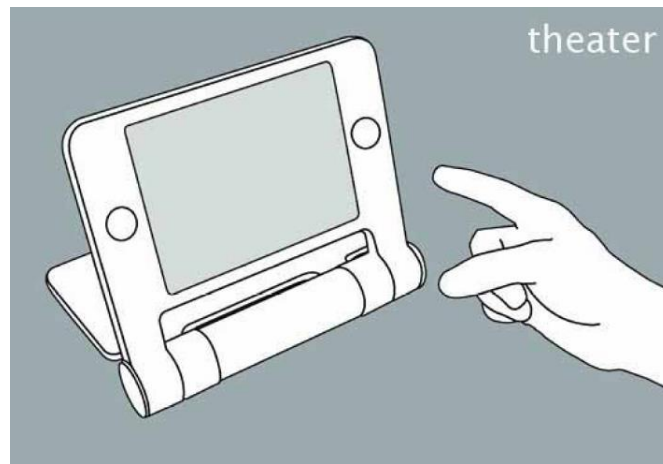
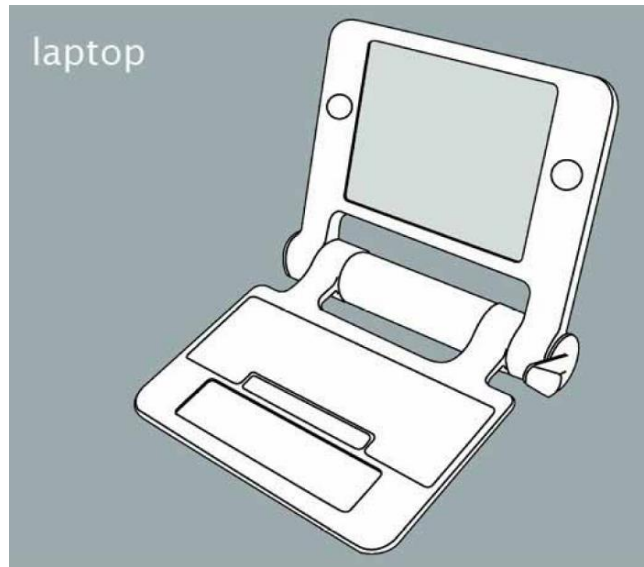
368. A person of ordinary skill in the art would have been motivated to substitute Lane’s hinge assembly including connectors 54 and axles 86 and 102 with MIT’s single-axle hinge assembly and to modifying Lane’s first and second modules 14, 18 adjacent the hinge to correspond to MIT’s display and base

modules. A person of ordinary skill in the art would have been motivated to make these modifications to Lane in order to simplify the hinge assembly and to provide for a place to hold a hand-crank generator as taught by MIT. EX1048, 4-9. A person of ordinary skill in the art would have had a reasonable expectation of success in doing so as single-axle hinges as disclosed in MIT were known in the art and would have been well within the skill level of a person of ordinary skill in the art.

2. Dependent Claim 7: The portable computer of claim 1, wherein the interface defines a single longitudinal axis.

369. The combination of Lane and Fujinawa discloses the *portable computer* of claim 1 for the reasons I discussed above in connection with that claim.

370. To the extent claim 7 requires a hinge assembly permitting only one possible *longitudinal axis*, MIT discloses such a hinge assembly. MIT discloses that its laptop can be configured in a variety of display configurations, including a laptop configuration and a theater configuration as shown below:



EX1048, 7-8; *see also* EX1012, 2-3. The “theater” display configuration is equivalent to the ’229 Patent’s frame mode. A person of ordinary skill in the art would have understood and found it obvious in view of MIT’s disclosure of a frame mode that the MIT laptop could also be placed into easel mode. This is because frame mode and easel involve the same amount of rotation of the display and main body components relative to each other about MIT’s single axis hinge, and transitioning from frame to easel mode can be achieved by further adjusting

the entire laptop device without any additional relative rotation between the display and main body components.

371. Thus, combining MIT's single axis hinge teachings with Lane's portable computer would permit Lane's computer to rotate into a plurality of display modes including laptop mode, frame mode, tablet mode, and easel mode, which I have discussed above. The Lane-MIT combination discloses an *interface* that defines *a single longitudinal axis* if this claim is read literally to require an *interface* that permits only one axis of rotation (e.g., a single axle hinge assembly).

3. Claims 1-12, 14, 16-21, and 23-25

372. To the extent that any of these claims are construed to require an interface with only one possible axis of rotation (unlike Lane's multiple axis hinge assembly), then Lane combined with MIT discloses such a limitation as I explained in the preceding section regarding claim 7.

F. Further Adding Wehrenberg to Each Combination Renders All Challenged Claims Obvious

373. To the extent that the Patent Owner may argue that Lane's position-indicating mechanism 38 is not an "accelerometer" as recited in the challenged claims, then Lane combined with Wehrenberg discloses a portable computer with an accelerometer as claimed.

1. Motivation to Combine

374. Wehrenberg, MIT, Lane, Fujinawa, Tonouchi, and the '229 Patent are all directed to portable computing devices such as laptop computers. EX1001, Abstract, 1:28-30, 2:6-24, Figs. 1, 4, 5, 26, 27; EX1005, Abstract, 1:3-6, 5:2-6, 7:30-8:23, Figs. 1, 2, 5-9, 19-28; EX1007 ¶[0001], Figs. 1-2; EX1008, Abstract, ¶[0003], ¶[0009], Figs. 4A-4D; EX1023, 3:54-38, 7:10-13, 7:38-44, Figs. 2, 4.

375. A person of ordinary skill in the art would have been motivated to substitute Lane's position-indicating mechanism 38 with a commercially available accelerometer as disclosed in Wehrenberg to generate orientation information for Lane's portable computer. As I discussed above, Lane's position-indicating mechanism 38 is a mercury switch that includes liquid mercury that moves around within a spherical cavity lined with electrical contacts. EX1005, 5:25-27. Lane was filed in 1995. By 2008 (when the parent applications to the '229 Patent were filed), a person of ordinary skill in the art would have been motivated to replace Lane's mercury switch accelerometer with a more modern, commercially available accelerometer such as those offered by Kionix and Analog Devices. EX1023, 5:50-55. I will refer to these types of accelerometers as integrated circuit accelerometers.

376. By 2008, integrated circuit accelerometers were cheaper, more accurate, and more reliable than a mercury switch accelerometer. The accuracy of

a mercury switch depends on the number of electrodes that fit in the cavity holding the liquid mercury. By contrast, an integrated circuit accelerometer is not similarly limited and would generally be much more precise. A person of ordinary skill in the art would have been motivated to use the less expensive, more accurate, and reliable component.

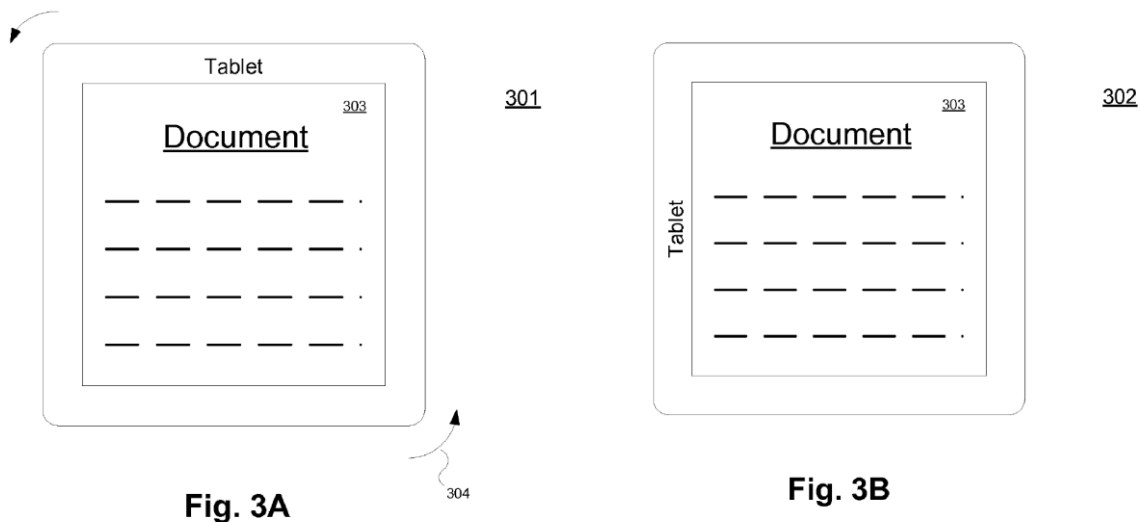
377. Further, a person of ordinary skill in the art would have been motivated to replace Lane's mercury switch because mercury is a toxic substance. A person of ordinary skill in the art would have recognized the risk of mercury escaping from the switch if the portable computer were dropped, for example. Thus, a person of ordinary skill in the art would have been motivated to use an integrated circuit accelerometer instead to avoid the greater human and environmental risks of a mercury switch.

378. A person of ordinary skill in the art would have had a reasonable expectation of success in substituting Lane's position-indicating mechanism 38 with an integrated circuit accelerometer without any undue experimentation. Doing so would have been well within the skill of such a person by 2008. Integrated circuit accelerometers were commercially available, as Wehrenberg confirms, and were commonly used in various types of electronic devices.

2. Claims 1-12, 14, 16-21, and 23-25

379. Wehrenberg discloses using an accelerometer for operating a portable device such as a laptop computer. EX1023, 1:22-23, 3:54-58, 7:10-13, 7:39-44. Wehrenberg discloses an embodiment in which an accelerometer in the portable electronic device is used to determine the orientation of the device and adjust the interface in response. EX1023, 2:3-9, 7:27-8:60, Figs. 3A, 3B, 4.

380. For instance, Wehrenberg describes using accelerometer data to determine that the device display has been rotated by 90 degrees, as illustrated in Figures 3A and 3B.



EX1023, Figs. 3A and 3B. In Figure 3A, the electronic device is held so that the word “Tablet” is at the top and is being rotated counterclockwise as indicated by “moving direction 304” (i.e., the arrows at the upper-left and lower-right).

EX1023, 7:45-65. An accelerometer detects the movement, and the electronic

device uses the accelerometer data to respond to it. EX1023, 7:53-65. As shown in Figure 3B, the device is rotated by 90 degrees so that the word “Tablet” is on the left side, and it has reoriented the display so that the content (“Document”) remains right-way-up with regard to the user. EX1023, 7:66-8:9; *see also* 8:27-60, Fig. 4 (“a flow diagram illustrating an exemplary process[] for reorienting a displayed document based on an accelerometer”). Wehrenberg further discloses that other moving directions may be implemented beyond the rotation shown in Figs. 3A and 3B. EX1023, 8:20-26, Fig. 5A.

381. Because a person of ordinary skill in the art would have been motivated to replace Lane’s position-indicating mechanism 38 with an integrated circuit accelerometer as disclosed by Wehrenberg, the combination of Lane with Wehrenberg discloses the *accelerometer* limitation in each of the challenged claims.

VIII. SECONDARY CONSIDERATIONS

382. I have considered the impact of secondary considerations of obviousness. I am not aware of any relevant information related to secondary considerations of obviousness that would impact my opinions at this time. To the extent Patent Owner comes forward with any such information, I will consider it.

IX. AVAILABILITY FOR CROSS-EXAMINATION

383. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during a time as mutually agreed between the parties.

X. RIGHT TO SUPPLEMENT

384. I reserve the right to supplement my opinions in the future to respond to any arguments that the Patent Owner raises. This declaration represents only those opinions that I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information that becomes available to me and on my continuing analysis of the materials already provided.

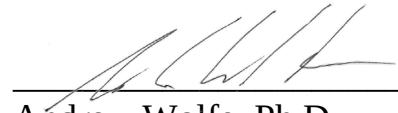
XI. CONCLUSION

385. For the reasons discussed in this declaration, it is my opinion that the challenged claims of the '229 Patent are unpatentable in view of the prior art I have discussed above.

Acknowledgement of Oath

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1101 of Title 18 of the United States Code.

Respectfully submitted,



Andrew Wolfe, Ph.D.

Dated: January 25, 2024