(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: ***(See MPEP Ch. 2141)***

a. Determining the scope and contents of the prior art;
b. Ascertaining the differences between the prior art and the claims in issue;
c. Resolving the level of ordinary skill in the pertinent art; and
d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

4. Claims 1 - 8, 10 - 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nobuchi "US 6,492,974" in view of Aarras "US 2006/0264243" and further in view of Nishiyama "5,436,954".

Re-Claim 1, **Nobuchi teaches** a portable computer comprising: (fig. 1)

a base (fig. 1; 1) including a keyboard (2);

a single display component (3) rotatably coupled to the base (1) such that the single display component (3) and the base (1) are rotatable with respect to one another about a longitudinal axis (5) running along an interface between the display component (3) and the base (1) to transition between at least a laptop mode (figs. 1 & 16(a)), the single display component including a display screen (3), wherein

the laptop mode (figs. 1 & 16 (a)) is configured to display to a user on the single display (3) component a first content mode (fig. 16(a)) having a first content display orientation with the single display component oriented towards the user and the keyboard oriented to receive input from the user; (fig. 16(a)) and col. 1; lines 31 – 34)

Nobuchi fails to teach an easel mode is configured to display to a user on the single display component a second content mode.

However Aarras teaches an easel mode **(**figs. 8 & 19) is configured to display to the user on the single display (30 in fig.19) component a second content mode (fig. 19) having a second content display orientation (par. 50; lines 7 – 10) with the single display (30) component oriented towards the user and the keyboard (14) oriented away from the user (see figs. 8 & 19), wherein the first and second content display orientations are 180 degrees relative to each other; and (par. 39; lines 3 – 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display orientation of Nobuchi and the easel mode taught in figures 8 & 19 of Aarras to allow a user to select the image from the display as shown in FIG. 8. (Aarras, par. 40) **Neither Nobuchi nor Aarras expressly disclose** a scroll wheel.

However Nishiyama discloses a scroll wheel (scroll wheel is equivalent to selector 8 in fig. 1) disposed at least partially within the base and rotatable about the longitudinal axis, the scroll wheel (8) configured to permit a user to control at least one of operating parameters of the portable computer and content displayed on the display screen. (col. 4; lines 21 – 26)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display orientation of Nobuchi and the easel mode taught in figures 8 & 19 of Aarras to further include the scroll wheel as disclosed by Nishiyama to allow the user easily select or view information.

Re-claim 2, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** where the scroll wheel (fig. 1; 8) is configured to permit the user to adjust a volume of sound produced by the portable computer. (col. 4; lines 27 – 29)

Re-Claim 3, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** a first navigation button (fig. 1; 9) disposed on one of the base (4) and the display component (2) and configured to permit the user to manipulate selected content displayed on the screen (7). (col. 5; lines 23 – 28)

Re-Claim 4, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** wherein the screen is configured to display at least one of a plurality of modes of content; and wherein the navigation button is configured to permit the user to select for display one of the plurality of modes of content. (col. 4; lines 42 – 68)

Re-Claim 5, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** a second navigation button (fig. 1; 11); wherein the first navigation button (item 9) is disposed on a major surface of the base (4); and wherein the second navigation button (11) is disposed on a minor surface of the base. (see fig. 1)

Re-Claim 6, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** wherein the scroll wheel (fig. 3; 8) is configured to permit the user to select a mode of content for display by the portable computer. (col. 5; lines 34 – 39)

Re-Claim 7, **Nobuchi teaches** a portable computer configurable between a plurality of display modes including a laptop mode (figs. 1 & 16(a)), the portable computer comprising:

a base (fig. 1; 1) including a keyboard (2);

a single display component (3) rotatably coupled to the base (1) and including a screen (3) which displays content;(col. 1; lines 28 – 30) a hinge (5) assembly disposed at least partially within the base (1) and the display component (3) that defines an axis of rotation about which both the base and the display component are rotatable (see fig. 2) to transition the portable computer between the laptop mode (figs. 1 & 16(a)), wherein

the laptop mode (figs. 1 & 16 (a)) is configured to display to a user on the single display (3) component a first content mode (fig. 16(a)) having a first content display orientation with the single display component oriented towards the user and the keyboard oriented to receive input from the user; (fig. 16(a)) and col. 1; lines 31 – 34)

Nobuchi fails to teach an easel mode is configured to display to a user on the single display component a second content mode.

However Aarras teaches an easel mode **(**figs. 8 & 19) is configured to display to the user on the single display (30 in fig.19) component a second content mode (fig. 19) having a second content display orientation (par. 50; lines 7 – 10) with the single display (30) component oriented towards the user and the keyboard (14) oriented away from the user (see figs. 8 & 19), wherein the first and second content display orientations are 180 degrees relative to each other; and (par. 39; lines 3 – 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display orientation of Nobuchi and the easel mode taught in figures 8 & 19 of Aarras to allow a user to select the image from the display as shown in FIG. 8. (Aarras, par. 40)

Neither Nobuchi nor Aarras expressly disclose a scroll wheel.

However Nishiyama discloses a scroll wheel (8 in fig. 1) accessible in each of the plurality of display modes and configured to permit a user to manipulate at least one of operating parameters of the portable computer and the content displayed on the screen. (col. 4; lines 21 – 26)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display orientation of Nobuchi and the easel mode taught in figures 8 & 19 of Aarras to further include the scroll wheel as disclosed by Nishiyama to allow the user easily select or view information.

Re-Claim 8, the combination of **Nobuchi, Aarras and Nishiyama as a whole teach further teach** wherein the scroll wheel (Nishiyama, fig. 3; 8) is disposed at least partially about the axis of rotation of the display component (3) relative to the base (1) (Nobuchi, col. 1; lines 28 – 30).

Re-Claim 10, **the combination of Nobuchi, Aarras and Nishiyama as a whole further teach** first navigation button (Nishiyama; 9 in fig. 1) user-accessible in each of the laptop mode (Nobuchi, figs. 1 & 2) and the easel mode (Aarras, figs. 8 & 19), and configured to permit the user to manipulate selected content displayed on the screen. (Nishiyama, col. 5; lines 23 – 68 through col. 6; lines 1 – 4)

Re-Claim 11, is rejected as applied to claim 4 above because the scope and contents of the recited limitations are substantially the same.

Re-Claim 12, **the combination of Nobuchi, Aarras and Nishiyama as a whole further teach** a second navigation button (Nishiyama, fig. 1; 11) that is not user-accessible when the portable computer is in the easel mode (Aarras, figs. 8 & 19).

Re-Claim 13, is rejected as applied to claims 1 and 7 above because the scope and contents of the recited limitations are substantially the same.

Re-Claim 14, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** wherein the scroll wheel (fig. 3; 8) is configured to permit a user to manipulate the content displayed on the screen. (col. 4; lines 55 - 61)

Re-Claim 15, is rejected as applied to claim 2 above because the scope and contents of the recited limitations are substantially the same.

Re-Claim 16, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** wherein the scroll wheel (fig. 1; 8) is disposed at least partially within the hinge (3) assembly. (see fig. 1)

Re-Claim 17, is rejected as applied to claim 3 above because the scope and contents of the recited limitations are substantially the same.

Re-Claim 18, **the combination of** Nobuchi, **Aarras and Nishiyama as a whole further teach** wherein rotating either the display component (Nishiyama, 3 in fig. 1) or the base (1) about the longitudinal axis (5) up to approximately 180 degrees from a closed mode (Nobuchi, fig. 8) in which the display screen is disposed substantially against the base configures the portable computer into the laptop mode (Nobuchi, figs. 1 & 16(a)); and

Wherein rotating either the display component or the base (1) about the longitudinal axis (5) beyond approximately 180 degrees from the closed mode (fig. 8) (Nobuchi, col. 1; lines 28 - 30) configures the portable computer into the easel mode (Aarras, figs. 8 & 19).

Re-Claim 19, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nobuchi further discloses,** wherein an operating display mode (fig. 1) is selected from the plurality of display modes based on a physical orientation of the portable computer. (col. 2; lines 49 – 59)

Re-Claim 20, **the combination of Nobuchi, Aarras and Nishiyama as a whole further teach** wherein an operating display mode is selected from the plurality of display modes (Nobuchi, col. 2; lines 49 – 59) in response to operation of the scroll wheel (8). (Nishiyama, col. 5; lines 34 – 39)

Re-Claim 21, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nishiyama further discloses,** wherein the scroll wheel (item 8) provides a default action which effects manipulation of the at least one of the operating parameters of the portable computer, wherein the default action is defined differently responsive to a display mode of the portable computer. (col. 4; lines 42 – 61 and col. 5; lines 34 - 66)

Re-Claim 22, **Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nobuchi further discloses,** wherein the plurality of modes includes a frame mode in which the single display (3 in fig. 14) component is oriented towards the operator, the base (1 in fig. 14) contacts a substantially horizontal surface, and the keyboard is directed towards the substantially horizontal surface. (see fig. 14)

***Re-Claim 23,* Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nobuchi further discloses,** wherein the frame mode (fig. 14) is configured to display to a user on the single display (3) component the first content mode having the first content display orientation (fig. 16(a)).

***Re-Claim 24,* Nobuchi, Aarras and Nishiyama as a whole teach all the limitations of claim 1, Nobuchi further discloses,** wherein the portable computer is configured to prevent the portable computer from responding to keyboard input when the portable computer is in the frame mode (fig. 14).

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sosina Abebe whose telephone number is (571) 270-7929. The examiner can normally be reached on Mon-Thurs from 9:00-5:00 If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, LunYi Lao can be reached on (571) 272-7671. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for

unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/S. A./

Examiner, Art Unit 2629

/Grant D Sitta/

Primary Examiner, Art Unit 2629

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO (UNITED STATES) INC.
Petitioner

v.

LITL LLC
Patent Owner

IPR Case No. IPR2021-00681
U.S. Patent No. 8,289,688

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. §311 *ET SEQ.* AND 37 C.F.R. §42.100 *ET SEQ.* (CLAIMS 1-9 AND 11-32 OF U.S. PATENT NO. 8,289,688)

EXHIBIT LIST

EXHIBIT	DESCRIPTION
1001	U.S. Pat. No. 8,289,688 ("the '688 Patent")
1002	Prosecution History of the '688 Patent
1003	JP 1994-242853 to Shimura
1004	Certified English translation of JP 1994-242853 ("Shimura")
1005	U.S. Pub. No. 2006/0034042 to Hisano et al. ("Hisano")
1006	U.S. Pub. No. 2005/0062715 to Tsuji et al. ("Tsuji")
1007	JP 1996-179851 to Shigeo
1008	Certified English translation of JP 1996-179851 ("Shigeo")
1009	U.S. Pat. No. 6,918,159 to Choi ("Choi")
1010	Declaration of Jean Renard Ward
1011	Curriculum Vitae of Jean Renard Ward
1012	Claim Listing
1013	Family Diagram of Modified Shimura Computers
1014	Clifford & Gomez, Measuring Tilt with Low-g Accelerometers (2005) ("Freescale")
1015	U.S. Pub. No. 2005/0122318 to Tonouchi et al. ("Tonouchi")
1016	DE 1031455A1 to Schweizer
1017	Certified English translation of DE 1031455A1 ("Schweizer")
1018	Hardy, Lenovo ThinkPad X61 Table PC Review (2007) ("Lenovo")
1019	U.S. Pat. No. 6,882,335 to Saarinen ("Saarinen")
1020	U.S. Pat. No. 6,493,216 to Lin ("Lin")

EXHIBIT	DESCRIPTION
1021	U.S. Pat. No. 8,151,105 to Park et al. ("Park")
1022	Ride, MIT's $100 Laptop (2005) ("MIT")
1023	U.S. Pub. No. 2005/0134717 to Misawa ("Misawa")
1024	U.S. Pat. No. 6,243,258 to Paratore ("Paratore")
1025	Hinckley et al., Sensing Techniques for Mobile Interaction ("Hinckley")
1026	Bartlett, Rock 'n' Scroll is Here to Stay (2000) ("Bartlett")
1027	U.S. Pat. No. 6,704,007 to Clapper ("Clapper")
1028	Microsoft, Microsoft Computer Dictionary Fifth Edition (2002) ("Microsoft")
1029	U.S. Pat. No. 5,436,954 to Nishiyama ("Nishiyama")
1030	GB 2449632 to Hohl ("Hohl")
1031	JP 2002-258982 to Kiyoyuki
1032	Certified English translation of JP 2002-258982 ("Kiyoyuki ")

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES

Page(s)

Cases

Statutes

Other Authorities

I. INTRODUCTION

The 31 claims challenged here are directed to a portable computer with multiple display modes and related features, all of which were well-known before the priority date. This portable computer is configurable between various display modes, including laptop, easel, flat, and frame modes. But these modes, and portable computers configurable to transition between them, were all well-known before the priority date. Related claimed features include a hinge assembly, display mode detection based on a rotation sensor, and automatic rotation based on a detected display mode. But likewise, these and other claimed features were also all well-known before the priority date.

As explained below, five prior art patents—Shimura, Hisano, Tsuji, Shigeo, and Choi—in various combinations render obvious all 31 challenged claims. This petition requests that the Board find unpatentable and cancel all challenged claims.

II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Parties-In-Interest (§42.8 (b)(1))

The real-party-in-interest is Lenovo (United States) Inc. ("Petitioner"), which is an indirect wholly-owned subsidiary of Lenovo Group Limited.

B. Related Matters (§42.8 (b)(2))

The patent at issue, U.S. Patent No. 8,289,688 ("'688 Patent"), is the subject of the following district court proceeding: *LiTL LLC v. Lenovo (United States), Inc. et al*, Case No. 1:20-cv-00689 (D. Del.).

C. Lead and Backup Counsel (§42.8 (b)(3))

Petitioner appoints Martin Bader (Reg. No. 54,736) of Sheppard, Mullin, Richter & Hampton LLP as Lead Counsel, and appoints Nam Kim (Reg. No. 64,160), and Mike Kim (Reg. No. 72,867), of the same firm as Back-Up Counsel. An appropriate Power of Attorney is filed concurrently herewith.

D. Service Information (§42.8 (b)(4))

Service of any documents to Counsel can be made via hand delivery to Sheppard Mullin Richter & Hampton LLP, 12275 El Camino Real, Suite 100, San Diego, California 92130. Petitioner consents to service by e-mail at LegalTm-LNV-LTL@sheppardmullin.com.

III. FEE FOR *IPR* (37 C.F.R. §42.15(a) and §42.103)

Petitioner has paid the required fees. The Office is authorized to charge any fee deficiency, or credit any overpayment, to Deposit Account No. 50-4561.

IV. REQUIREMENTS FOR *IPR* UNDER 37 C.F.R. §42.104

A. Grounds for Standing (§42.104(a))

Petitioner certifies that the '688 Patent is available for IPR and that the Petitioner is not barred or estopped from requesting IPR challenging the claims of the '688 Patent.

B. Identification of Challenged Claims (§42.104(b)(1))

This Petition challenges the validity of claims 1-9 and 11-32 of the '688 Patent ("Challenged Claims").

C. Grounds of Challenge (§42.104(b)(2))

The Grounds of unpatentability presented in this Petition are as follows.[1]

Ground	Basis	References	Challenged Claim
1	§103	Obvious over Shimura in view of Hisano	1-7, 19, and 29-32
2	§103	Obvious over Shimura in view of Tsuji	12, 13, 24, and 26
3	§103	Obvious over Shimura in view of Hisano, in further view of Tsuji	8, 9, 14-16, 20, 23, and 25
4	§103	Obvious over Shimura in view of Hisano, in further view of Shigeo	17, 18, 21, 22, 27, and 28
5	§103	Obvious over Shimura in view of Hisano and Shigeo, in further view of Choi	11

The '688 Patent issued from U.S. Application No. 12/170,939, filed July 10, 2008, claims priority to U.S. Provisional Application No. 61/041,365, filed April 1, 2008. Without conceding priority entitlement, for purposes of this Petition only, it

[1] None of the five references relied on in this Petition were cited during prosecution of the '688 Patent. Nor were "the same or substantially the same prior art or arguments [otherwise] previously [] presented to the Office" during such prosecution. 35 U.S.C. § 325(d). Accordingly, the Board has no reason to exercise its discretion to deny institution under 35 U.S.C. § 325(d). *See Solvay USA Inc. v. WorldSource Enterprises, LLC*, PGR2019-00046, slip op. at 14 (P.T.A.B. Aug. 13, 2019) (Paper 7). While Shimura and Hisano were cited in an IDS during prosecution of *other* patents that claim the benefit of the '688 Patent, this is insufficient. *See Allgenesis Biotherapeutics Inc., v. Cloudbreak Therapeutics, LLC*, No. IPR2020-01438, slip op. at 11–12 (P.T.A.B. Feb. 18, 2021) (Paper 7). Moreover, neither reference was relied upon or substantively considered by the Examiner during prosecution of those other patents.

is assumed that April 1, 2008 marks the earliest effective priority date (the "Critical Date") of the '688 Patent.

V. RELEVANT INFORMATION CONCERNING THE '688 PATENT

A. Overview of '688 Patent

The '688 Patent is directed to a "portable computer that is configurable between a plurality of display modes including a laptop mode (in which the portable computer has a conventional laptop appearance) and an easel mode in which the computer base and its display component stand vertically forming an inverted 'V.'" EX-1001, Abstract. The portable computer 100 is configurable into the plurality of display modes (e.g., FIGs. 1, 4, 26, and 27 below, corresponding to a laptop mode, an easel mode, a frame mode, and a flat mode) based on a hinge assembly (e.g., FIGs. 7B and 10 below) rotatably coupling the display component 102 to the base 104. EX-1001, Abstract.

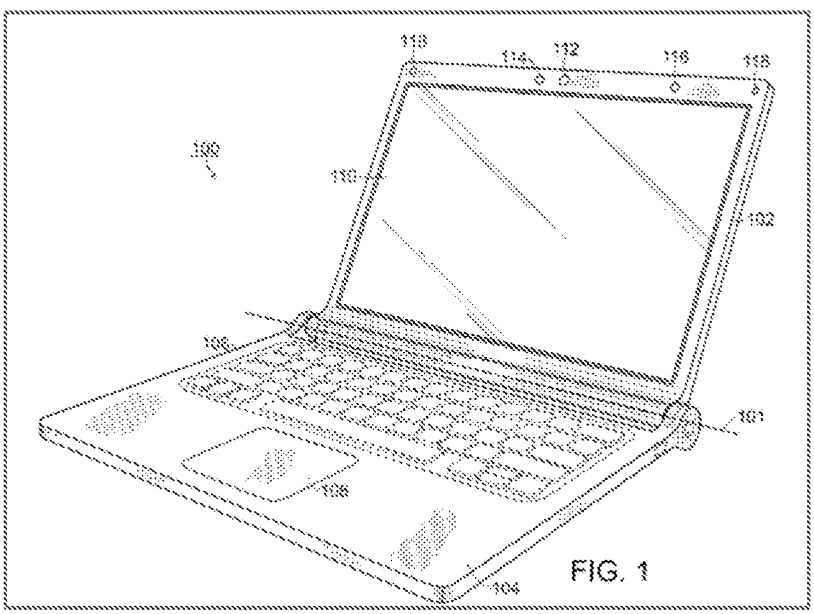


FIG. 1

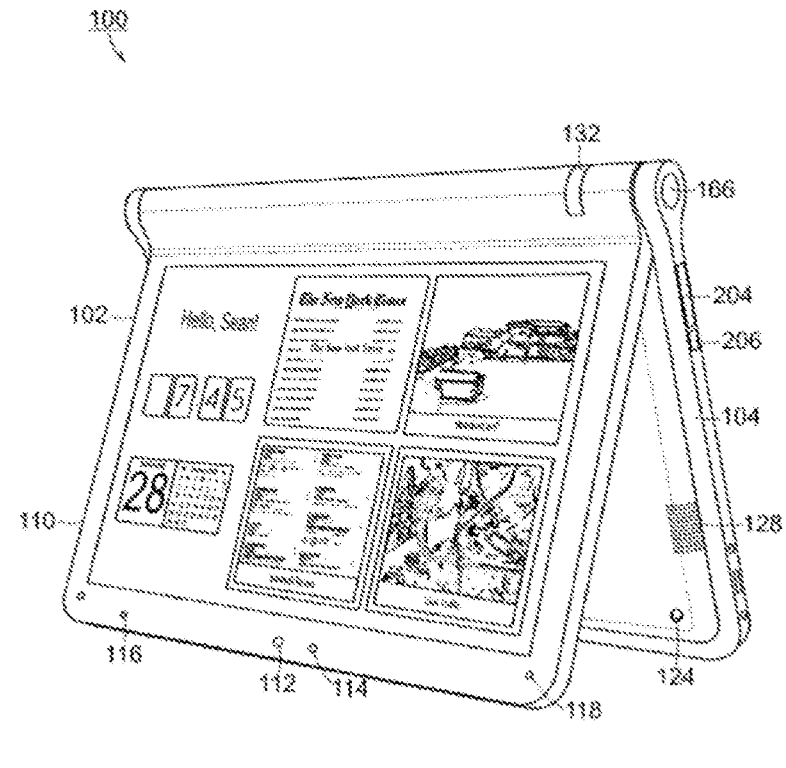

100
132
166
102
Hello, Sean
28
204
206
104
110
128
116
112
114
118
124

FIG. 4

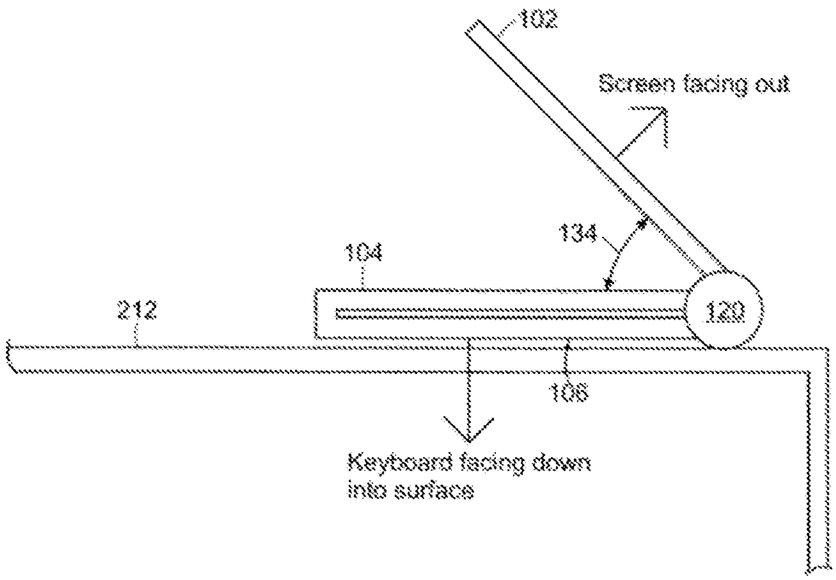

102
Screen facing out
134
104
212
120
106
Keyboard facing down
into surface

FIG. 26

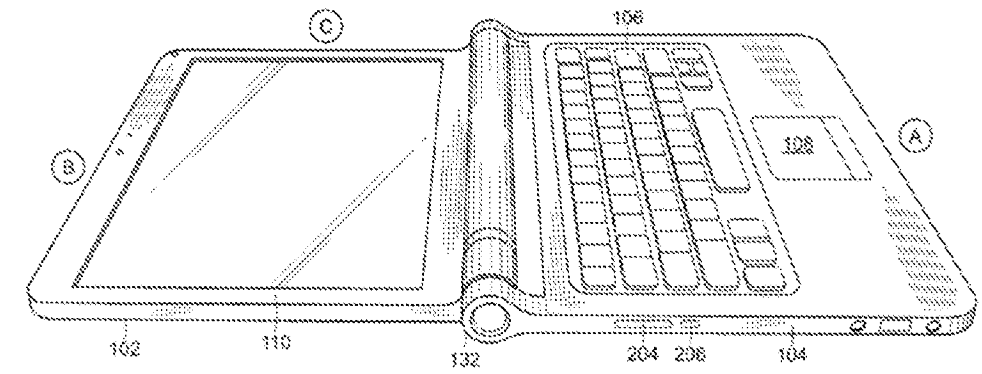


FIG. 27

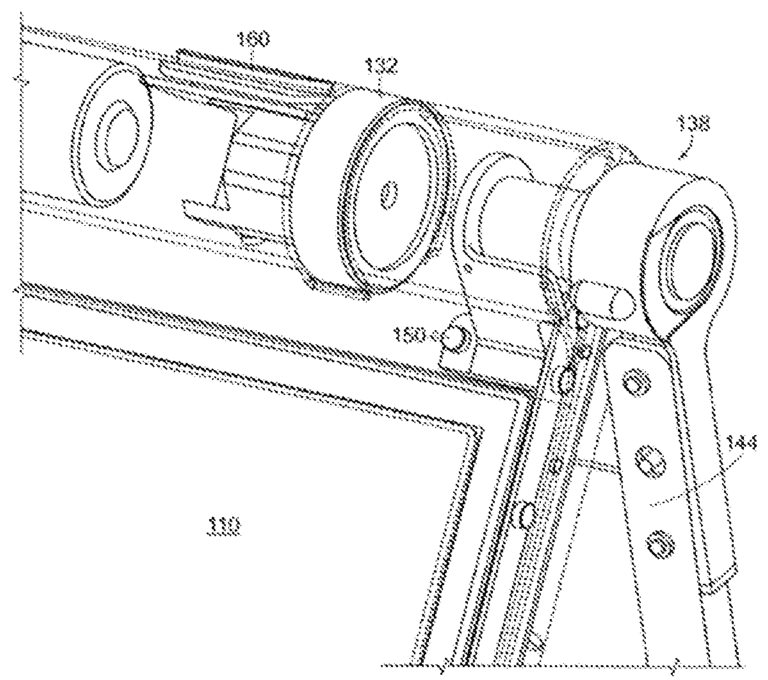


FIG. 7B

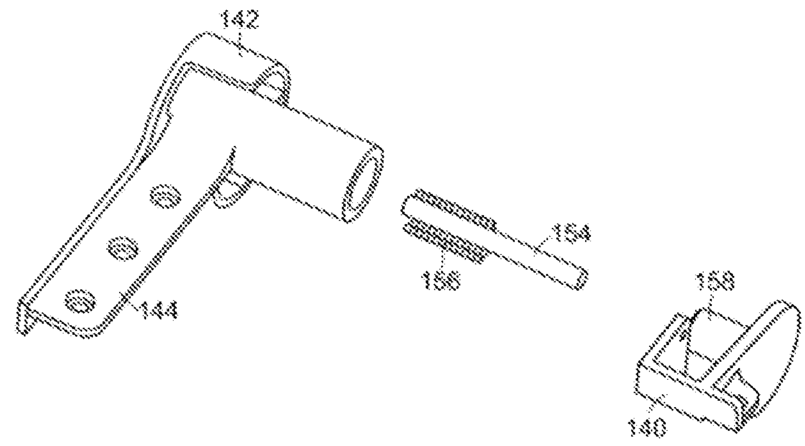


FIG. 10

The displayed content of the '688 Patent can be rotated 90° or 180° so that the displayed content is oriented properly for an intended user. EX-1001, 8:7-16, 16:27-50. The 90° or 180° rotation may be manual or automated. EX-1001, 16:27-50. For example, in an embodiment where the rotation is automated, the portable computer uses an orientation (or mode) sensor that detects whether the portable computer is in a laptop mode or an easel mode and adjusts the display accordingly. EX-1001, 8:17-20. The orientation (or mode) sensor may be located in the hinge assembly 138 and "may be used to determine a precise relative orientation[, such as an angle,] of the base component 104 with respect to the display component 102 . . . to determine [a given display mode.]" EX-1001, 8:26-31, 58-61. In some embodiments, the orientation sensor may be located in display component 102 or base 104 and may include an accelerometer "whose output is fed to the computer operating system (or to dedicated logic circuitry) which then triggers a display inversion as appropriate [between the two modes]." EX-1001, 8:31-34.

The '688 Patent also discloses "software and/or hardware protection . . . provided for the keyboard to prevent keys from being pressed (or to prevent the portable computer from responding to pressed keys) when the portable computer is in the frame mode." EX-1001, 16:14-17.

Moreover, the '688 Patent discloses integrated navigation hardware that "allows a user to easily and comfortable [sic] control various features and functions of the portable computer, and to manipulate content displayed on the portable computer." EX-1001, 10:55-58. The navigation hardware may include scroll wheel, navigation buttons 166, 168, or conventional tools (e.g., touchpad 108, track ball, mouse, or other peripherals) to "control, adjust and/or select various functionality of the portable computer." EX-1001, 10:59-61, 11:2-10, 15-19, 22-24, 40-44, 12:17-21.

Challenged Claim 1 (below) is representative.

> 1. A portable computer configurable between a plurality of display modes including a closed mode, a laptop mode and an easel mode, the portable computer comprising:
> a single display component including a display screen;
> a base including a keyboard;
> a hinge assembly at least partially housed within the base and the display component configured to pivotably couple the display component to the base, wherein the hinge assembly defines a single longitudinal axis running along an interface between the display component and the base, and wherein the display component and the base are rotatable about the single longitudinal axis;
> wherein, in the closed mode, the display screen is disposed substantially against the base;
> wherein rotating either the single display component or the base by an operator about the single longitudinal axis up to approximately 180 degrees from the closed mode configures the portable computer into the laptop mode, wherein in the laptop mode the single display component is oriented towards the operator and the keyboard is oriented to receive input from the operator;
> wherein rotating either the single display component or the base by the operator about the single longitudinal axis beyond approximately 180 degrees from the closed mode configures the portable computer into the easel mode; and
> wherein in the easel mode the single display component is oriented facing the operator with the keyboard oriented away from the operator.

EX-1001, 17:10-38.

As shown below, at the Critical Date, portable computers using a hinge assembly configurable into a plurality of display modes, including the laptop, easel, frame, and flat modes, were known in the art. EX-1010, ¶¶54, 57-126.

B. **Prosecution History of the '688 Patent**

The '688 Patent was allowed after several Office Actions and claim amendments. EX-1002, *passim*. In the last office action before allowance, dated

September 8, 2011, the Examiner rejected all pending independent claims (except for independent claim 12 (now claim 11)) as being anticipated by U.S. Patent No. 7,061,472 to Schweizer. EX-1002, 130-32. Applicant-amended independent claim 1 in response to the office action is reproduced below:

> 1. (Currently Amended) A portable computer configurable between a plurality of display modes including a closed mode, a laptop mode and an easel mode, the portable computer comprising:
>
> a single display component including a display screen;
>
> a base including a keyboard;
>
> a hinge assembly at least partially housed within the base and the display component ~~and~~ configured to pivotably couple the display component to the base, wherein the hinge assembly defines a single longitudinal axis running along an interface between the display component and the base, and wherein the display component and the base are rotatable about the single longitudinal axis;
>
> wherein, in the closed mode, the display screen is disposed substantially against the base;
>
> wherein rotating either the single display component or the base by an operator about the single longitudinal axis up to approximately 180 degrees from the closed mode configures the portable computer into the laptop mode, wherein in the laptop mode the single display component is oriented towards the operator and the keyboard is oriented to receive input from the operator; ~~and~~
>
> wherein rotating either the single display component or the base by the operator about the single longitudinal axis beyond approximately 180 degrees from the closed mode configures the portable computer into the easel mode; and
>
> wherein in the easel mode the single display component is oriented facing the operator with the keyboard oriented away from the operator.

EX-1002, 98. Applicant also made amendments to other independent claims that led to allowance and are generally related to the following claim features: (1) the single display component, (2) the easel mode, (3) the hinge assembly, (4) the navigation hardware control, (5) the rotation sensor, and (6) the display inversion for different display modes. *Id.*, 59-73, 99-105.

However, as demonstrated below, these features (along with the remaining features in the Challenged Claims) were squarely within the prior art, including the prior art relied upon in this Petition.

C. Level of Ordinary Skill in the Art

A person of ordinary skill in the art ("POSITA") would have had at least a Bachelor's degree in Electrical Engineering, Computer Engineering, or Computer Science, plus two to three years of work experience in designing hardware and/or software aspects of user interfaces for portable computing devices. EX-1010, ¶26. Alternatively, the POSITA could have received a graduate degree such as a Master's degree in the same field with at least one year of work experience related to hardware and/or software design aspects of the user interfaces for portable computing devices. *Id.*

D. Claim Listing

EX-1012 is a claim listing that enumerates each claim element.

VI. CLAIM CONSTRUCTION—37 C.F.R. §42.104 (b)(3)

The claim construction standard defined in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) applies to this proceeding. 83 Fed. Reg. No. 197, 51340 (Oct. 11, 2018); 37 C.F.R. 42.100. Words in a claim are given their plain meaning, which is the meaning understood by a POSITA after reading the entire patent. *Phillips*, 415 F.3d at 1312-1313.

With the below exceptions, Petitioner proposes that no terms in the Challenged Claims require express construction for purposes of the current validity challenges. Petitioner reserves the right to respond to any constructions that LiTL may offer or that the Board may adopt. Petitioner is not waiving any arguments concerning indefiniteness or claim scope that may be raised in other proceedings.

During prosecution, the Examiner identified that limitations [11c] and [11e] (highlighted below) invoke 35 U.S.C. § 112, ¶6. EX-1002, 64-65, 195-196. The following functions and corresponding structures identified by the Examiner will be adopted by Petitioner for purposes of this Petition only.

> **11.** A portable computer comprising:
> a base;
> a display component rotatably coupled to the base;
> means for rotating the display component in a single direction relative to the base to configure the portable computer between a laptop mode and an easel mode;
> a display orientation module configured to automatically orient content displayed on the display component responsive to at least a transition between the laptop mode and the easel mode, wherein the display orientation module is further configured to orient the content displayed between a first display orientation and a second display orientation, the first and second display orientations being 180 degrees relative to each other; and
> means for detecting an orientation of the base relative to the display component, wherein the means for detecting is further configured to identify the transition between the laptop mode and the easel mode based on a stored threshold orientation.

A. "means for rotating" ([11c])

The function is "rotating the display component in a single direction relative to the base to configure the portable computer between a laptop mode and an easel mode." The corresponding structure includes at least the hinge assembly and associated parts (housing 142, shaft 154, springs 156, member 158, bracket 140) illustrated in FIGs. 7A-10 and described in the specification at 10:22-53 and its equivalents. EX-1002, 64.

B. "means for detecting" ([11e])

The first function is "detecting an orientation of the base relative to the display component." The second function is "identify[ing] the transition between the laptop mode and the easel mode based on a stored threshold orientation." The corresponding structure for the above-discussed means for detecting limitations includes at least the orientation or mode sensor described in the '688 Patent specification at 2:28-54, 3:19-25, 8:7-61, 9:19-45, 10:46-53 and its equivalents. EX-1002, 65.

C. "display orientation module" (Claims 3, 4, 5, 11, 13, 14, 16, 19, and 25)

For purposes of this petition only, "display orientation module" is assumed to be a means-plus-function limitation under 35 U.S.C. §112, ¶6. *See Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1348-50 (Fed. Cir. 2015).

The function in Claim 3 is "display[ing] content on the display screen in one of a plurality of content orientations relative to the single longitudinal axis."

The function in [4b] is "display[ing] 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."

The function in Claim 5 is "display[ing] the content in a first content orientation relative to the single longitudinal axis when the portable computer is configured into the laptop mode and in a second content orientation relative to the single longitudinal axis when the portable computer is configured into the easel mode."

The function in [11d] is "automatically orient[ing] content displayed on the display component responsive to at least a transition between the laptop mode and the easel mode."

The function in [13a] is "control[ling] an orientation of the content displayed on the display screen."

The function in [14b] is "automatically display[ing] the content in the first orientation when the portable computer is configured into the laptop mode and in the second orientation when the portable computer is configured into the easel mode."

The function in [16b] is "automatically adjust[ing] the orientation of the content displayed on the display screen responsive to the information from the mode sensor."

The function in [19d] is "orient[ing] the content displayed on the single display screen responsive to the physical orientation detected by the orientation sensor between at least a first content display orientation and a second content display orientation."

The function in [19e] is "detect[ing] a change between a laptop mode, an easel mode, and a frame mode based on the detected physical orientation of the single display unit relative to the base unit."

The function in [19f] is "trigger[ing] a display inversion from one of the first and second content display orientations to the other of the first and second content display orientations responsive to the orientation sensor detecting the change between the laptop mode and the easel mode."

The function in [19g] is "trigger[ing] a display inversion from one of the first and second content display orientations to the other of the first and second content display orientations responsive to the orientation sensor detecting the change between the easel mode and the frame mode."

The function in [25b] is "display[ing] the content in the first orientation when the portable computer is configured into the laptop mode and frame mode and in the second orientation when the portable computer is configured into the easel mode."

The corresponding structure for the above-discussed display orientation modules includes at least hardware and/or software (e.g., central processing unit, memory, and other components of the portable computer) configured to orient the displayed content in various display modes as described in the '688 Patent specification at 6:38-42, 8:7-20, 13:64-14:6, 16:27-50 and its equivalents.

D. **"protection module" (Claim 26)**

For purposes of this petition only, "protection module" is assumed to be a means-plus-function limitation under 35 U.S.C. §112, ¶6. *See Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1348-50 (Fed. Cir. 2015).

The function in Claim 26 is "prevent[ing] keyboard operation when the portable computer is configured in the frame mode." The corresponding structure includes at least the software and/or hardware (e.g., central processing unit, memory, and other components of the portable computer) configured to prevent keys of the keyboard from being pressed or to prevent the portable computer from responding to pressed keys when the portable computer is in the frame mode, as described in the '688 Patent specification at 6:38-42, 16:13-17 and its equivalents.

VII. PRECISE REASONS FOR RELIEF REQUESTED

A. Summary of the Prior Art Applied in This Petition

1. Overview of Shimura

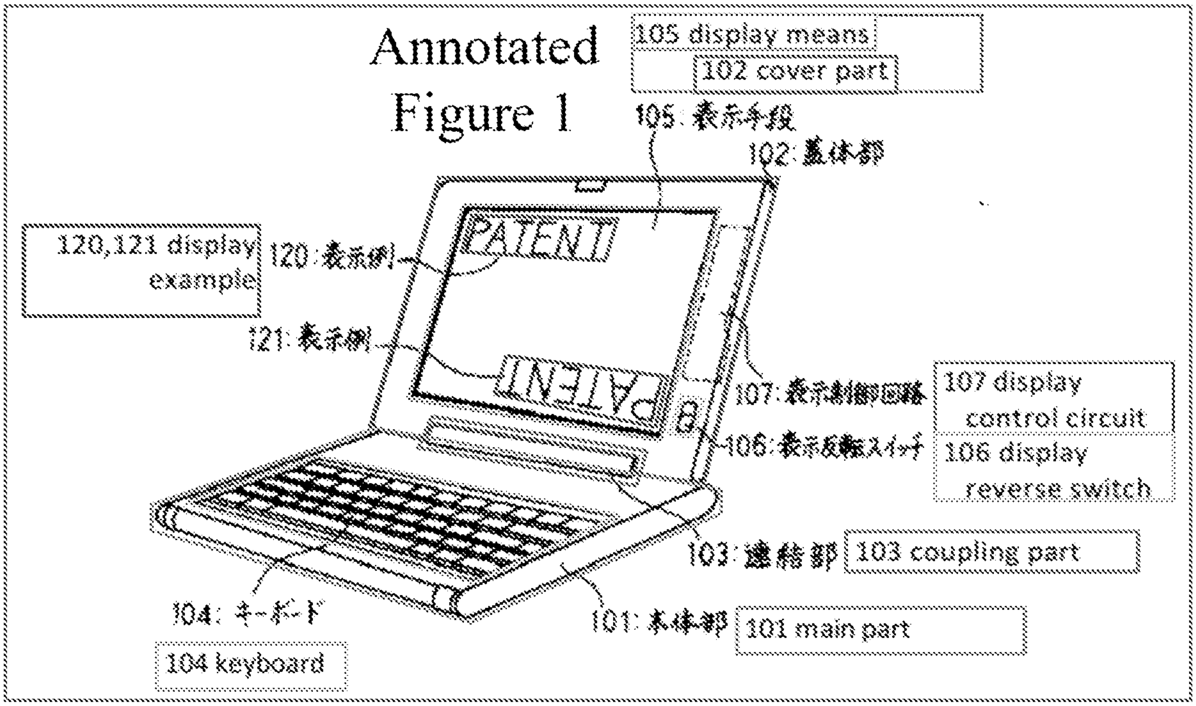
Shimura published as Japanese Patent No. 1994-242853 on September 2, 1994, from an application filed on February 15, 1993. Shimura therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). The Shimura reference was published in Japanese (EX-1003), and a certified English translation is provided herein (EX-1004, reference hereinafter will be made to the certified English translation for simplicity).

Shimura is directed to a portable "computer which can adopt a mode suitable for a user environment." EX-1004, Abstract. The portable computer includes:

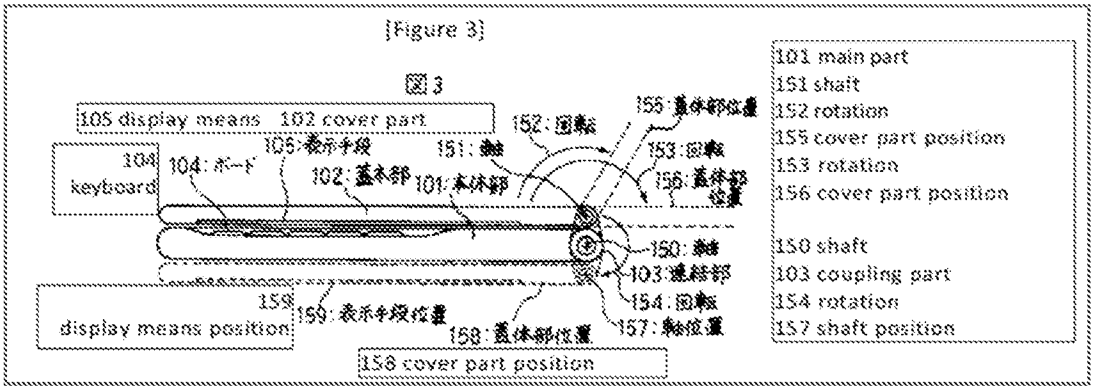
- main part 101 (dark green) with keyboard 104 (light green);
- cover part 102 (dark blue) with display means 105 (light blue);
- coupling part 103 (red) fastening main part 101 to cover part 102;
- display reverse switch 106 (orange) to set the display to a normal view or an inverted view (i.e., the displayed content is turned upside down); and

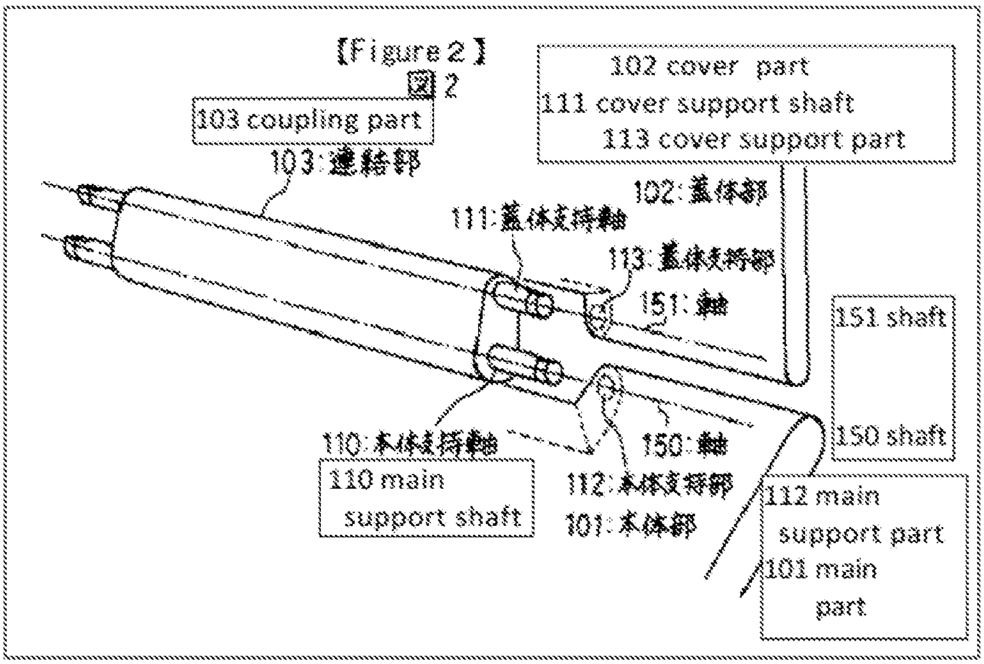
- display elements 120, 121 (dark red).

EX-1004, Abstract, ¶¶10-12, 17; *see* Annotated Figure 1 of Shimura (below).



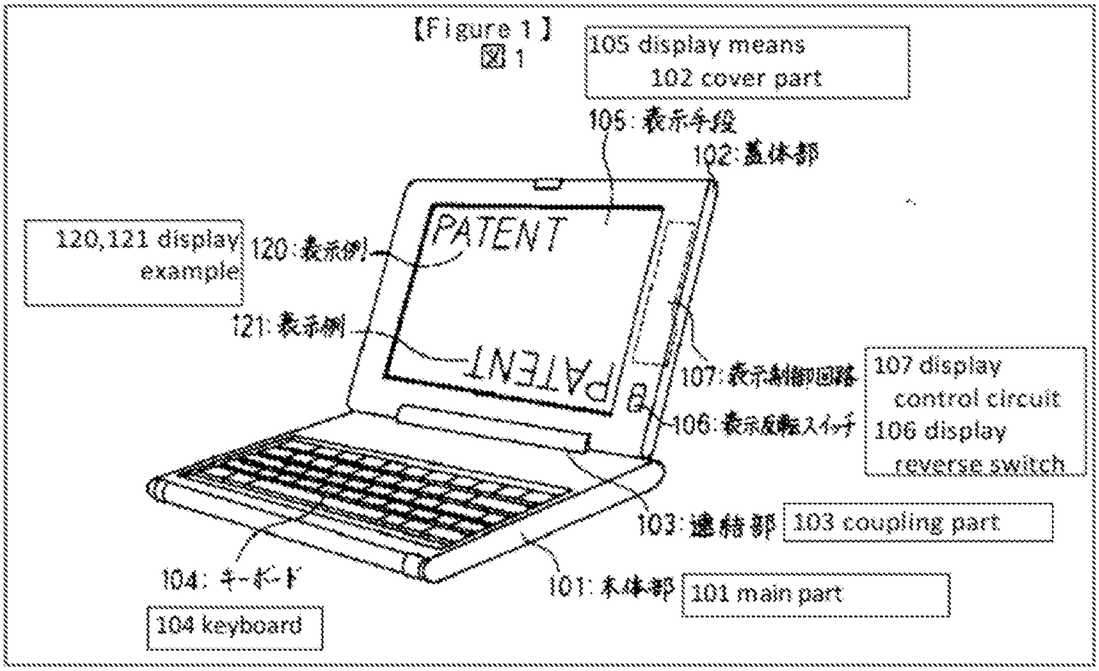
The coupling part 103 allows the cover part 102 to be rotated up to 360° about the main part 101 into various display modes, as illustrated in Figure 3 (below). EX-1004, ¶¶11-17. The coupling part 103 may include two shafts 150, 151, which facilitates rotating cover part 102 about main part 101, as illustrated in Figure 2 (below). *Id.*, ¶¶13-14. The coupling part 103 includes main support part 112 of the main part 101 and cover support part 113 of the cover part 102. *Id.*, ¶13.

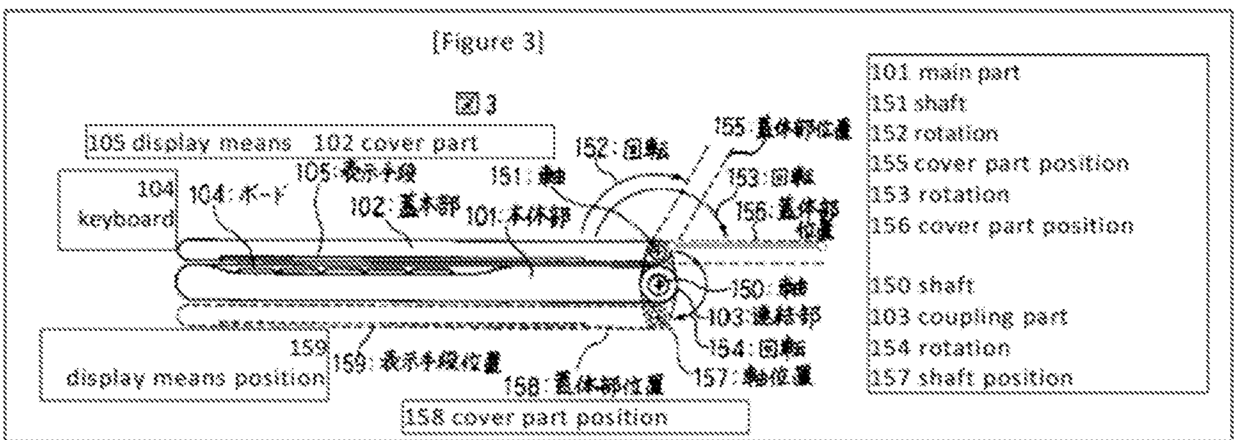




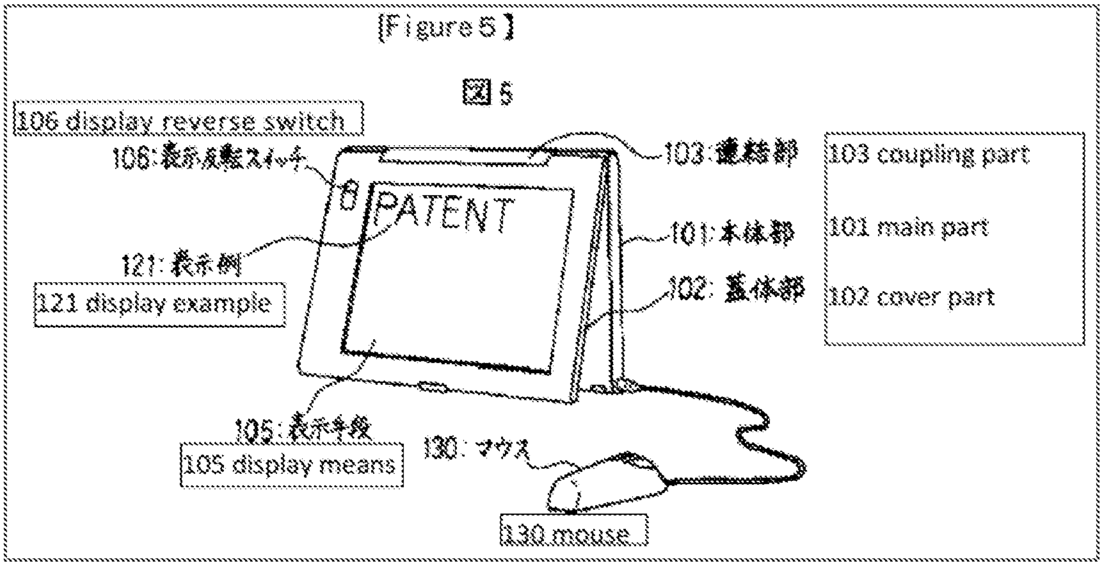
In a first display mode, corresponding to a closed mode of the '688 Patent, the cover part 102 can be closed against the main part 101, as illustrated in Figure 3 (above). EX-1004, ¶14. In a second display mode, corresponding to the laptop mode of the '688 Patent, the keyboard 104 is facing upward and the display means 105 is facing the user, as illustrated in Figure 1 (below). *Id.*, ¶¶11, 14. In a third display mode, corresponding to the flat mode of the '688 Patent, the keyboard 104 is facing upward and the display means 105 is facing upward at cover part position

156 (blue line) where the display means 105 is about 180° compared to the keyboard 104, as illustrated in Figure 3 (below). *Id.*, ¶15.





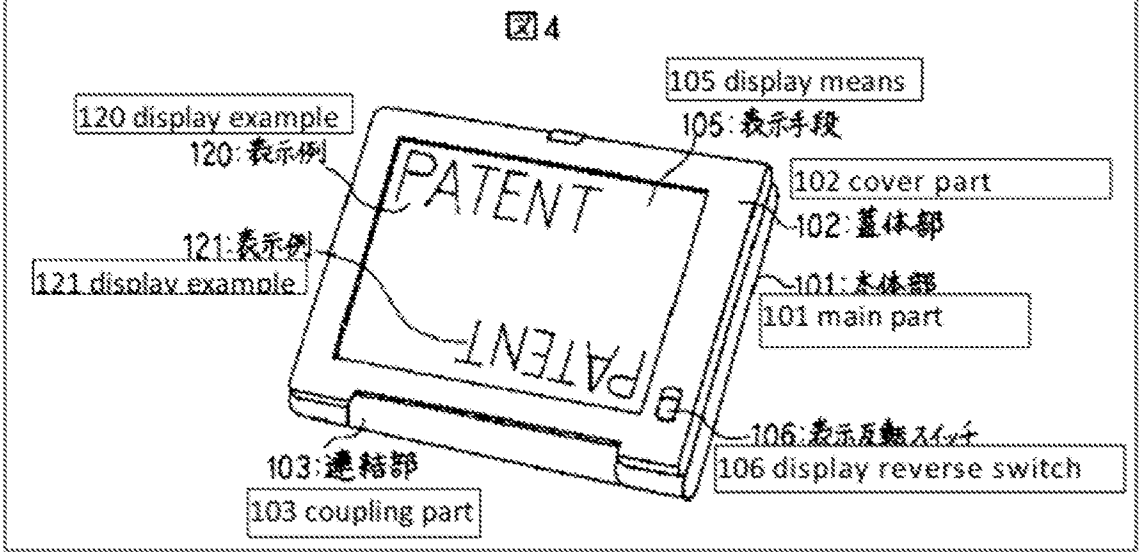
In a fourth display mode, corresponding to the '688 Patent's easel mode, the cover part is rotated 340° about the main part 101 such that the display means 105 is facing the user and the keyboard 104 is facing away from the user, and the user may be limited to interacting with the operating environment using mouse 130. EX-1004, ¶¶14-17; Figure 5 (below).



In a fifth display mode, corresponding to the '688 Patent's frame mode, the keyboard 104 and the display means 105 are facing away from each other, and the user may need to use a pen to interact with the computer, as illustrated in Figure 4 (below). EX-1004, ¶17.[2]

[2] The '688 Patent describes that in frame mode, "the keyboard 106 [is] 'face down' on the surface 212 and the display 110 [is] facing upward." EX-1001, 16:1–5. Likewise, Shimura's FIG. 4 shows the keyboard face down on a surface and the display facing upward. EX-1004, ¶¶16, 18. Shimura further discloses that the portable computer can be configured to any angle between 0° to 360°, such as 340°. *Id.,* ¶¶8, 10, 17.

[Figure 4]



Shimura also discloses a "second switching means" to invalidate keyboard input. EX-1004, ¶8. The second switching means can be set so that the keyboard input is invalidated. *Id.* The input invalidation functionality can be used in a frame mode, as depicted in Shimura's Figure 4 (above), to prevent data from being mistakenly input from the keyboard (which may be facing a surface). Shimura also discloses that the input invalidation functionality operates automatically based on an angle of the cover part 102 compared to main part 101. *Id.*, ¶¶18, 19.

2. <u>Overview of Hisano</u>

Hisano published on February 16, 2006, from a Japanese application filed on August 10, 2004. Hisano therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a), 102(b), and 102(e).

Hisano discloses a portable computer including first housing 2 and second housing 4. EX-1005, ¶54. By rotating one housing about another, the portable computer can be used in various display modes. EX-1005, ¶¶54, 87, 98. For example, Hisano discloses a first display mode where the first housing faces up and the second housing faces the user (FIG. 1 below). *Id.*, ¶54. In a second display mode, both housings face the same direction (FIG. 8 below). *Id.*, ¶87. In a third display mode, both housings face away from each other (FIG. 9 below). *Id.*, ¶98.

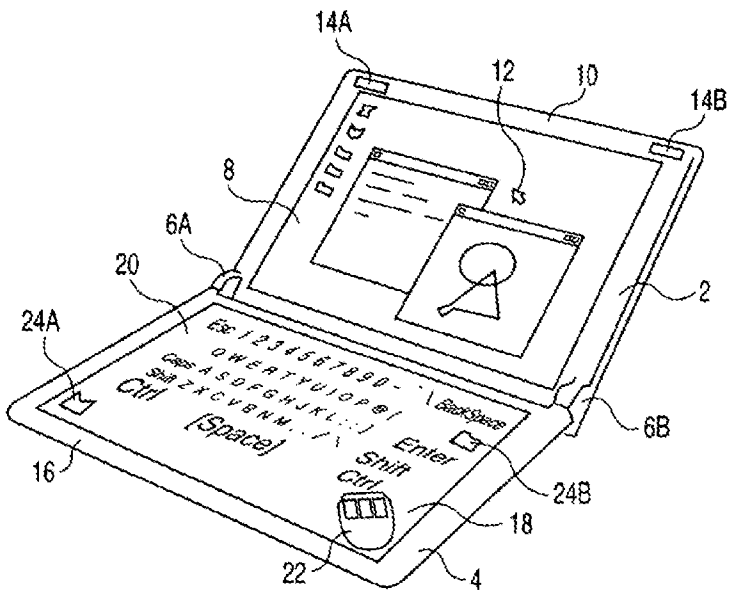


FIG. 1

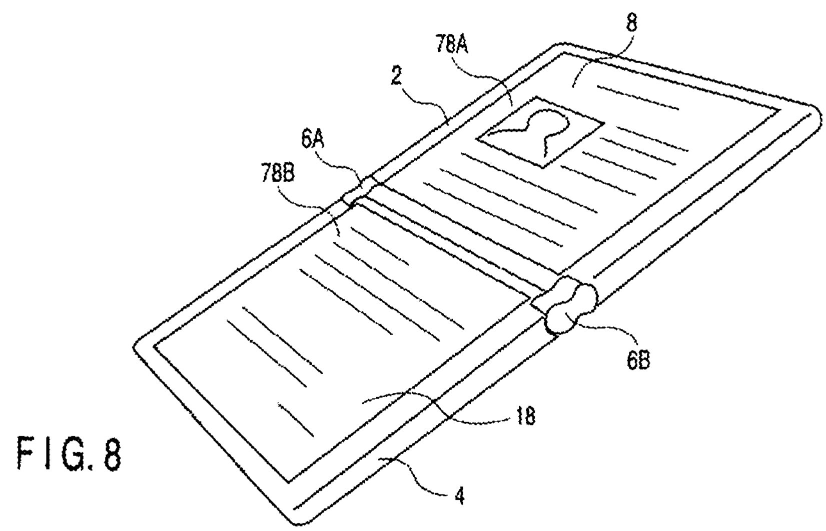


FIG. 8

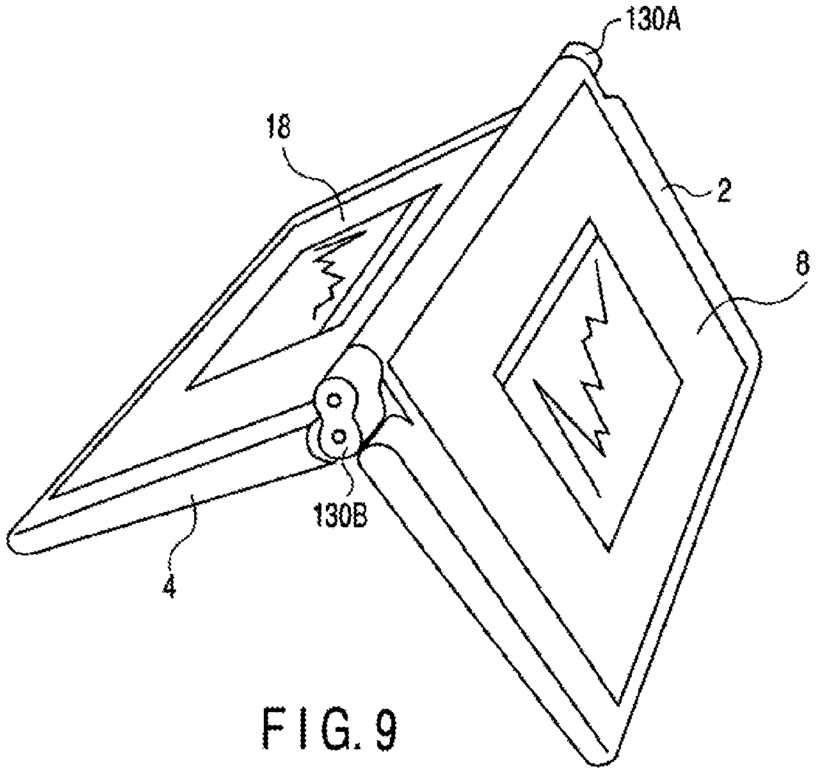


FIG. 9

Data displayed on housing 2 may be displayed such that the top of the screen is farther from the hinges (hereinafter a "normal view"; *see* FIG. 1 above) or such that the top of the screen is closer to the hinges (hereinafter an "inverted view"; *see* FIG. 9 above). EX-1005, ¶¶54, 98. Hisano may use one or more sensors to switch between these views based on a given display mode of Hisano's portable computer. *Id.*, ¶99. For example, Hisano discloses switching between views based on a sensor that detects the hinge's rotating angle (hereinafter a "hinge-rotation sensor"). *Id.* ("[T]he rotating angle of the hinges 130A and 130B may be used to switch between [a normal view and an inverted view]."). Hisano also discloses using a "sensor that senses the direction of gravity so as to automatically switch the top and bottom of the display screen" (hereinafter "gravity sensor"). *Id.*

In addition, Hisano discloses different mechanisms to configure the portable computer. EX-1005, ¶¶98, 104. For example, Hisano discloses a portable computer with a dual-axis hinge assembly in Annotated FIG. 9 (below) and a portable computer with a single-axis hinge assembly in Annotated FIG. 13 (below). *Id.*, ¶98. Annotated FIG. 9 (below) illustrates LCD panels 8 and 18 coupled together by two rotating-shaft-hinges 130A and 130B, each hinge having two rotating shafts (red dashed lines). *Id.* In contrast, Annotated FIG. 13 (below) uses a glass substrate system, where the two glass substrates 154, 156 are coupled together by a single hinge having a single axis (red dashed line). *Id.*, ¶104.

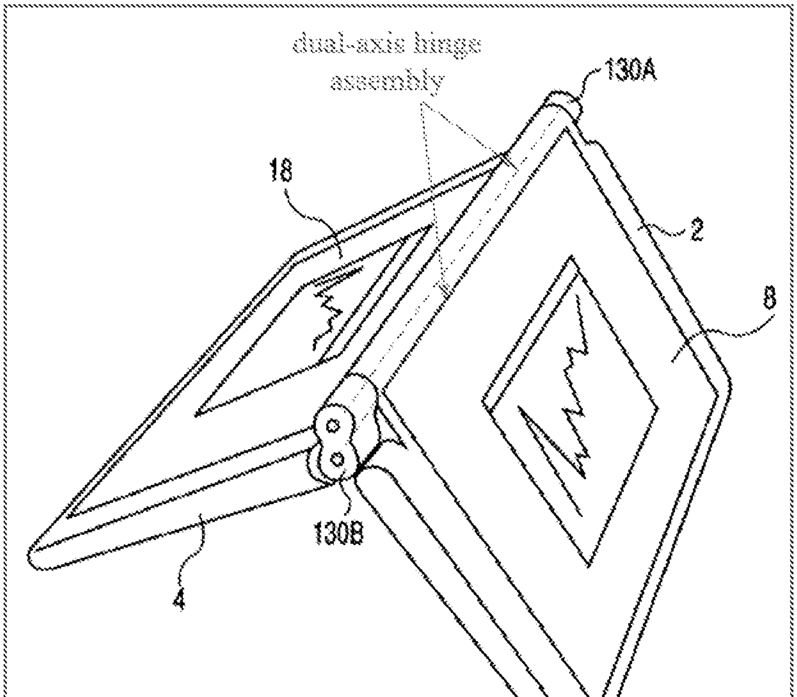


FIG. 9

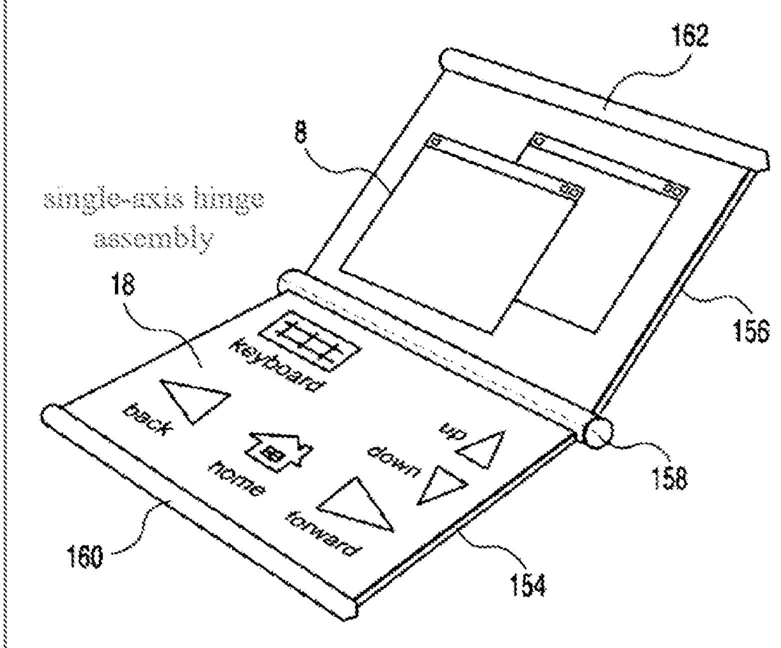


FIG. 13

3. <u>Overview of Tsuji</u>

Tsuji published on March 24, 2005 and claims priority to a Japanese application filed on September 19, 2003. Tsuji therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Tsuji discloses portable computer 1 including computer main body 11 and display unit 12. EX-1006, ¶¶3, 30. The portable computer 1 can be configured into a PC style, as illustrated in FIG. 1 (below), and a PDA style, as illustrated in FIG. 5 (below). EX-1006,¶34. In the PDA style, "the computer 1 is able to rotate in different orientations relative to the force of gravity." *Id.*, ¶¶48 ("In the PC style (FIG. 1), a screen image such as text and graphics is set to the orientation (first orientation) the bottom-end portion of the screen image is located towards the computer main body 11."), 50, 52; EX-1010, ¶139. The display driver 303 "performs an operation for rotating a screen image displayed on the LCD 13 and a scaling operation for varying the aspect ratio in response to an instruction from the BIOS 301." EX-1006, ¶70. The BIOS 301 relies on gravity sensor 203 and/or rotation angle sensor 202 to orient the display unit 12. *Id.*, ¶¶74, 77. Tsuji also teaches that the automatic image rotating function can be turned off using inhibit switch 117 (hereinafter a "rotation-inhibited state"). *Id.*, ¶36.

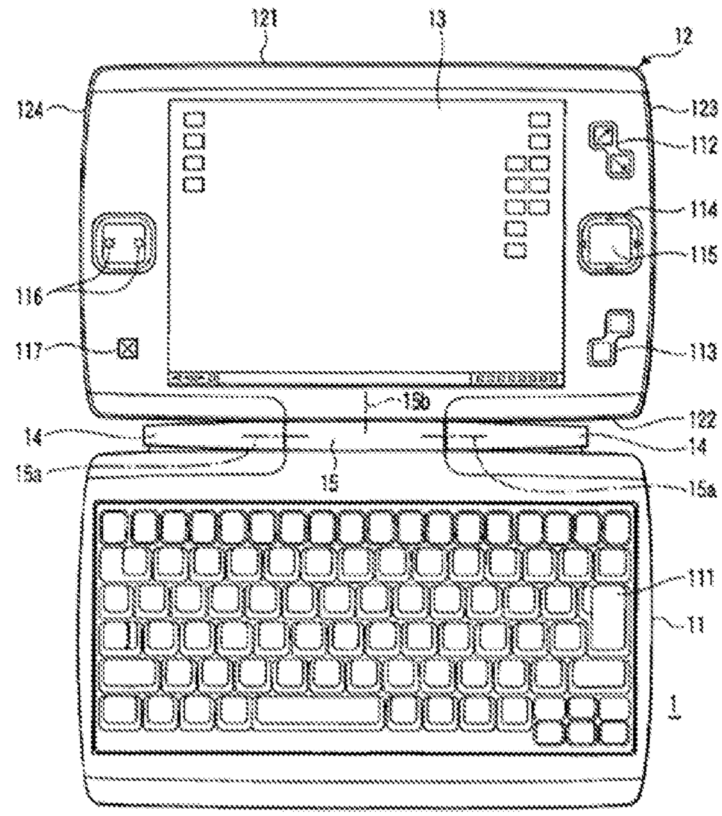

121
13
12
124
123
112
114
115
116
117
113
15b
122
14
14
15a
15
15a
111
11
1

FIG.1

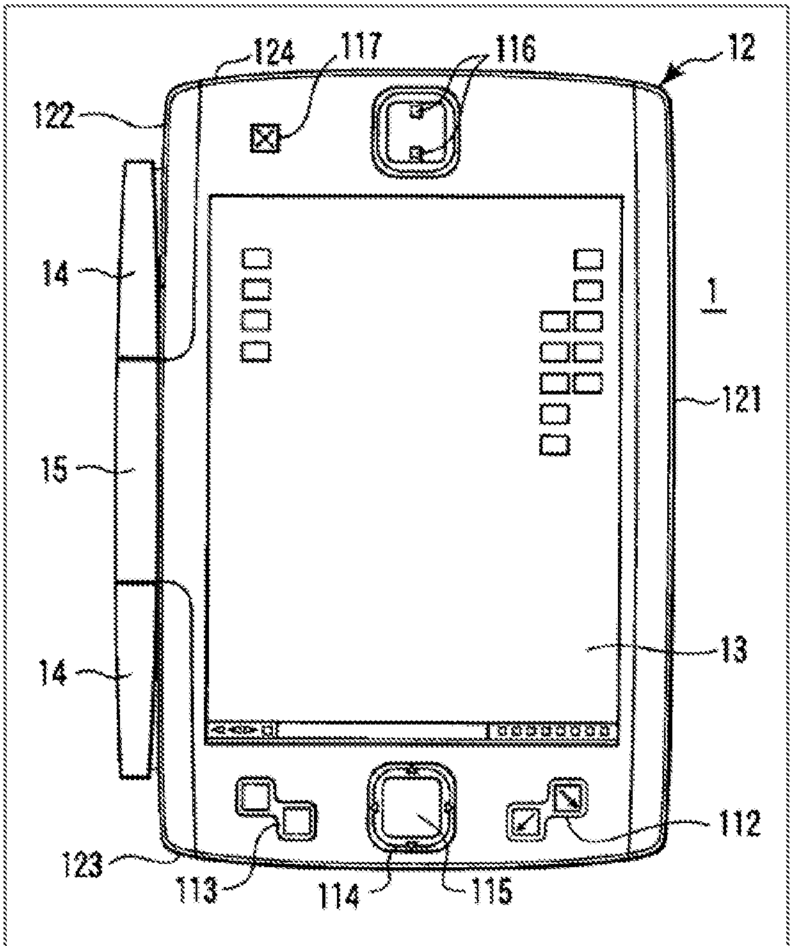


FIG. 5

As an example of the different orientations, in FIG. 5 (above; hereinafter "first PDA style"), a top of the screen is closest to key switch 116. EX-1006, ¶50. In FIG. 6 (below; hereinafter "second PDA style"), the screen is rotated 90° clockwise from the orientation of FIG. 5. *Id.*, ¶52. In FIG. 7 (below; hereinafter "third PDA style"), the screen is rotated 180° clockwise from the orientation of FIG. 5. *Id.*, ¶53. In FIG. 8 (below; hereinafter "fourth PDA style"), the screen is rotated 270° clockwise from the orientation of FIG. 5. *Id.*, ¶54.

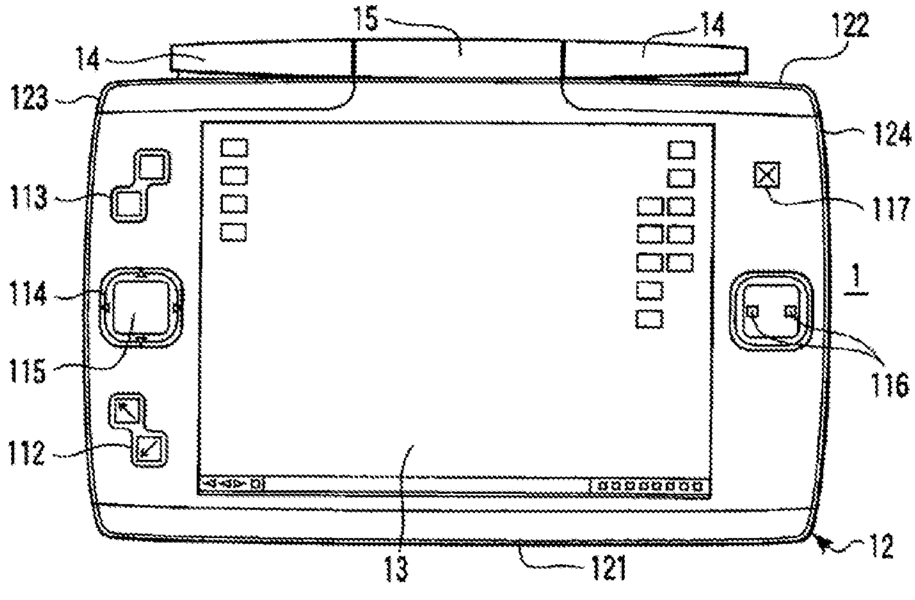

15
14
14
122
123
124
113
117
114
1
115
116
112
13
121
12

FIG.6

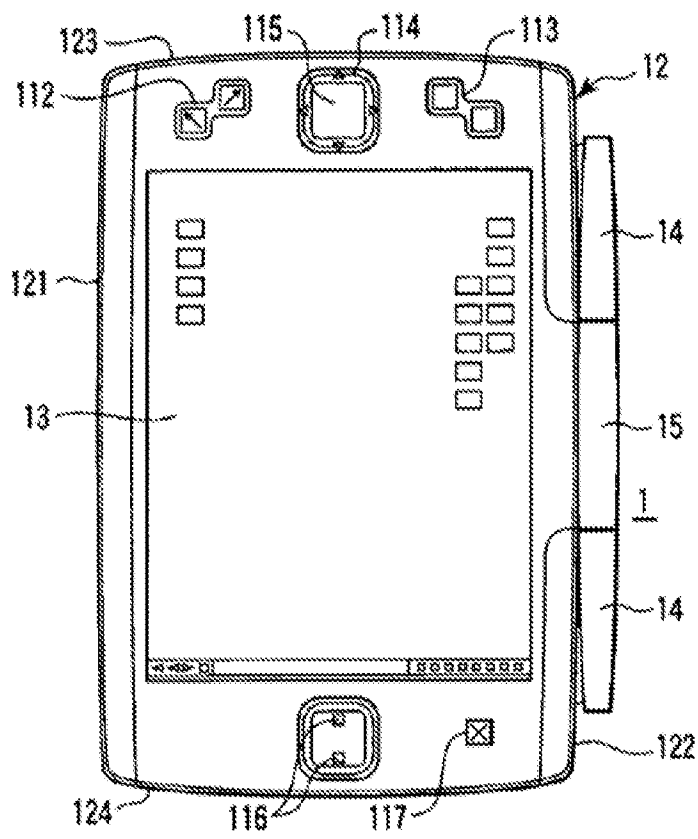

123
115
114
113
112
12
14
121
13
15
1
14
122
124
116
117

FIG.7

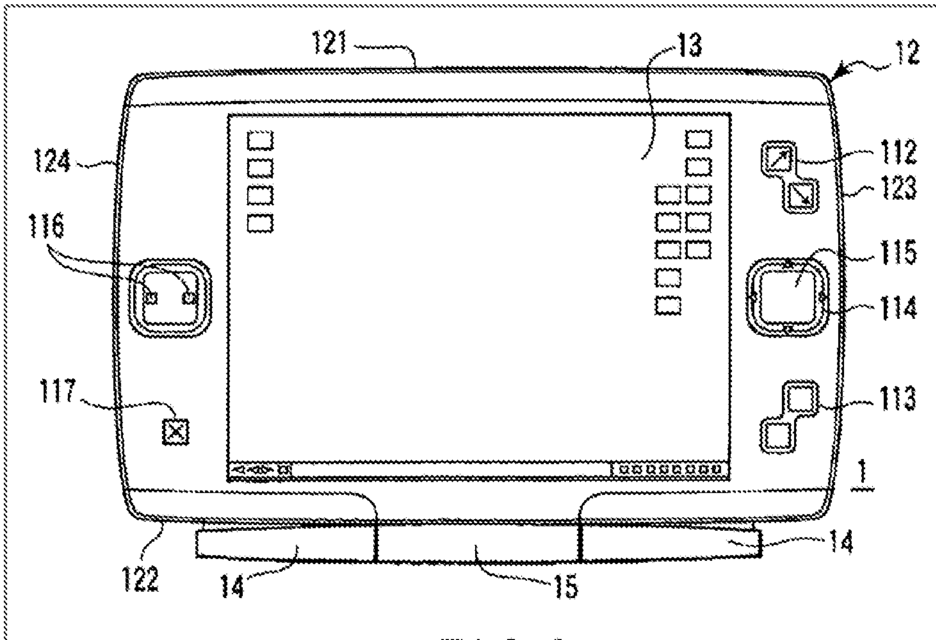


FIG. 8

Tsuji also discloses key switches 118 and 119 referred to as an R (right) button and L (left) button illustrated in FIG. 4 (below). EX-1006, ¶39 ("Any given function can programmably be assigned to each of the R and L button switches 118 and 119."). For example, the R and L buttons can be assigned to arrow keys (e.g., up arrow, down arrow, right arrow, and left arrow) and an enter key. *Id.*, ¶¶43, 45. The R and L buttons "are exposed regardless of whether the computer 1 is used in a PC style or a PDA style." *Id.*, ¶39.

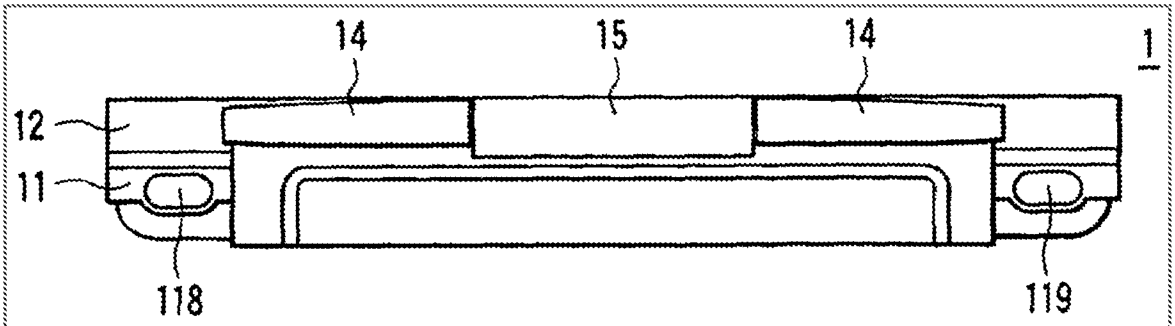
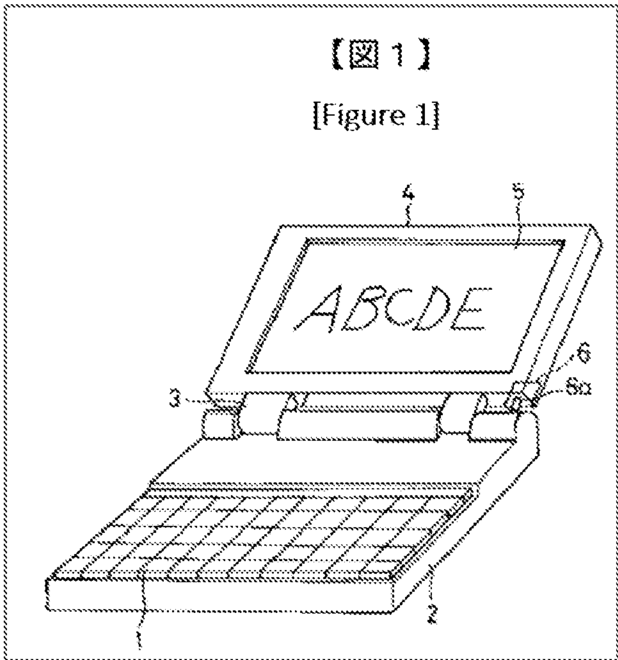


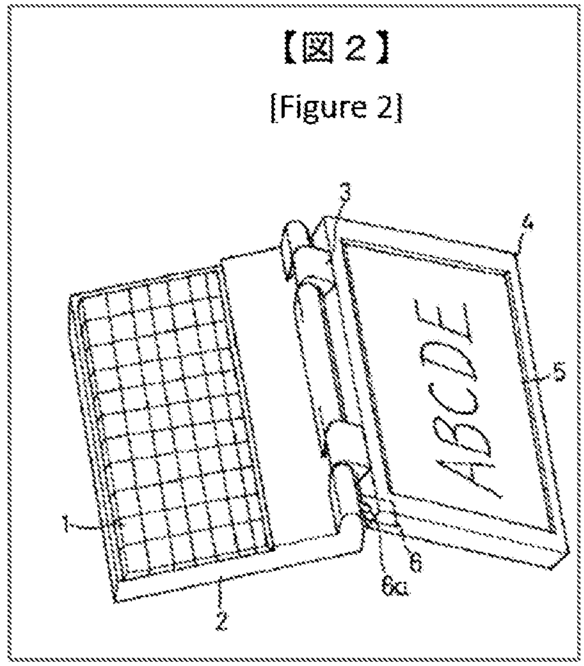
FIG.4

4. Overview of Shigeo

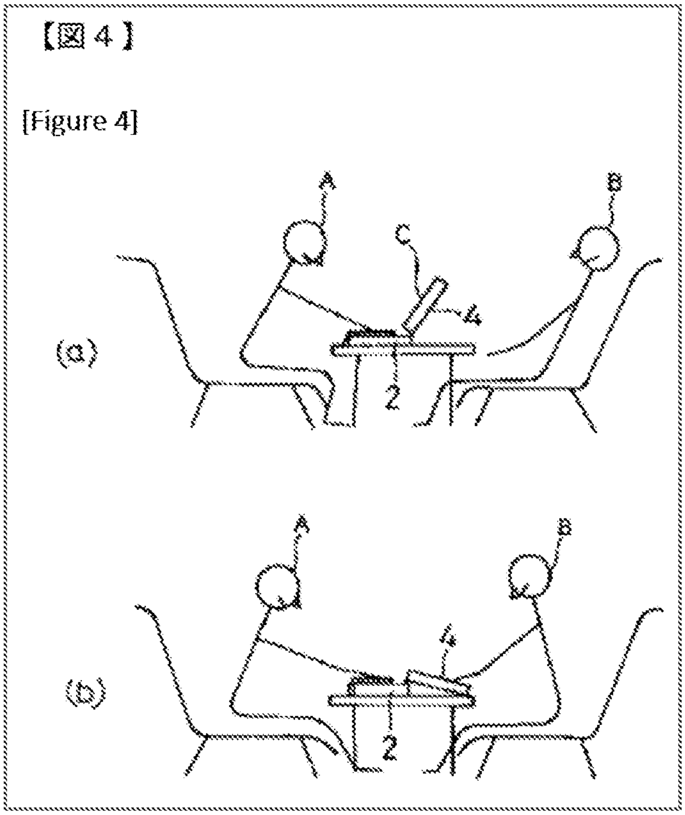
Shigeo published on July 12, 1996 from a Japanese application filed on December 26, 1994. Shigeo therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). The Shigeo reference was published in Japanese (EX-1007), and a certified English translation is provided herein (EX-1008, reference hereinafter will be made to the certified English translation for simplicity).

Shigeo is directed to a portable computer that is configurable into multiple display modes. EX-1008, ¶3; FIGs. 1, 2 (below). Shigeo discloses that the portable computer includes main part 2 rotatably coupled to lid body 4 via hinge 3. *Id.*, ¶8. Opening angle sensor 6 detects the angle of rotation of the hinge 3. *Id.*; EX-1010, ¶143.





Shigeo also discloses that the lid body 4 can be rotated more than 180° compared to the main part 2 so another person across from the user can view the displayed content, as illustrated in FIGs. 2 (above) and 4(b) (below). EX-1008, Constituent Elements.



Shigeo discloses that an opening angle sensor 6 may output a sensing signal indicating that the lid body 4 is opened beyond a predetermined angle (e.g., 180°). EX-1008, Constituent Elements, ¶¶10-12, 15, 16. The CPU 7 processes this signal and rotates the displayed content 180° (i.e., presents an inverted view of the displayed content). *Id.*, ¶¶12, 16. Shigeo also discloses that the opening angle sensor 6 used to detect the opening angle can be either mechanical or electrical. *Id.*, ¶11.

5. <u>Overview of Choi</u>

Choi issued as a US patent on July 19, 2005 from a U.S. patent application filed on August 20, 2002, which claims priority to a Korean application filed on

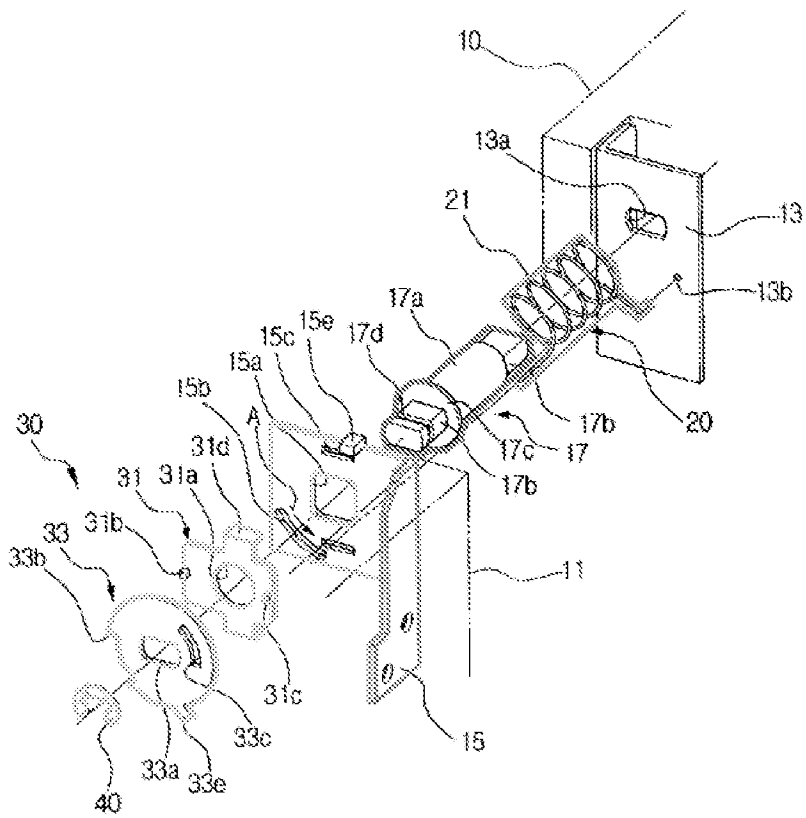
September 11, 2001. Choi therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Choi is directed to a hinge apparatus, illustrated in FIG. 2 (below) that is used to open and close a panel with respect to a laptop body. EX-1009, Abstract. EX-1009, 3:44-47. Among other elements, the hinge apparatus includes supporting bracket 15 (boxed in green and orange) fixed to the panel 11 (i.e., a LCD panel), hinge shaft 17 (boxed in red), and coil spring 21 (boxed in blue). *Id.*, 3:36-42, 52-56. The hinge apparatus also includes structural elements that are coupled to the hinge shaft 17, including:

- shaft passing hole 15a (outlined in orange) through which the hinge shaft 17 is passed;
- plate spring 31 (outlined in orange) with shaft hole 31a (outlined in orange) through which the hinge shaft 17 is passed;
- frictional plate 33 (outlined in orange) with coupling hole 33a (outlined in orange) connected to fixing portion 17b of the hinge shaft 17; and
- fixing pin 40 (outlined in orange) connected to connection hole 17d of the hinge shaft 17.

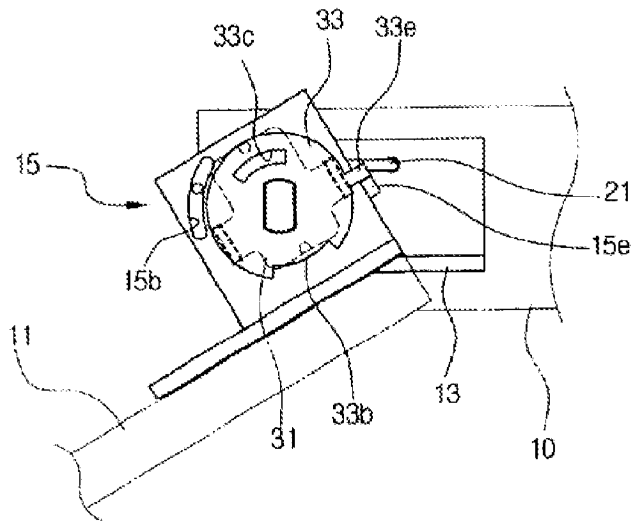
Id., 4:7-14, 53-57, 60-61.

FIG.2



Choi also discloses that the hinge mechanism allows the panel 11 to be opened, for example, from about 45° to 210°. EX-1009, 6:26-27, 38-39; FIG. 7 (below).

FIG.7



6. Family Diagram

EX-1013 is a diagram depicting different modified Portable Computers of Shimura used in the Grounds below.

B. Ground 1: Shimura in view of Hisano renders Claims 1-7, 19, and 29-32 obvious.

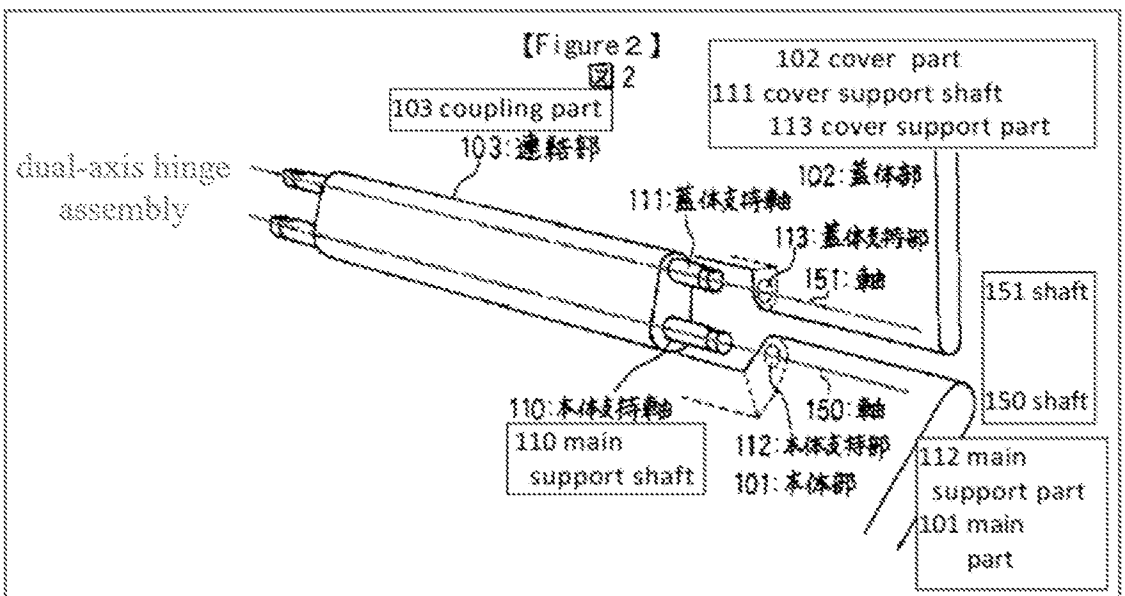
1. Combination of Shimura and Hisano (hereinafter "Shimura-Hisano combination")

A POSITA would have been motivated to combine Shimura with Hisano for several reasons. EX-1010, ¶¶150-169.

Both references are contemporaneous patents directed toward highly analogous problems in the same fields of endeavor. For example, they are directed toward portable computer systems usable in various display modes via a hinge that allows a display component to rotate around a base component along a longitudinal axis. EX-1004, ¶¶10-17, Figures 1, 3-5; EX-1005, ¶¶54, 87, 98, 99, FIGs. 1, 8-9;

EX-1010, ¶151. Both are also configurable to invert the displayed content. *Id.* While Shimura describes inverting the displayed content using display reverse switch 106, EX-1004, ¶¶12, 17, Hisano discloses automating the inversion based on a hinge-rotation sensor and/or a gravity sensor. EX-1005, ¶99. Therefore, a POSITA would have been led to Hisano's portable computer from Shimura at least based on their common rotatable portable computer teaching and common display inversion teaching. *See* VII.A.1; VII.A.2; EX-1010, ¶151.

Shimura discloses a dual-axis hinge assembly. *See* Annotated Figure 2 below (red dashed lines).



But Hisano discloses ***both*** a dual-axis hinge assembly with two shafts ***and*** a single-axis hinge assembly. *See* Annotated FIG. 9 below (red dashed lines); Annotated FIG. 13 below (red dashed line); EX-1005, ¶¶57, 79, 98 ("[A] computer comprising two-rotating-shaft hinges 130A and 130B each having ***two rotating***

shafts*.**"), 100, 101, 102 (disclosing other embodiments in Hisano distinguishing between single-axis and multi-axis hinge assembly), 104 ("[*A*] ***shaft of the hinge 158 is longer than the width of the glass substrates 154 and 156.").[3]

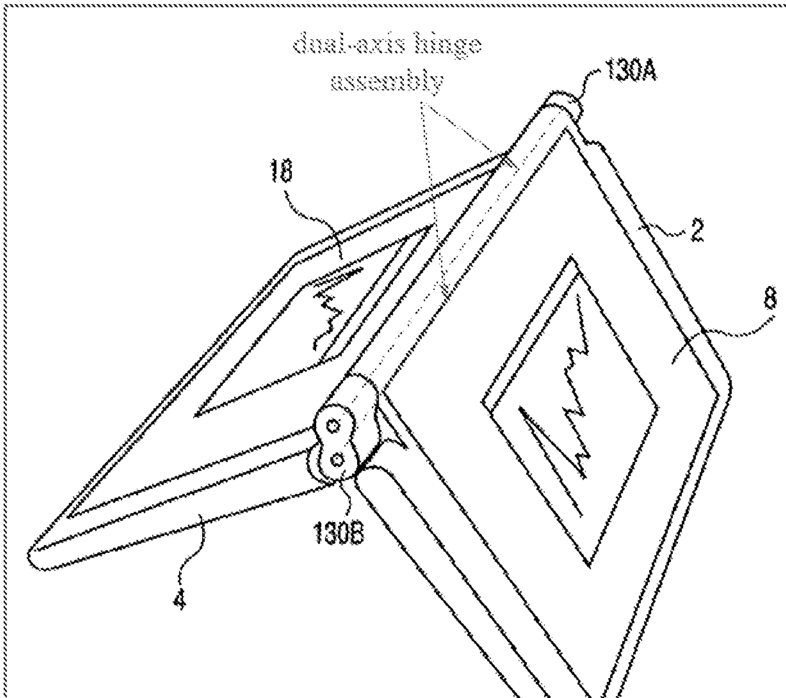


FIG. 9

[3] Emphasis added to quotations unless indicated otherwise.

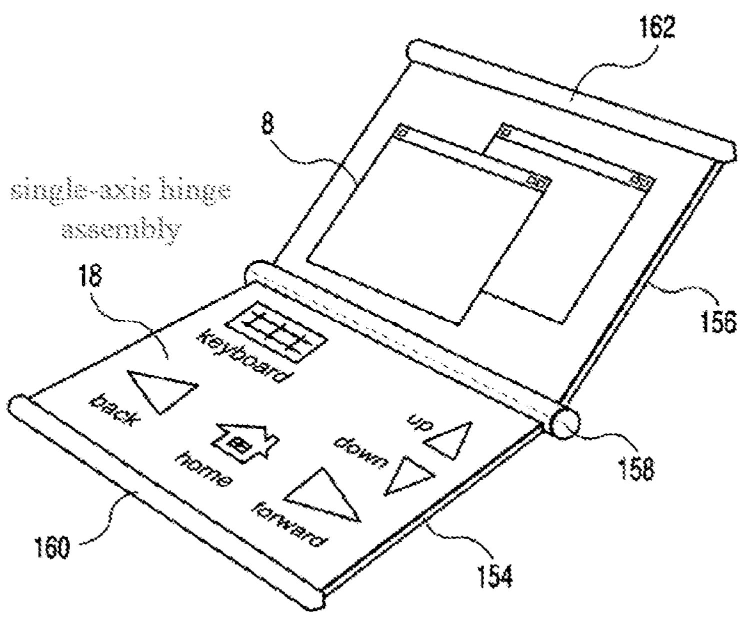


FIG. 13

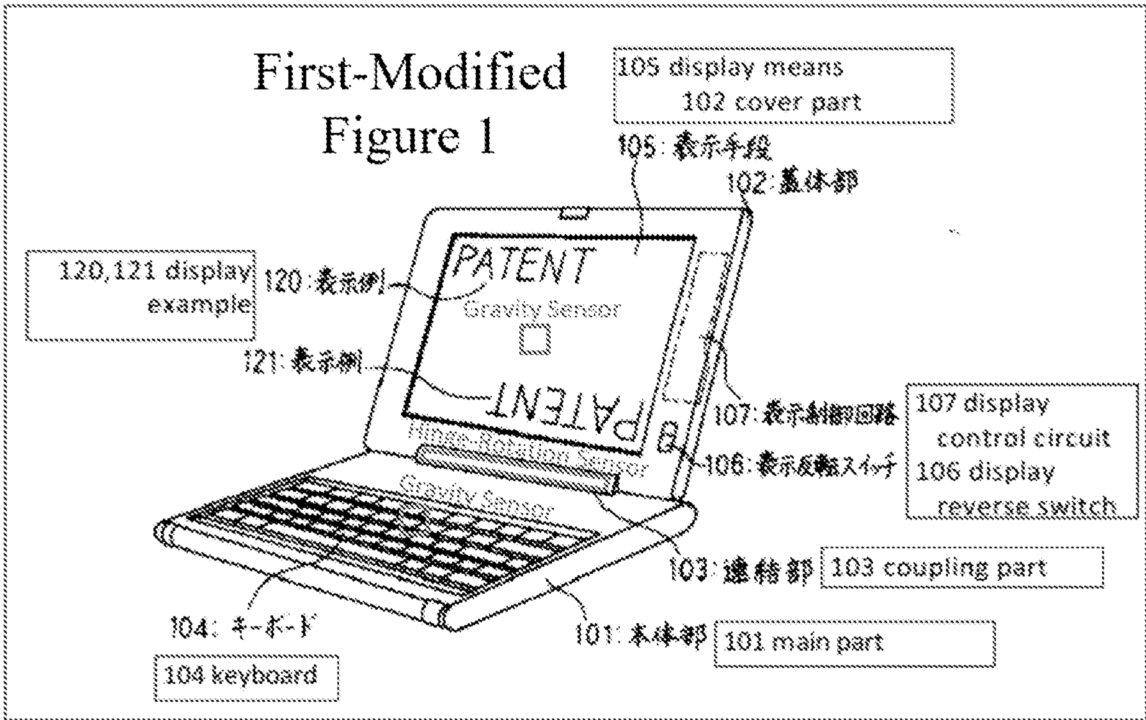
Both dual-axis and single-axis hinge assemblies were well-known interchangeable engineering solutions to rotate a display component about a base at the Critical Date. EX-1010, ¶¶87-96, 154. Based on this and the disclosure of both hinge assemblies in Hisano, implementing one over the other would have been a mere design choice, and obvious to a POSITA. *Id.* A POSITA would have also understood that with the single-axis hinge assembly, the display component and the base can be rotated about a single longitudinal axis defined by the axis of the single-axis hinge assembly. *Id.*

A POSITA would also have been motivated to incorporate Hisano's sensor(s) into the portable computer of Shimura (hereinafter "Shimura Computer"). EX-1010, ¶155. This is because doing so would improve operability and/or usability by permitting the automatic orientation of the displayed content based on a display mode. EX-1005, ¶13; EX-1010, ¶155. A POSITA would have been motivated to implement Hisano's hinge-rotation sensor in the Shimura hinge, and Hisano's gravity sensor in either Shimura's cover part 102 or main part 101. EX-1010, ¶155; First-Modified Figure 1 below. Processing Hisano's sensor(s) outputs into Shimura's display control circuit 107 and electronic circuit would have been obvious to a POSITA. EX-1010, ¶155. This is especially true because automatically controlling the orientation of displayed content in different display modes of a portable computing device based on a rotation angle sensor and/or an accelerometer (e.g., a gravity sensor) was well-known at the Critical Date.[4] *Id.*, ¶¶74-86, 155.

A POSITA would have been motivated to incorporate the above features into Shimura to arrive at the "Shimura-Hisano Computer." EX-1010, ¶156. This combination is the Shimura Computer with a single-axis ***or*** dual-axis hinge assembly, ***and*** a hinge-rotation sensor and gravity sensor. *Id.*

---

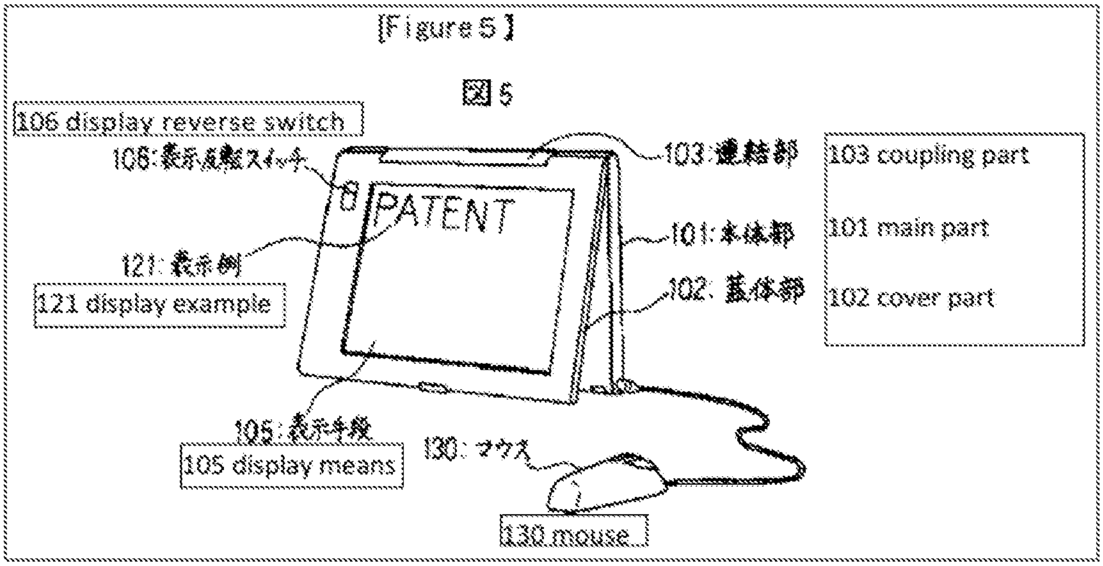
[4] *See also* EX-1005, ¶¶58 ("The display unit main body contains a rotation angle sensor 202 and a gravity sensor 203."), 59, FIG. 10.

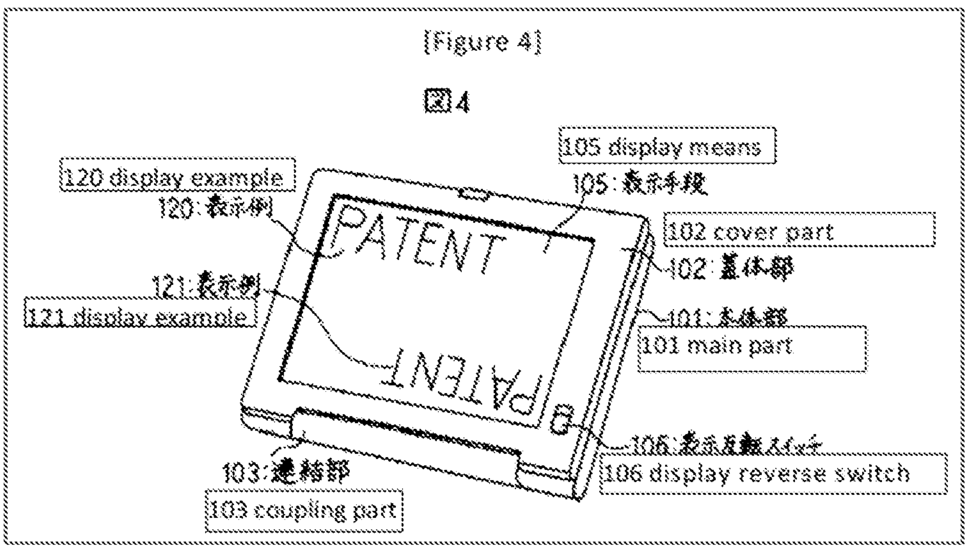


The Shimura-Hisano Computer can determine the display mode based on outputs from the hinge-rotation and gravity sensors (EX-1010, ¶¶157-159), as follows:

For closed, laptop, and flat modes, the hinge-rotation sensor output is a rotating angle of 0º (closed), greater than 0º and less than 180º (laptop), and 180º (flat), respectively. Output from the gravity sensor is not necessary to determine these three display modes.

However, the easel and frame modes of the Shimura-Hisano Computer can have the exact same hinge rotation angle (e.g., greater than 270º). When the hinge-rotation angle is the same, the only difference between the easel and frame modes is how the portable computer is placed on a horizonal surface (e.g., a table). In the easel mode, the hinge is at the top, while in the frame mode the hinge is touching or near the horizontal surface (*see* Shimura's Figures 5 and 4 below, respectively).





As a POSITA would have recognized, in a pair of display modes (e.g., the easel and frame modes) where the hinge-rotation angle is the same and the only difference is how the portable computer is placed, it may not be possible to distinguish between the pair of display modes based on the hinge-rotation sensor alone. EX-1010, ¶160.

Hisano teaches the well-known concept of using a gravity sensor in addition to a hinge-rotation sensor to distinguish between a pair of display modes even if they have the same hinge-rotation angle. EX-1005, ¶¶99, 100; EX-1006, ¶¶58, 60, 74, 77, FIG. 10; EX-1010, ¶¶74-86, 155, 161. For example, after discussing the use of the hinge-rotation angle "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 130B as the top," Hisano states that "***[f]urther***, the portable 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***." EX-1005, ¶99. In fact, Hisano illustrates this concept of using the gravity sensor to distinguish between two display modes with reference to FIG. 10 below where the portable computer has the same hinge-rotation angle but different placements (i.e., a first placement with second housing 4 in contact with a surface and a second placement with first housing 2 in contact with the surface). EX-1005, ¶100.

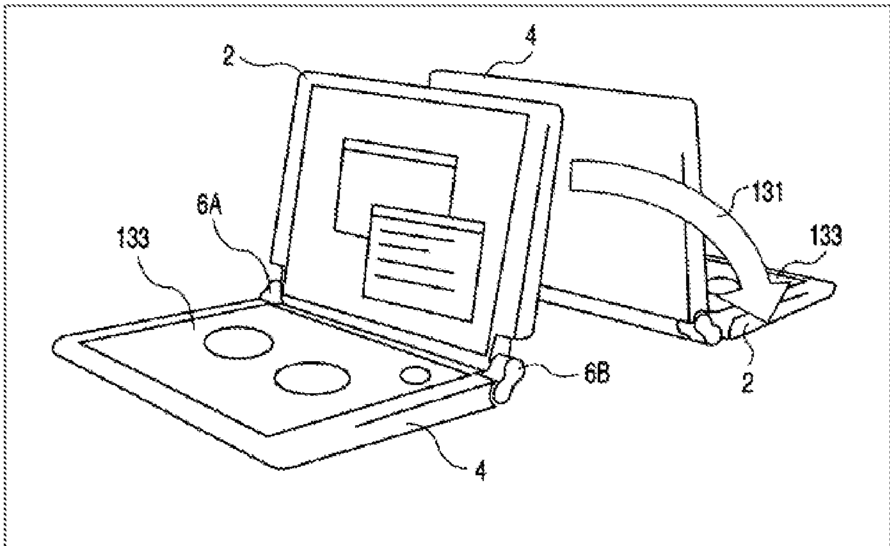
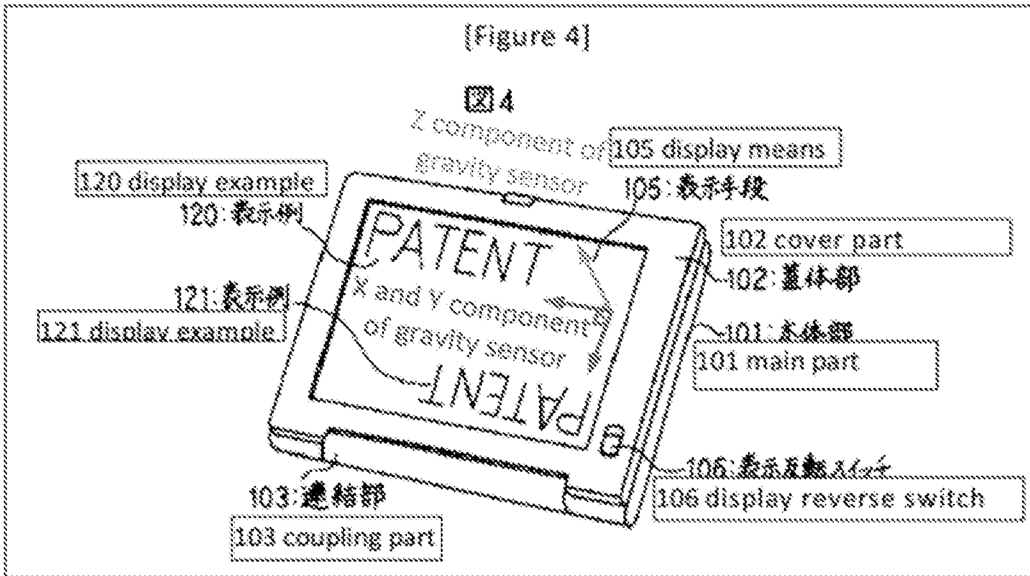


FIG.10

Based on this teaching of Hisano, a POSITA would have incorporated a gravity sensor in addition to the hinge-rotation sensor in the Shimura-Hisano Portable Computer to distinguish between the easel and frame modes, which, like the display modes illustrated in FIG. 10 above, have the same hinge-rotation angle but different placements. EX-1010, ¶162.

More specifically, the Shimura-Hisano Computer is able to distinguish between the easel and frame modes by monitoring the directions of the components of gravity parallel (red) and perpendicular (blue) to the plane of the display component or the base, illustrated in Annotated Figure 4 of Shimura (below) where the gravity sensor is placed in the display component of the portable computer, depending on where the gravity sensor is placed. This is true even if the easel and frame display modes have the same rotating angle. Exemplary logic for determining the display mode based on the hinge-rotation sensor and the gravity sensor outputs is summarized in the table below for the case where the gravity sensor is placed in the display component:



Rotating Angle Output of Hinge-Rotation Sensor	Gravity Direction Output of Gravity Sensor	Display Mode
0°	Not used	Closed mode
> 0° and < 180°	Not used	Laptop mode
180°	Not used	Flat mode
>180°	Away from the hinge assembly	Easel mode
>270°[5]	Towards the hinge assembly, or none	Frame mode[6]

Table 1

[5] The '688 Patent describes that in frame mode, "the keyboard 106 [is] 'face down' on the surface 212 and the display 110 [is] facing upward." EX-1001, 16:1–5. Therefore, the hinge-rotation angle must be greater than 270°.

[6] This assumes that the surface (e.g., a desktop) on which the base rests is horizontal/flat with respect to the Earth.

Accelerometers configured to detect the direction of gravity were well-known and commercially available at the Critical Date. EX-1010, ¶¶165, 167 n.11. For example, Freescale indicates that the company manufactured MMA6200Q and MMA7260Q series accelerometers that can measure the tilt of an object. EX-1014, 1. As the figures below from the application note demonstrates, the tilt is "a static measurement where gravity is the acceleration being measured." *Id.*

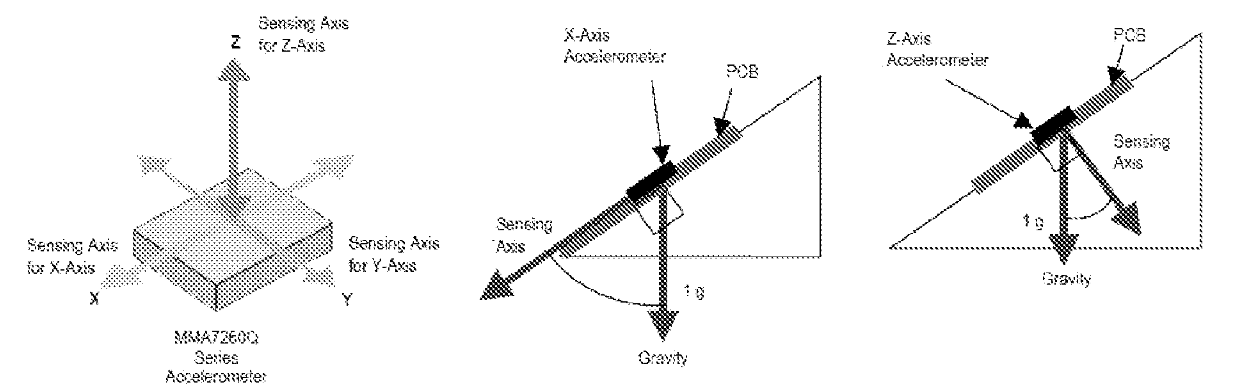


Figure 2. Sensing Axis for the MMA7260Q Accelerometer With X, Y, and Z-Axis for Sensing Acceleration

Figure 3. Gravity Component of a Tilted X-Axis Accelerometer

Figure 4. Gravity Component of a Tilted Z-Axis Accelerometer

In fact, Freescale identifies image rotation in a portable device as one application of the accelerometers. EX-1014, 1. So a POSITA would have known to use such a commercially available accelerometer and use it as a gravity sensor in the Shimura-Hisano Computer. EX-1010, ¶166.

> **TILT APPLICATIONS**
>
> There are many applications where tilt measurements are required or will enhance its functionality. In the cell phone market and handheld electronics market, tilt applications can be used for controlling menu options, e-compass compensation, image rotation, or function selection in response to different tilt measurements. In the medical markets, tilt is used for making blood pressure monitors more accurate. They can also be used for feedback for tilting hospital beds or chairs. A tilt controller can also be used for an easier way to control this type of equipment. Accelerometers for tilt measurements can also be designed into a multitude of products, such as game controllers, virtual reality input devices, HDD portable products, computer mouse, cameras, projectors, washing machines, and personal navigation systems.

Finally, the POSITA would also have been motivated to combine, and would have had a reasonable expectation of success in combining, Shimura with Hisano because prior art elements are merely combined according to known methods to yield predictable results. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-21 (2007); EX-1010, ¶168. That is, Hisano taught the well-known prior art method of automatically controlling the orientation in different display modes (e.g., a normal view in the laptop mode and an inverted view in the easel mode) based on the hinge-rotation and gravity sensors, such that the display would always be oriented right-side up for the user. EX-1010, ¶¶74-86, 155, 168.

In summary, for a POSITA to use either the single-axis or dual-axis hinge assembly in the Shimura-Hisano Computer would have been a mere design choice. EX-1010, ¶169. In addition, the POSITA would have been motivated to integrate Hisano's sensor(s) into the Shimura-Hisano Computer to improve operability and/or usability by automatically controlling the orientation in different display modes (e.g., a normal view in the laptop mode and an inverted view in the easel mode). EX-1005, ¶13; EX-1010, ¶169.

2. **Claim 1**

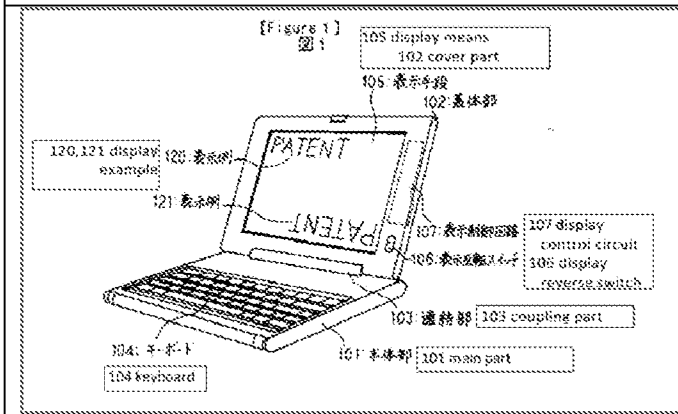
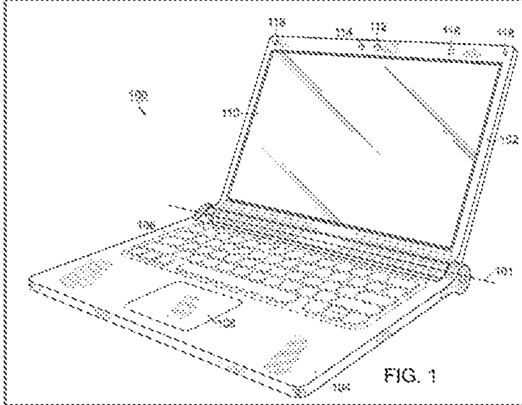
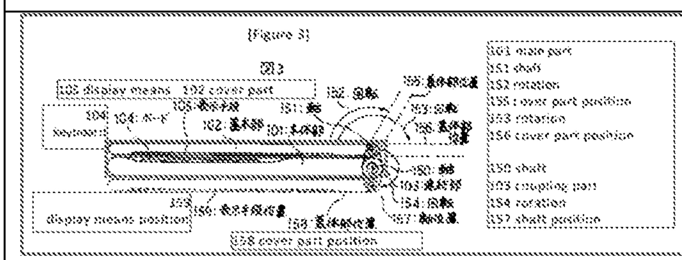
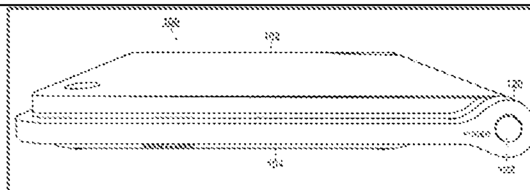
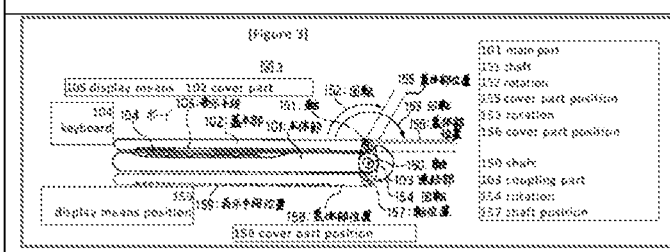
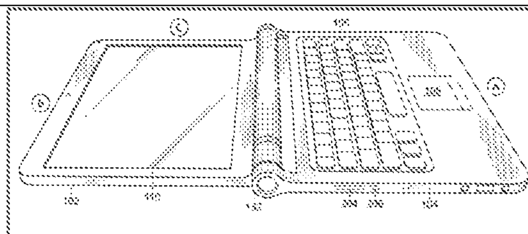
a. Limitation [1pre]

Shimura discloses [1pre]. *See* VII.A.1; EX-1010, ¶¶170-171.

As shown in Figures 1, 3, 4, and 5 (below), Shimura discloses a laptop computer, which is a "portable computer" that can be configured in various "display modes" described and claimed in the '688 Patent. EX-1010, ¶171. As summarized in Table 2 below, POSITA would have understood that:

- Shimura's Figure 1 discloses the claimed "laptop mode" of the '688 Patent;
- Shimura's Figure 3 discloses the claimed "closed mode" (below, boxed in red) of the '688 Patent;
- Shimura's Figure 3 discloses the "flat mode" (below, blue line indicates where display means 105 would be in cover part position 156) of the '688 Patent;
- Shimura's Figure 4 discloses the "frame mode" of the '688 Patent; and
- Shimura's Figure 5 discloses the claimed "easel mode" of the '688 Patent.

Id., ¶171.

Shimura	'688 Patent
Laptop mode	
	FIG. 1
Closed mode	
	FIG. 2
Flat mode	
	FIG. 27
Frame mode	

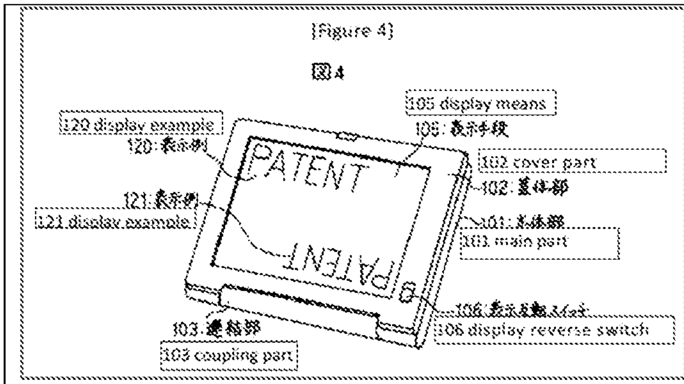
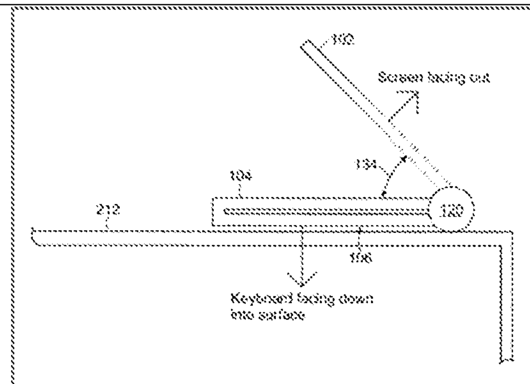
<table>
<tr>
<td>
</td>
<td>

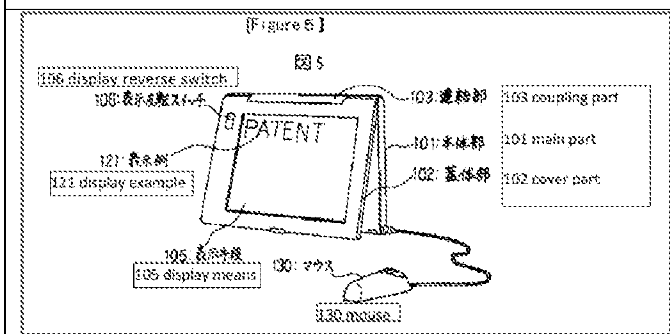
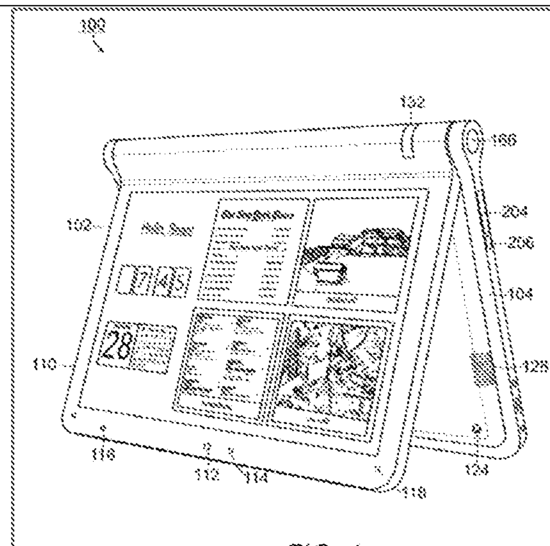
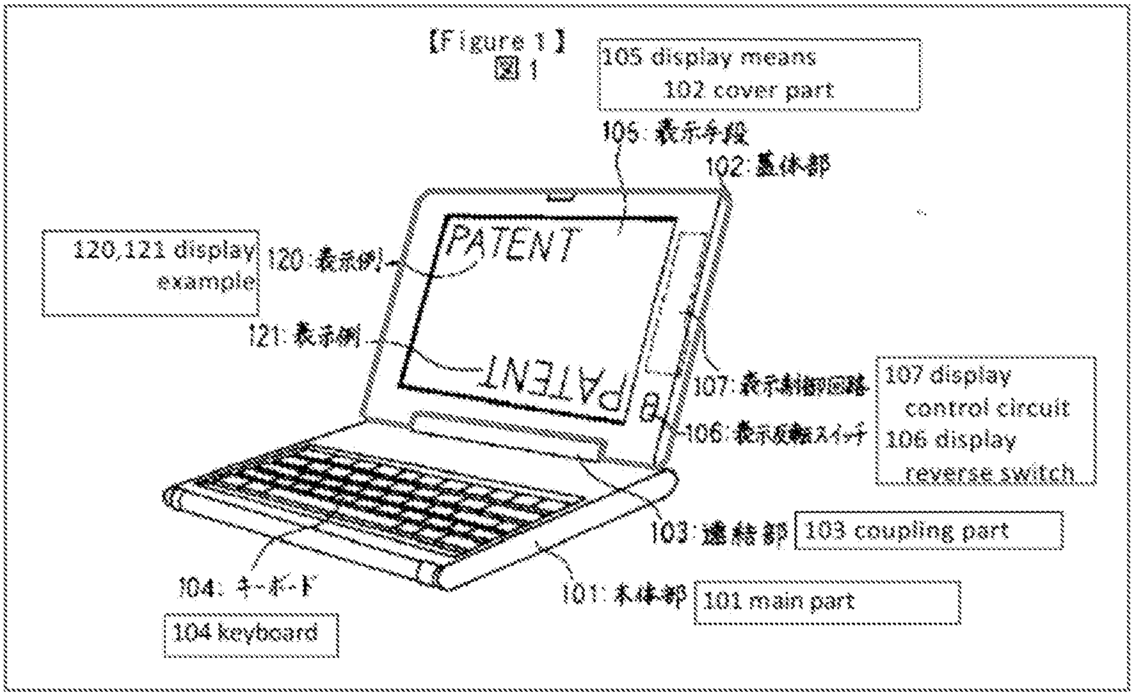
FIG. 26</td>
</tr>
<tr>
<td colspan="2">Easel mode</td>
</tr>
<tr>
<td>
</td>
<td>
FIG. 4</td>
</tr>
</table>

Table 2

b. Limitation [1a]

Shimura discloses [1a]. *See* VII.A.1; EX-1010, ¶¶172-173.

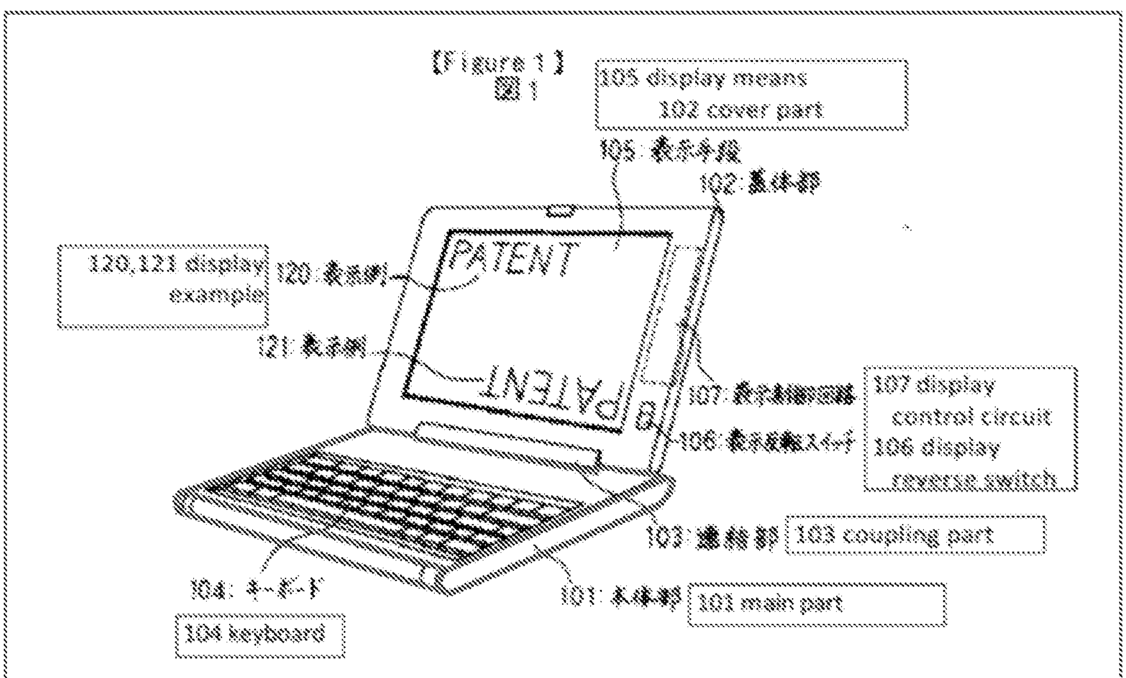
Shimura's Figure 1 (below) shows the claimed "single display component" (Shimura's cover part 102 outlined in red) including the claimed "display screen" (Shimura's display means 105).



c. Limitation [1b]

Shimura discloses [1b]. *See* VII.A.1; EX-1010, ¶¶174-175.

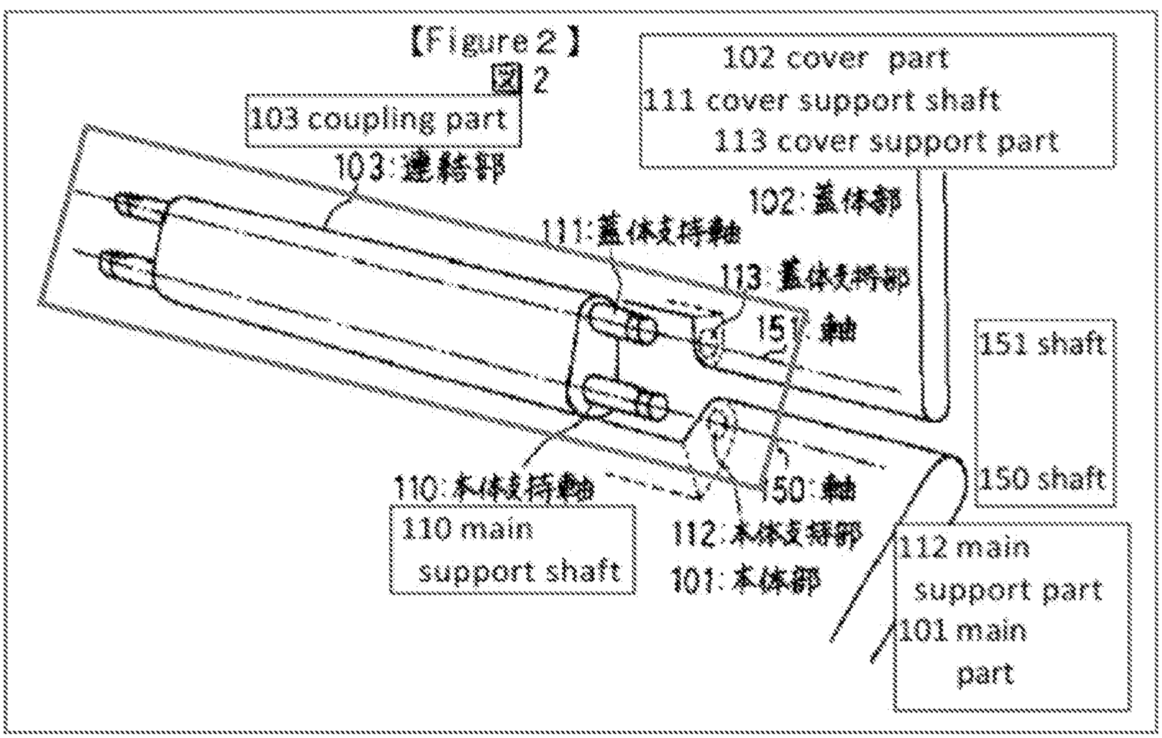
Shimura's Figure 1 (below) shows the claimed "base" (main part 101 outlined in red) including the claimed "keyboard" (keyboard 104).

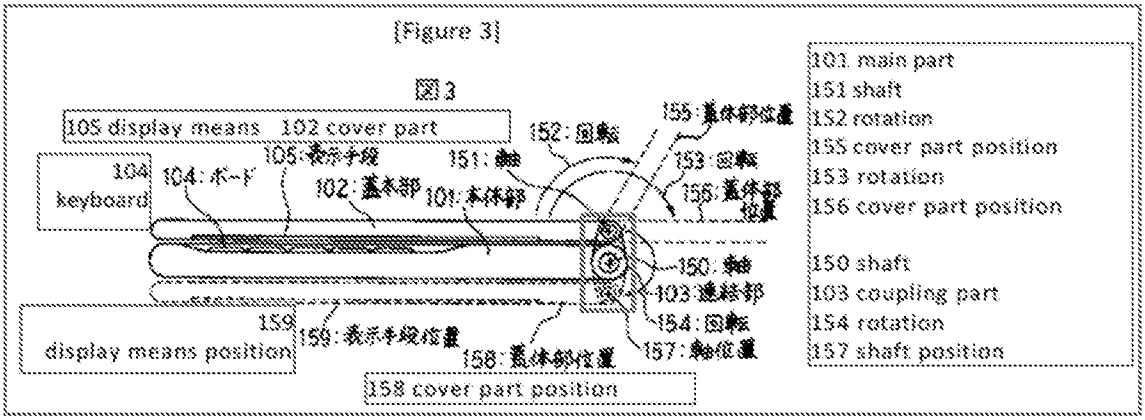


d. <u>Limitation [1c1]</u>

Shimura discloses [1c1]. *See* VII.A.1; EX-1010, ¶¶176-177.

As shown in Figures 2 and 3 (below), the Shimura Computer discloses the claimed "hinge assembly" (coupling part 103 inside red boxes) that "pivotably couple[s] the display component" (102) "to the base" (101). EX-1004, ¶¶12-13; EX-1010, ¶177. The dual-axis hinge assembly 103 includes main support shaft 110 and cover support shaft 111 that would be placed inside, respectively, the main support part 112 of the main 101 and the cover support part 113 of the cover part 102. *Id.* Thus, the "hinge assembly" (103) is "at least partially housed within the base" (101) and the "display component" (102). EX-1010, ¶177.





e. Limitation [1c2]

The Shimura-Hisano combination discloses [1c2] and renders it obvious. *See* VII.B.1 (discussing single-axis hinge assembly); EX-1010, ¶178.

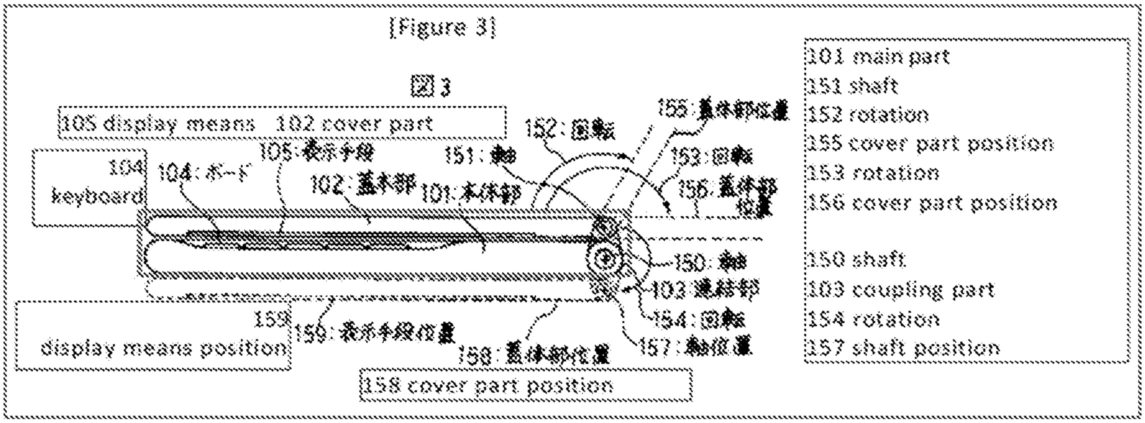
f. Limitation [1c3]

The Shimura-Hisano combination discloses [1c3] and renders it obvious. *See* VII.B.1 (discussing the single-axis hinge assembly); [1c2]; EX-1010, ¶179.

g. Limitation [1d]

Shimura discloses [1d]. *See* VII.A.1; EX-1010, ¶¶180-181.

Figure 3 (below) shows the Shimura Computer in the claimed "closed mode" (boxed in red), in which the claimed "display screen" (105) and the "base" (101), including the keyboard (104), face each other. EX-1004, ¶14; EX-1010, ¶181.



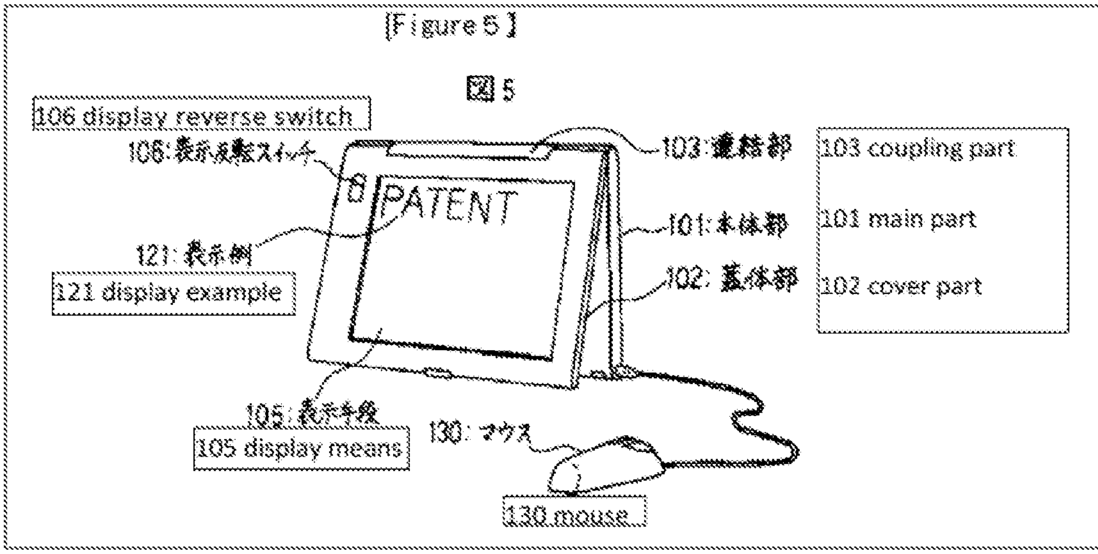
h. <u>Limitation [1e]</u>

The Shimura-Hisano combination discloses [1e] and renders it obvious. *See* VII.B.1 (discussing laptop mode and single-axis hinge assembly); Table 1; [1pre]; EX-1010, ¶182.

i. <u>Limitation [1f]</u>

The Shimura-Hisano combination discloses [1f] and renders it obvious. *See*VII.B.1; EX-1010, ¶¶183-184.

As discussed in VII.B.1, it would have been obvious to a POSITA to arrive at the Shimura-Hisano Computer employing the single-axis hinge assembly . EX-1010, ¶184. A POSITA would have known that the Shimura-Hisano Computer would be configured into the easel mode of Figure 5 (below) from the closed mode when the user "rotate[s] . . . the . . . display component [102] about the single longitudinal axis beyond approximately 180[°] from the closed mode." *See* [1d]; EX-1004, ¶17 ("Figure 5 indicates the user mode of the state of opening of main part 101 and cover part 102 at approximately 340°. At this time, keyboard 104 is completely on the back side when seen by the user."); EX-1010, ¶184.



j. Limitation [1g]

Shimura discloses [1g]. *See* VII.A.1; [1pre]; [1f]; EX-1010, ¶185.

Accordingly, the Shimura-Hisano combination renders obvious Claim 1. *See* EX-1010, ¶¶170-186.

3. **Claim 2**

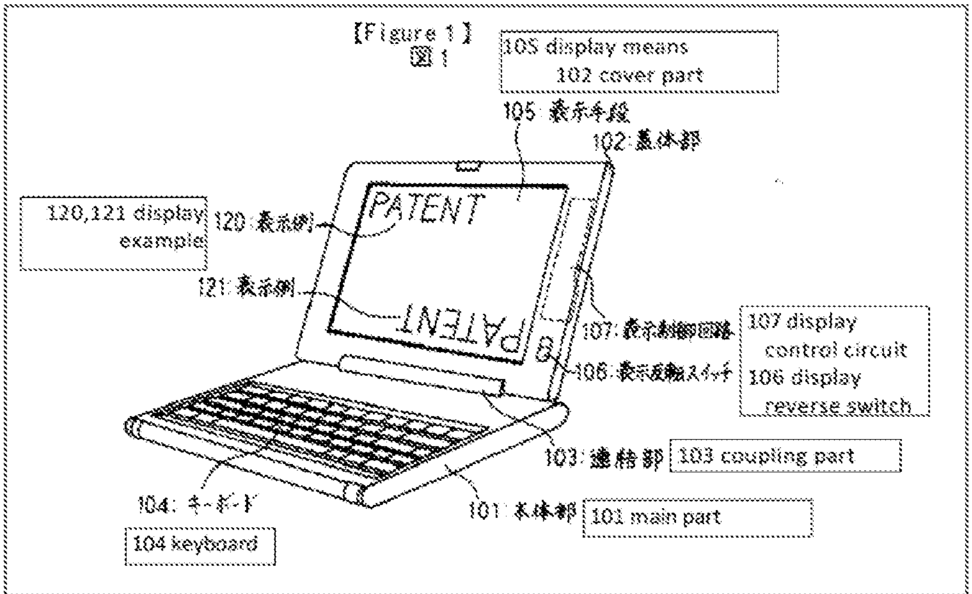
The Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VII.B.1 (discussing easel mode and the single-axis hinge assembly); [1f]; EX-1010, ¶187.

4. **Claim 3**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VI.C (discussing Claim 3), VII.B.1; EX-1010, ¶¶188-193. The '688 Patent describes that when the portable computer is configured in the laptop or easel mode, the display is adjusted accordingly, manually or automatically. EX-1001, 8:17-20, 16:27-50.

First, the Shimura-Hisano combination discloses the function of the means-plus-function limitation of Claim 3. *See* VI.C. As discussed above, the Shimura-Hisano Computer controls the orientation with respect to Hisano's single-axis hinge assembly (e.g., between a normal view in the laptop mode and an inverted view in the easel mode) using Hisano's sensors, as well as Shimura's display control circuit 107 and electronic circuit. *See* VII.A.1; VII.B.1; EX-1010, ¶189. For example, in a laptop mode, where the hinge-rotation sensor is less than 180°, the displayed content is in a normal view. *Id.* In an easel mode, where the hinge-rotation sensor is greater than 180°, and the parallel component of the gravity sensor is away from the hinge assembly and the perpendicular component of the gravity sensor is away from the back of the display means, the displayed content is in an inverted view. *Id.*

Second, the Shimura-Hisano combination discloses the corresponding structure for the means-plus-function limitation in Claim 3. *See* [1pre]. EX-1010, ¶190.



In the laptop mode shown in Shimura's Figure 1 (above), the display means 105 of the Shimura-Hisano Computer displays content (e.g., the word "PATENT") in either a normal view or an inverted view (i.e., rotated 180º) relative to the single longitudinal axis in the Shimura-Hisano Computer, depending on the state of display reversal switch 106 inputted to display control circuit 107 inside the cover part 102. *See* [1c2]; EX-1004, ¶12; EX-1010, ¶191. Specifically, if the user sets the state of the display reverse switch 106 to normal view, the display control circuit 107 causes the display screen 105 to display the content in normal view; on the other hand, if the user sets the state of the display reverse switch 106 to reverse mode, the display control circuit 107 causes the display screen 105 to display the content in an inverted view. EX-1004, ¶12; EX-1010, ¶191.

Thus, a POSITA would have considered the combination of the display reverse switch 106, the display control circuit 107, and the electronic circuit in the

Shimura-Hisano Computer to constitute the structure corresponding to the claimed "display orientation module." EX-1010, ¶192. I.e., the foregoing is hardware and/or software (e.g., display control circuit 107 and the electronic circuit) configured to orient (e.g., normal view inverted view) the displayed content (e.g., "PATENT") in various display modes (e.g., laptop mode and easel mode). *Id.*

Similarly, Hisano discloses other examples of the displayed content (e.g., images, characters, presentation, detailed data, and the like) in, for example, FIGs. 1 and 9. EX-1005, ¶¶55, 59.

5. **Claim 4**

a. Limitation [4a]

The Shimura-Hisano combination discloses [4a] and renders it obvious. *See* VII.B.1; EX-1010, ¶¶194-195.

The Shimura-Hisano Computer includes the combination of the hinge-rotation and gravity sensors. *See* VII.B.1. This combination can provide outputs from which various display modes (e.g., closed, laptop, flat, frame, and easel) can be uniquely determined. EX-1010, ¶195. A POSITA would have considered this combination "a mode sensor which detects a current display mode of the portable computer." *Id.*

b. Limitation [4b]

The Shimura-Hisano combination discloses [4b] and renders it obvious. *See* VII.B.1; Claim 3, [4a]; EX-1010, ¶¶196-197.

The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [4b]. *See* VII.B.1; Claim 3; EX-1010, ¶197.

Accordingly, the Shimura-Hisano combination renders obvious Claim 4. EX-1010, ¶¶194-198.

6. **Claim 5**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VII.B.1; Claim 3; [4a]; [4b]; EX-1010, ¶¶199-200.

The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of Claim 5. *See* Claim 3; EX-1010, ¶200.

7. **Claim 6**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VII.B.1 (discussing automatically controlling orientation of displayed content); Claim 5; EX-1010, ¶201.

8. **Claim 7**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VII.B.1 (discussing flat mode and the single-axis hinge assembly); [4a]; EX-1010, ¶202.

9. **Claim 19**

a. Limitation [19pre]

Shimura discloses [19pre]. *See* VII.A.1; [1pre]; EX-1010, ¶203.

b. Limitation [19a]

Shimura discloses [19a]. *See* VII.A.1; [1b]; EX-1010, ¶204.

c. Limitation [19b]

Shimura discloses [19b]. *See* VII.A.1, [1a], Claim 3; EX-1010, ¶205.

d. Limitation [19c]

The Shimura-Hisano combination discloses [19c] and renders it obvious. *See* [4a]; [4b]; EX-1010, ¶206.

e. Limitation [19d]

The Shimura-Hisano combination discloses [19d] and renders it obvious. *See* VI.C (discussing Claim 19); Claim 3; [4a]; [4b]; Claim 5; EX-1010, ¶207-208.

The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [19d]. *See* Claim 3; EX-1010, ¶208.

f. Limitation [19e]

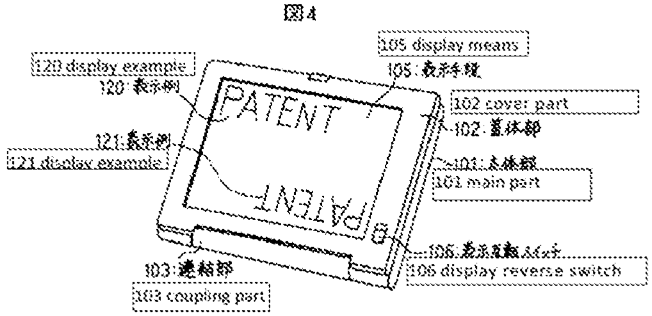
The Shimura-Hisano combination discloses [19e] and renders it obvious. *See* [1pre]; [1e]; [1f]; Claim 3; [4a]; [4b]; [19d]; EX-1010, ¶¶209-211.

The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [19e]. *See* Claim 3, EX-1010, ¶210. As explained in [4a] and [4b], the Shimura-Hisano Computer could detect one of the claimed laptop, easel, and frame modes based on the combination of the hinge-rotation and gravity sensors sending outputs to Shimura's modified display control circuit 107 and electronic circuit. Table 1; EX-1010, ¶210.

Shimura discloses the claimed frame mode because it shows the keyboard face down and the display facing upward, as required by the '688 Patent. *See* VII.A.1 n.1; EX-1001, 16:1-5; EX-1004, ¶¶16, 18, FIG. 4. Moreover, Shimura discloses that the portable computer can be configured from any angle between 0° to 360°. EX-1004, ¶8. A POSITA would have appreciated that the portable computer in the frame mode, as shown in Figure 4, can have a rotation angle between about 270° and 360°. *Id.*; EX-1010, ¶211. Moreover, a POSITA would have found it obvious to take the Shimura Computer shown in Figure 5 below and lay the keyboard (104) face down on a surface, while keeping the rotating angle the same, thereby resulting in the display screen (105) facing up toward the user. *Id.*

<table>
<tr><th colspan="2">Frame mode</th></tr>
<tr><td>
[Figure 4]

図4



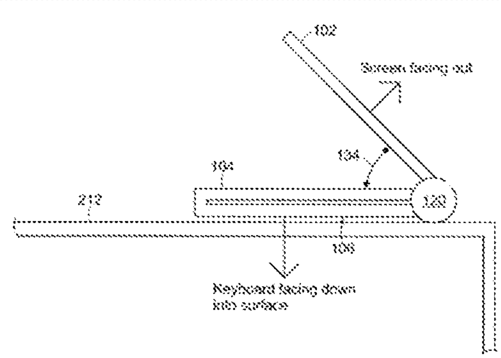
</td><td>


FIG. 26
</td></tr>
</table>

g. Limitation [19f]

The Shimura-Hisano combination discloses [19f] and renders it obvious. *See* Claim 5; [19d]; EX-1010, ¶¶212-213.

The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [19f]. *See* Claim 3, EX-1010, ¶213. A POSITA would have understood that Shimura's modified display control circuit 107 and electronic circuit that causes the change between the normal view and the inverted view is the claimed "display orientation module" that "triggers [the] display inversion" claimed in [19f]. *See* Claim 5; [19d]; EX-1010, ¶213. In other words, a POSITA would have known that causing the change between normal and inverted views when the Shimura-Hisano Computer's display mode changes from laptop to easel mode ([19f]), and from easel to frame mode ([19g] below), discloses "trigger[ing] a display inversion" ([19f], [19g]). EX-1010, ¶213.

h. Limitation [19g]

The Shimura-Hisano combination discloses [19g] and renders it obvious. *See* [4a]; [4b]; Claim 5; [19e]; [19f]; EX-1010, ¶214. The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [19g]. *See* [19f]; EX-1010, ¶214.

Accordingly, the Shimura-Hisano combination renders obvious Claim 19. EX-1010, ¶¶203-215.

10. **Claim 29**

a. Limitation [29pre]

The Shimura-Hisano combination discloses [29pre] and renders it obvious. *See* VII.B.1; [1pre]-[1c2]; EX-1010, ¶213.

b. Limitation [29a]

The Shimura-Hisano combination discloses [29a] and renders it obvious. *See* VII.B.1; [1c1]-[1c3]; [1e]-[1g]; EX-1010, ¶217-218.

Shimura discloses a single display component (102) that is pivotably coupled to a hinge assembly with a longitudinal axis (103) that is also coupled to the base (101). *See* [1pre]-[1c3]; EX-1010, ¶218. The single display component can be rotated to be configured into various display modes (e.g., a laptop mode disclosed in [1e] and an easel mode disclosed in [1f]-[1g]). *Id.* A POSITA would have known that the user rotating the single display component (102) about the base (101) discloses "manipulating a physical configuration of the single display component" as claimed in [29a]. *Id.*

c. Limitation [29b]

The Shimura-Hisano combination discloses [29b] and renders it obvious. *See* VII.B.1; [1pre]; [1e]-[1g]; EX-1010, ¶219.

d. Limitation [29c]

The Shimura-Hisano combination discloses [29c] and renders it obvious. *See* VII.B.1; Table 1; [1pre]; [1e]-[1g]; Claim 3; [4a]; [4b]; EX-1010, ¶220.

e. Limitation [29d]

The Shimura-Hisano combination discloses [29d] and renders it obvious. *See* VII.B.1; Claim 3; [4a]; [4b]; EX-1010, ¶221.

f. Limitation [29e]

The Shimura-Hisano combination discloses [29e] and renders it obvious. *See* VII.B.1; Claim 5; EX-1010, ¶222.

g. Limitation [29f]

The Shimura-Hisano combination discloses [29f] and renders it obvious. *See* VII.B.1; Claim 5; EX-1010, ¶223.

Accordingly, the Shimura-Hisano combination renders obvious Claim 29. EX-1010, ¶¶216-224.

11. **Claim 30**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VII.B.1; [19e]; [29a]; EX-1010, ¶225.

12. **Claim 31**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VII.B.1; [19e]; EX-1010, ¶226.

13. **Claim 32**

Shimura discloses the additional limitation of this claim, and the Shimura-Hisano combination renders the claim obvious. *See* VII.A.1; VII.B.1; Claim 28; EX-1010, ¶¶227-228.

Shimura discloses a "second switching means" to invalidate input from the keyboard. EX-1004, ¶8. The input invalidation may be used in a frame mode as depicted in Shimura's Figure 4. EX-1004, ¶¶8, 18. The input invalidation may be especially useful in the frame mode because the keyboard 104, facing down on a surface (e.g., a table), would be susceptible to unintended input. EX-1004, ¶18; EX-1010, ¶228. In some embodiments, the input invalidation functionality may operate automatically based on an angle of the cover part 102 relative to the main part 101. EX-1004, ¶¶18, 19. A POSITA would have understood that this input invalidation discloses the claimed "act of deactivating keyboard operation when the portable computer is configured in the frame mode." EX-1010, ¶228.

C. Ground 2: Shimura in view of Tsuji renders Claims 12, 13, 24 and 26 obvious.

1. Combination of Shimura and Tsuji (hereinafter the "Shimura-Tsuji combination")

A POSITA would have been motivated to combine Shimura with Tsuji for several reasons. EX-1010, ¶¶229-235.

First, they are contemporaneous patents both directed toward complementary solutions to highly analogous problems in the same fields of endeavor. They are both directed toward a portable computer system usable in various display modes and orientations. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1006, ¶¶34, 51, FIGs. 1, 5-8; EX-1010, ¶230. They both discuss display modes where the keyboard is inoperable and/or inaccessible. EX-1004, ¶¶8, 18, 19; EX-1006, ¶¶32, 45; EX-1010, ¶230.

Second, a POSITA would have been motivated to incorporate Tsuji's R and L buttons 118 and 119 (Figure 4 below) into the Shimura Computer to improve the user operability of the portable computer, regardless of the display mode. EX-1010, ¶231. In particular, Tsuji's R and L buttons 118 and 119 can be programmed to perform any given function, including the function of arrow keys and an enter key. EX-1006, ¶¶43, 45. A POSITA would have understood that these functions can be used to move around the display screen and/or select content on the display screen. EX-1010, ¶231.

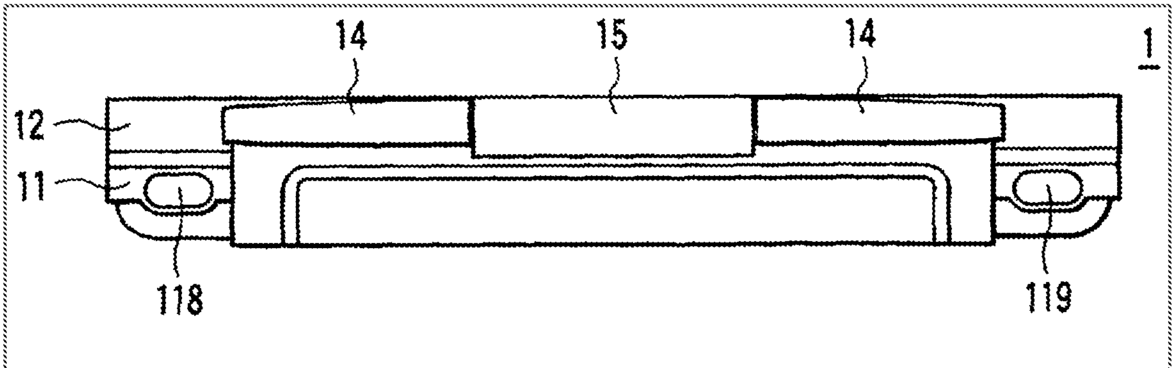
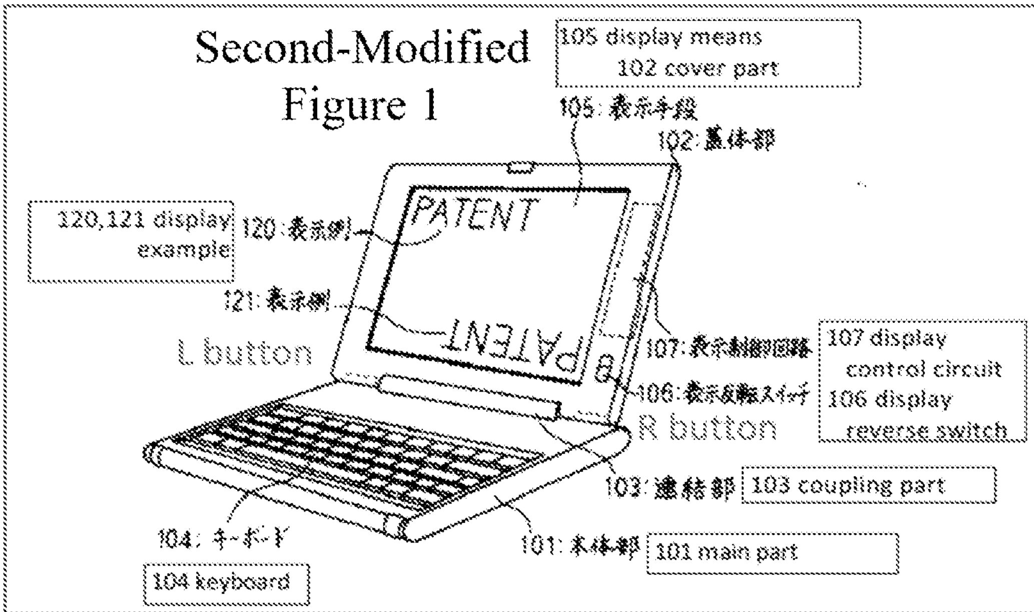
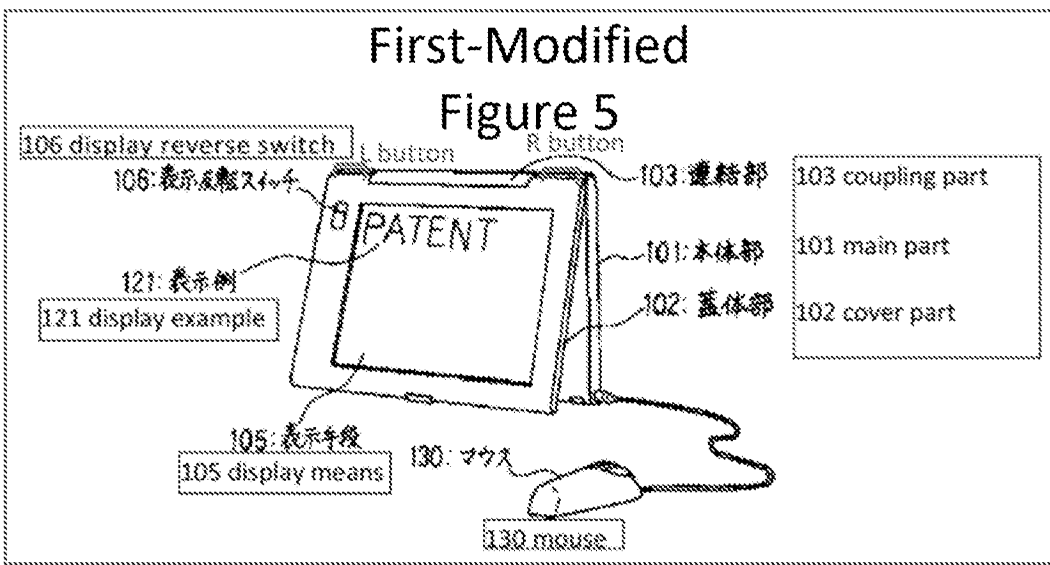


FIG.4

Tsuji provides express motivation for the proposed modification. EX-1006, ¶39 ("The R and L button switches 118 and 119 are exposed regardless of whether the computer 1 is used in a PC style or a PDA style."). This modified system incorporating Tsuji's R and L buttons 118 and 119 into the Shimura Computer will be hereinafter referred to as "the Shimura-Tsuji Computer." (*See* Second-Modified Figure 1 (dashed red lines) & First-Modified Figure 5 (solid red lines), below.)



Second-Modified Figure 1



First-Modified Figure 5

The integrated R and L buttons are programmed to cover functionality to move around the display screen and/or select content (e.g., arrow keys and/or enter key). EX-1006, ¶39. Accordingly, a user would be able to navigate the contents and/or interface of the Shimura-Tsuji Computer, regardless of the display mode (e.g., laptop or easel mode) and without any additional input devices (e.g., external pen or mouse). *Id.*

Finally, the POSITA would also have been motivated to combine, and would have had a reasonable expectation of success in combining, Tsuji with Shimura because prior art elements are merely combined according to known methods to yield predictable results. *See KSR*, 550 U.S. at 415-21; EX-1010, ¶234. Tsuji taught the well-known prior art concept of integrating an input device that is accessible in multiple display modes, and application of this teaching to Shimura would have yielded a predictable portable computer that a user can interact with via integrated buttons, regardless of the display mode of the Shimura Computer. EX-1010, ¶234.

For the foregoing reasons, the POSITA would have been motivated to combine Shimura's teachings with Tsuji's teachings to arrive at the Shimura-Tsuji Computer to further improve user operability and functionality by using the integrated R and L buttons 118 and 119. EX-1010, ¶¶229-235.

2. **Claim 12**

a. Limitation [12pre]

Shimura discloses [12pre]. *See* VII.A.1; [1pre]; EX-1004, Figures 1, 5; EX-1010, ¶236.

b. Limitation [12a]

Shimura discloses [12a]. *See* VII.A.1; [1a]; EX-1004, Figure 1; EX-1010, ¶237.

c. Limitation [12b]

Shimura discloses [12b]. *See* VII.A.1; [1b]; EX-1004, Figure 1; EX-1010, ¶238.

d. Limitation [12c1]

Shimura discloses [12c1]. *See* VII.A.1; [1c1]; [11b]; EX-1004, ¶12, Figures 2 and 3; EX-1010, ¶239.

e. Limitation [12c2]

Shimura discloses [12c2]. *See* VII.A.1; [1c2]; EX-1004, Figures 2, 3; EX-1010, ¶240.

f. Limitation [12d]

Shimura discloses [12d]. *See* VII.A.1; [1pre]; [1c3]; [1e]; [1f]; EX-1004, Figures 1 & 5; EX-1010, ¶241.

g. Limitation [12e]

Shimura discloses [12e]. *See* VII.A.1; [1pre]; [1f]; EX-1010, ¶242.

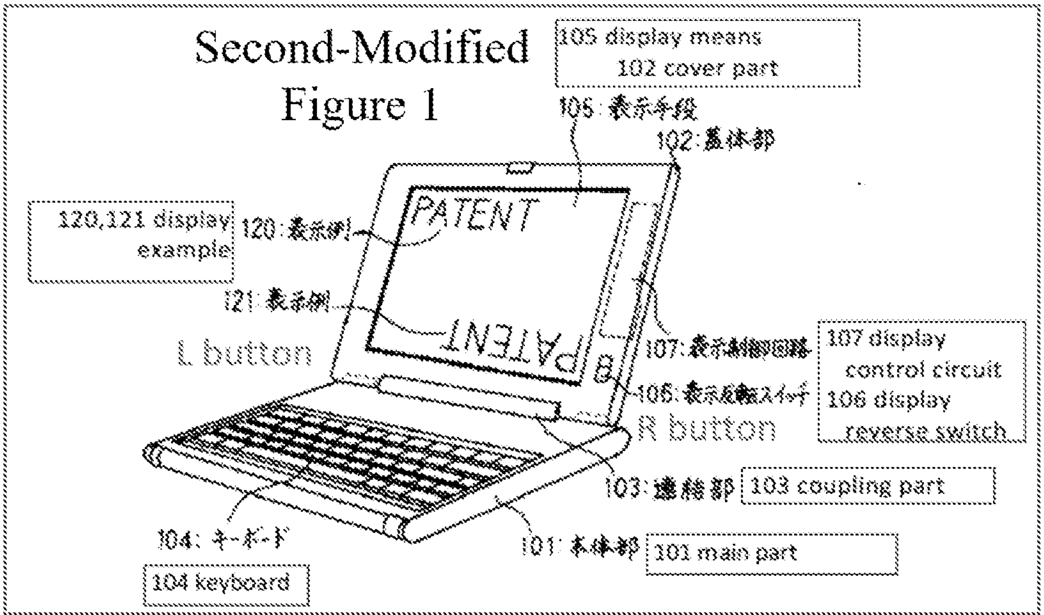
h. Limitation [12f]

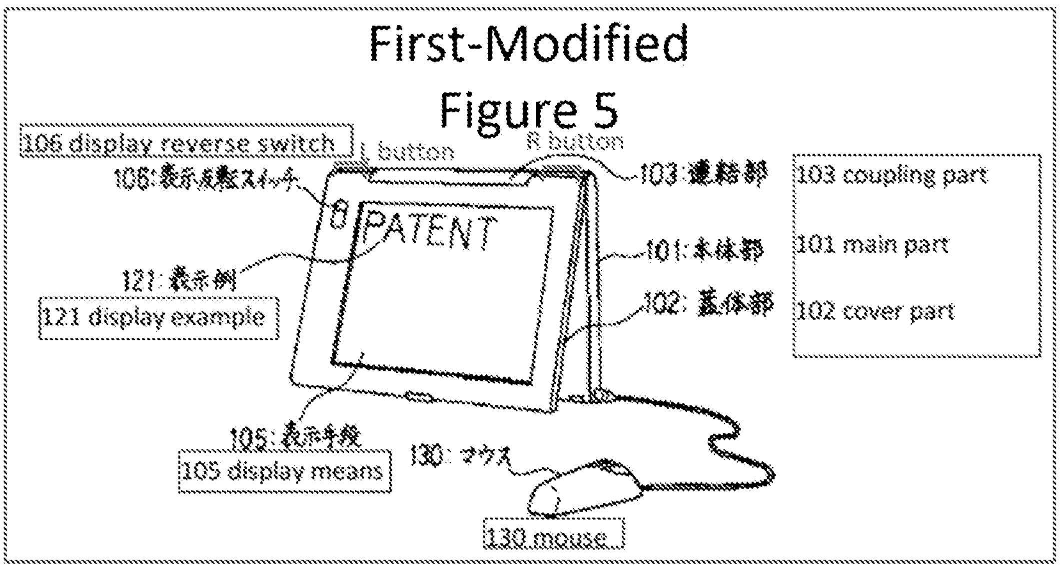
The Shimura-Tsuji combination discloses [12f] and renders it obvious. *See* VII.C.1; EX-1010, ¶¶243-251.

A POSITA would have known that any device or component (e.g., switch) integrated into a portable computer that is used "to control features and manipulate content" is the claimed "integrated navigation hardware control." EX-1010, ¶244. The '688 Patent describes a scroll wheel used to control features, including adjusting the volume of a speaker, adjusting a display brightness, and selecting a particular item displayed on the display screen. EX-1001, 2:13-18, 9:58-60, 10:54-65.

Tsuji discloses an integrated navigation hardware control configured "to control features" using, for example, R and L button switches 118 and 119 integrated into the portable computer 1. EX-1006, ¶38. The R and L button switches 118 and 119 can be programmed with any given function, including arrow keys (e.g., up, down, left, and right directions) and an enter key, used to move around the display screen and/or select content on the display screen (i.e., control features). *See* VII.A.3; EX-1006, ¶¶39, 43, 45; EX-1010, ¶245.

The laptop mode (Second-Modified Figure 1 of Shimura below) and the easel mode (First-Modified Figure 5 of Shimura below) are the only display modes recited in this claim. *See* [12pre]; [12e].

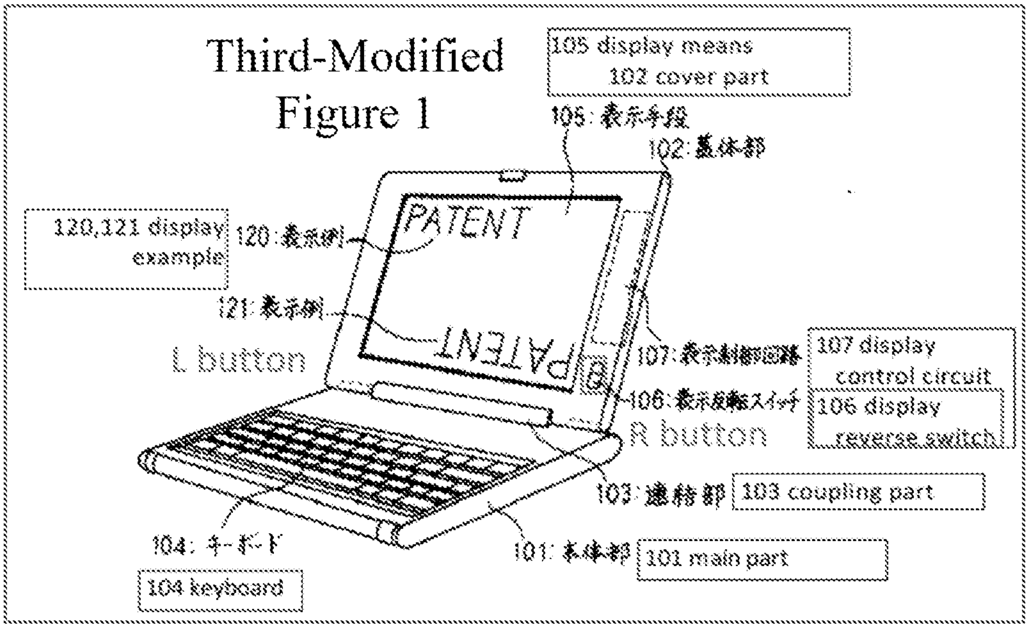


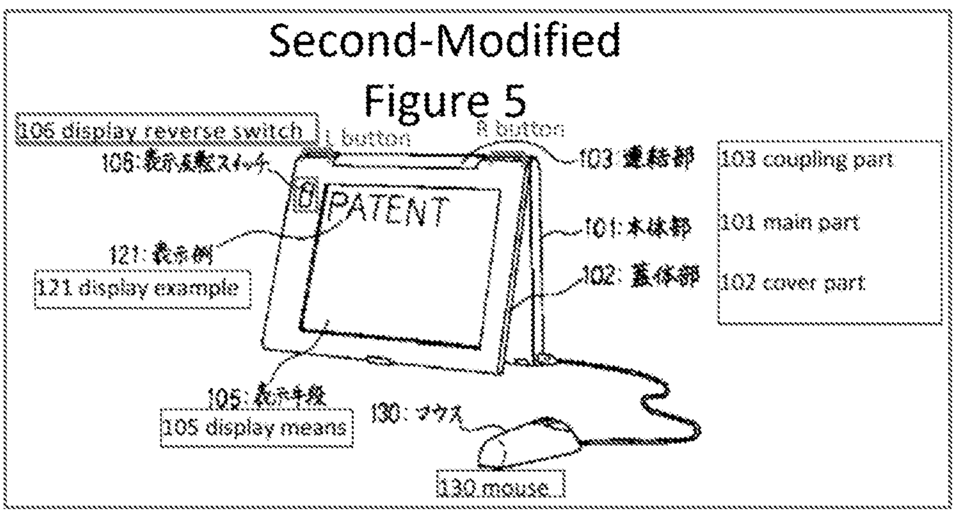


In both modes, the R and L button switches 118 and 119 would be accessible. EX-1010, ¶247; Second-Modified Figure 1 above (dashed red lines); First-Modified Figure 5 above (solid red lines). A POSITA would have considered these R and L button switches 118 and 119 performing these functions as the claimed "integrated navigation hardware control configured to control features." EX-1010, ¶247.

Moreover, Shimura discloses the claimed "integrated navigation hardware control configured to . . . manipulate content displayed on the portable computer." EX-1010, ¶248. The user sets the state of the display reverse switch 106 between a normal view and an inverted view, which causes Shimura's display control circuit 107 and electronic circuit to display the content in a given view. *See* Claim 3; EX-1004, ¶12; EX-1010, ¶248. A POSITA would have understood the display reverse switch 106 used to change views as an example of the claimed "integrated navigation hardware control configured to . . . manipulate content." EX-1010, ¶248.

The display reverse switch 106 of the Shimura-Tsuji Computer is accessible in both the laptop mode where the keyboard is accessible/oriented toward the user and the easel mode where the keyboard is oriented away from the user. *See* [1pre]; Claim 3; [19e]; EX-1010, ¶249; Third-Modified Figure 1 & Second-Modified Figure below. As noted above, claim 12 only recites the laptop mode and the easel mode. *See* [12pre]; [12e].





Alternatively, a POSITA would have been motivated to incorporate Tsuji's touch screen, capable of the same basic functionality as a mouse (e.g., selecting or moving displayed content), into the Shimura Computer. EX-1006, ¶31; EX-1010, ¶250. A POSITA would have considered such a touchscreen as the claimed "integrated navigation hardware control configured to control features and manipulate content." EX-1010, ¶250.

Therefore, the Shimura-Tsuji combination discloses and renders obvious [12f]. EX-1010, ¶¶243-251.

Accordingly, the Shimura-Tsuji combination renders obvious Claim 12. EX-1010, ¶¶236-251.

3. **Claim 13**

a. Limitation [13a]

Shimura discloses [13a]. *See* VI.C (discussing Claim 13); VII.A.1; Claim 3; [4a]; [4b]; EX-1004, Figure 1; EX-1010, ¶253. The Shimura-Hisano combination discloses the function and corresponding structure for the means-plus-function limitation in [13a]. *See* Claim 3; EX-1010, ¶253.

b. Limitation [13b]

Shimura discloses [13b]. *See* VII.A.1; Claim 3; [4a]; [4b]; EX-1004, Figures 1, 4 and 5; EX-1010, ¶254.

Accordingly, the Shimura-Tsuji combination renders obvious Claim 13. EX-1010, ¶¶253-254.

4. **Claim 24**

Shimura discloses the additional limitation of this claim, and the Shimura-Tsuji combination renders the claim obvious. *See* VII.A.1; VII.C.1; [1pre]; Claim 3; [4a]; [4b]; [19e]; EX-1010, ¶256.

5. **Claim 26**

Shimura discloses the additional limitation of this claim, and the Shimura-Tsuji combination renders the claim obvious. *See* VI.D (discussing Claim 26); VII.A.1; VII.C.1; Claim 3; [4a]; [4b]; [19e]; Claim 28; and EX-1010, ¶¶257-259.

First, Shimura discloses the function for the means-plus-function limitation of Claim 26. *See* VII.A.1. Shimura discloses a "second switching means" to invalidate input from the keyboard. EX-1004, ¶8. The input invalidation functionality can be used in a frame mode, as depicted in Shimura's Figure 4 (above), to prevent data from being mistakenly inputted from the keyboard (which may be facing a surface). EX-1004, ¶¶18, 19.

Second, Shimura discloses the corresponding structure for the means-plus-function limitation in Claim 26. Shimura discloses an input invalidation functionality that operates automatically based on an angle of the cover part 102 relative to the main part 101. *See* Claim 32; EX-1010, ¶259. A POSITA would have known that Shimura's automatic input invalidation functionality would be implemented by an algorithm executable by a processor ("electronic circuit") in the Shimura Computer (i.e., the claimed "protection module"). EX-1010, ¶259.

D. Ground 3: Shimura in view of Hisano and Tsuji renders Claims 8, 9, 14-16, 20, 23, and 25 obvious.

1. <u>Combination of Shimura, Hisano and Tsuji (hereinafter the "Shimura-Hisano-Tsuji combination")</u>

For all the reasons set forth in VII.B.1 above, a POSITA would have been motivated to combine Shimura with Hisano. EX-1010, ¶¶150-169.

A POSITA would have been further motivated to combine Tsuji with Shimura and Hisano. EX-1010, ¶¶261-274. First, all three references are contemporaneous patents directed toward complementary solutions to highly analogous problems in the same fields of endeavor. All are directed toward a portable computer system usable in various display modes via a rotatable hinge, that can change the displayed content's orientation in different display modes. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶54, 87, 98, 99, FIGs. 1, 8, 9; EX-1006, ¶¶34, 51, 58-60, 74, FIGs. 1, 5-8; EX-1010, ¶261. Similar to Hisano, Tsuji discloses rotating displayed content based on one or more sensors (e.g., rotation angle sensor 202 and gravity sensor 203). EX-1005, ¶99; EX-1006, ¶¶58, 60, 74, FIG. 10 (below).

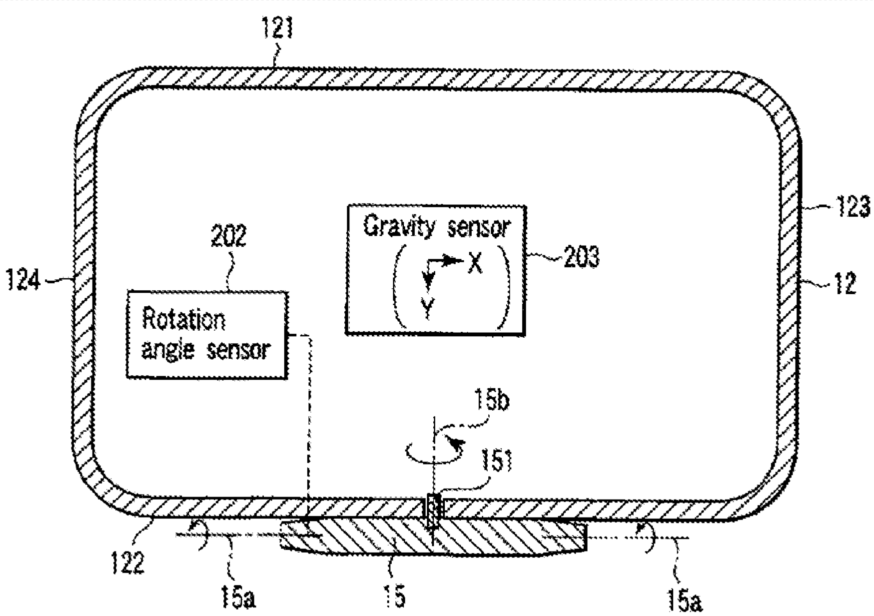


FIG.10

Shimura and Hisano each discuss controlling the orientation in a normal view and an inverted view. EX-1004, ¶¶12, 16, Figures 1, 4, 5; EX-1005, ¶99. In a similar field of endeavor to Shimura and Hisano, Tsuji discloses a PDA-style display mode where a user can rotate the portable computer about an axis perpendicular to the display screen. EX-1006, ¶51. Tsuji also discloses rotating the orientation by additional degrees of freedom beyond the normal view, namely, by 90°, by 180° (inverted view), and by 270°. EX-1006, ¶51, FIGs. 1, 5-8 (below; content is boxed in red); EX-1010, ¶262.

Specifically, a POSITA would have understood that Tsuji's PC style (FIG. 1 below) corresponds to Shimura's laptop mode. EX-1010, ¶263. The POSITA would have also understood that Tsuji's Figure 1 below corresponds to a first "landscape" mode, a well-known display mode of portable computing devices at the Critical Date. *Id.*, ¶¶59-73, 263

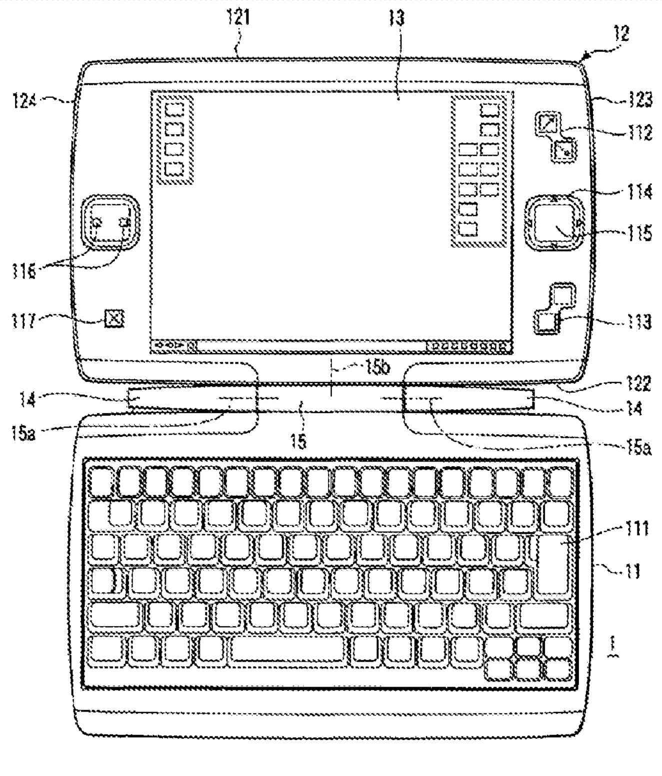


FIG. 1

Tsuji's Figure 5 below corresponds to a first "portrait" mode, also a well-known display mode of portable computing devices at the Critical Date. EX-1010, ¶¶59-73, 264.

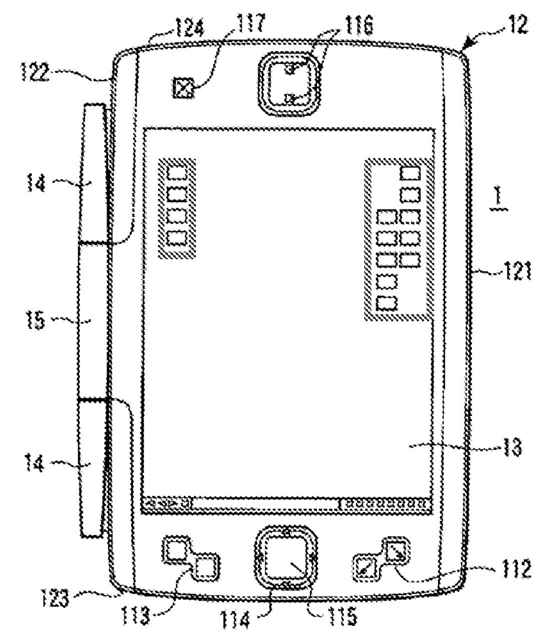


FIG. 5

Tsuji's Figure 6 (below) corresponds to another rotation position with the hinge assembly at the top. EX-1010, ¶265.

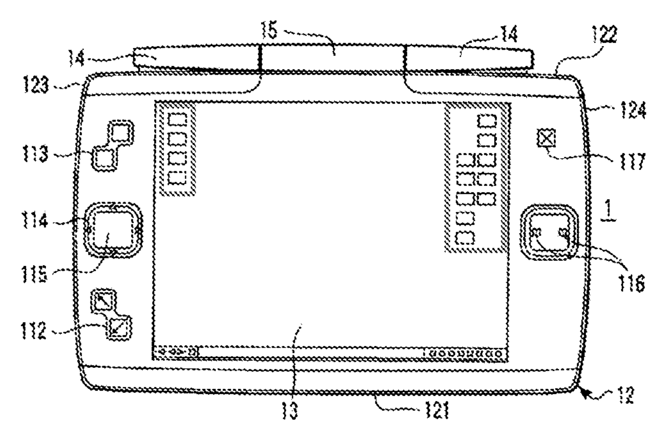


FIG. 6

Tsuji's Figure 7 (below) corresponds to a second portrait mode, which is an inverted version of the first portrait mode above (Figure 5). EX-1010, ¶266.

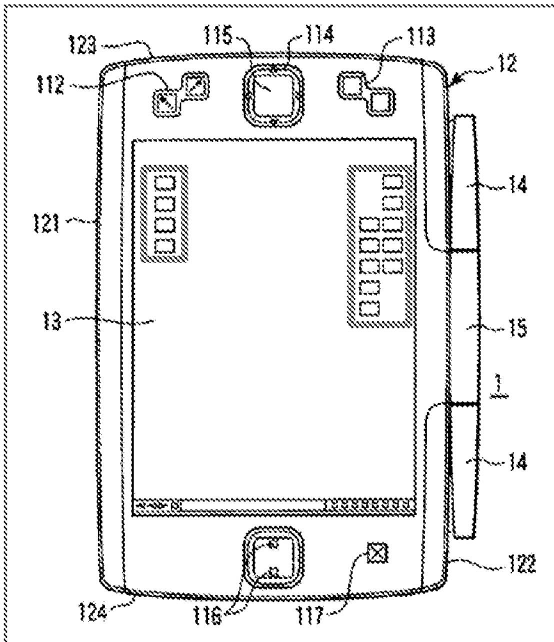


FIG. 7

Tsuji's Figure 8 below corresponds to a second landscape mode, which is an inverted version of the first landscape mode. EX-1010, ¶267. Shimura's landscape modes could be turned into the portrait modes by rotating the Shimura Computer 90° clockwise. *Id.*

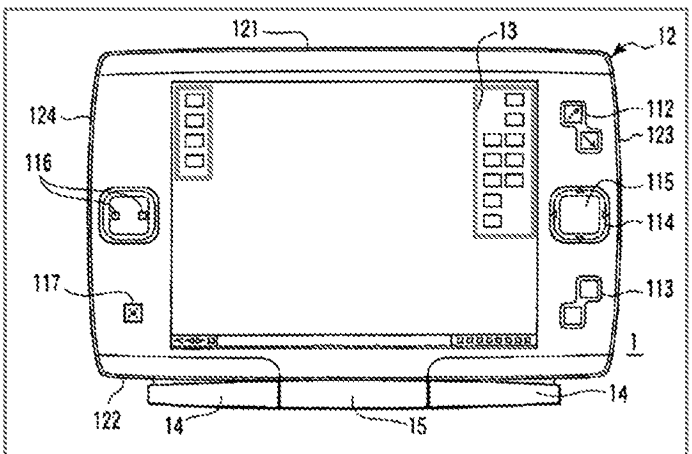
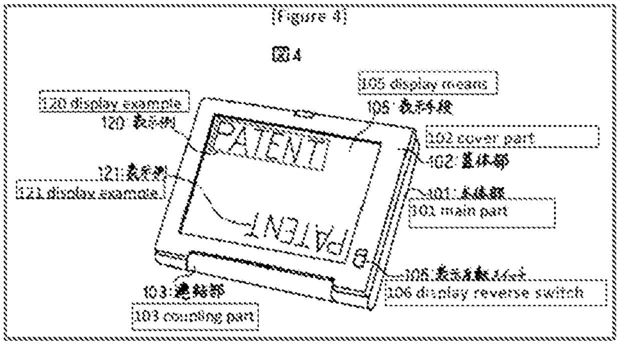


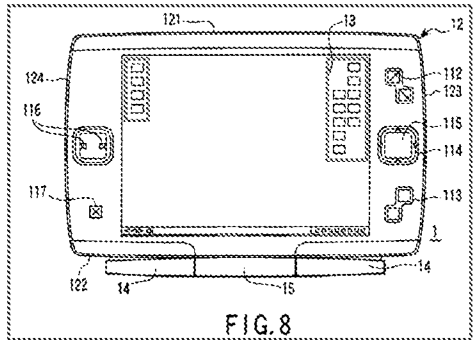
FIG. 8

Combining Shimura and Hisano with Tsuji discloses and renders obvious the following four content orientations:

(1) a first landscape orientation as depicted in Shimura's Figure 4 (below left, with the display means 105 showing the display example 120, i.e., the "PATENT" text boxed in red), which is oriented like Tsuji's Figure 8 (below right);

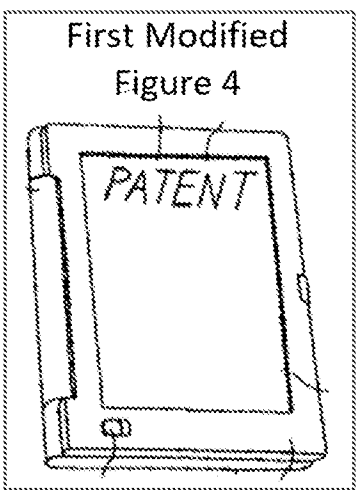


Shimura

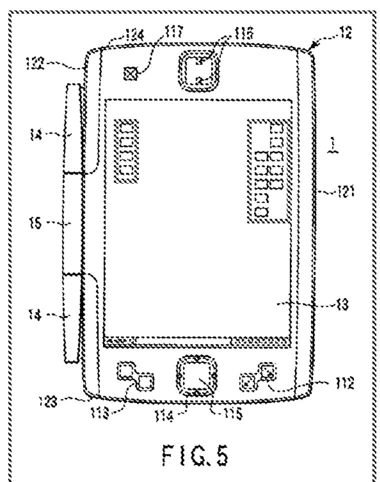


Tsuji

(2) a first portrait orientation illustrated in First-Modified Figure 4 of Shimura (below left), which is rotated 90° clockwise from the first landscape orientation, and oriented like Tsuji's Figure 5 (below right);

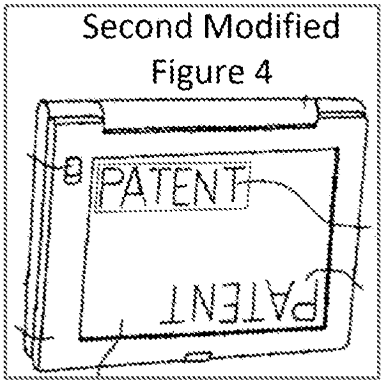


Shimura



Tsuji

(3) a second landscape orientation illustrated in Second-Modified Figure 4 of Shimura (below left, with "PATENT" boxed in red), which is 180° from the first landscape orientation, and oriented like Tsuji's Figure 6 (below right); and



Shimura

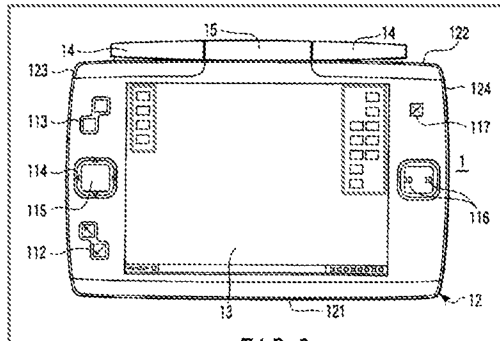
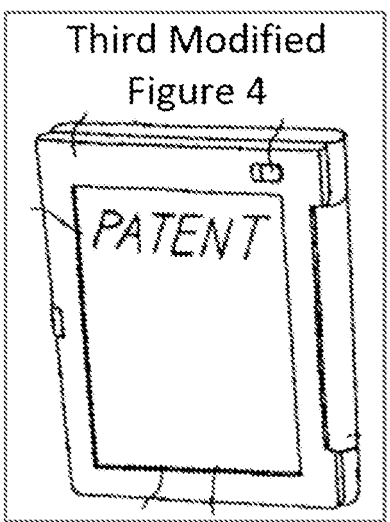


FIG. 6

Tsuji

(4) a second portrait orientation illustrated in Third-Modified Figure 4 of Shimura (below left), which is rotated by 270° clockwise from the first landscape orientation, and oriented like Tsuji's Figure 7 (below right).



Shimura

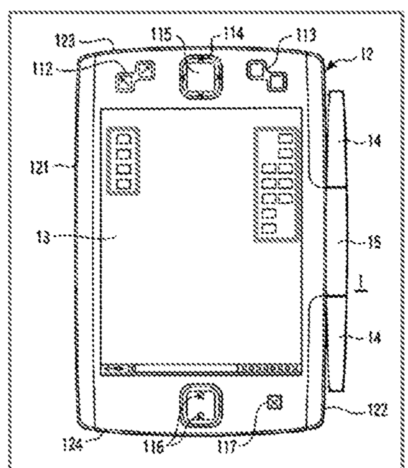


FIG. 7

Tsuji

EX-1010, ¶268.

Moreover, a POSITA would have been motivated to incorporate Tsuji's 90° rotation functionality into the Shimura-Hisano Computer to improve the screen image orientation control based on a display mode, as explained below. *See* VII.B.1; EX-1010, ¶269.

Tsuji also discloses that automatic image rotation can be inhibited. EX-1006, ¶36. A POSITA would have understood that if automatic image rotation is inhibited, the key switch 114, which has four arrow keys (see red box in Figure 1 below), can be used to manually switch between the four content orientations (first landscape, first portrait, second landscape, second portrait). EX-1010, ¶270.

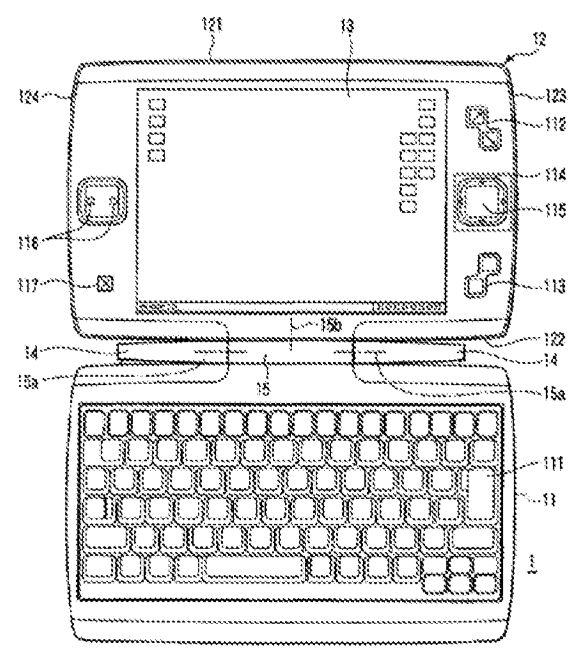
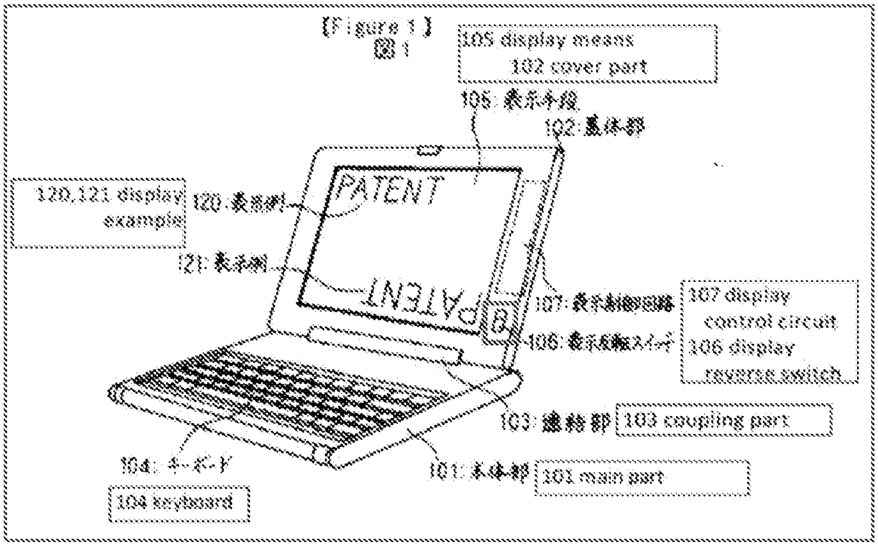


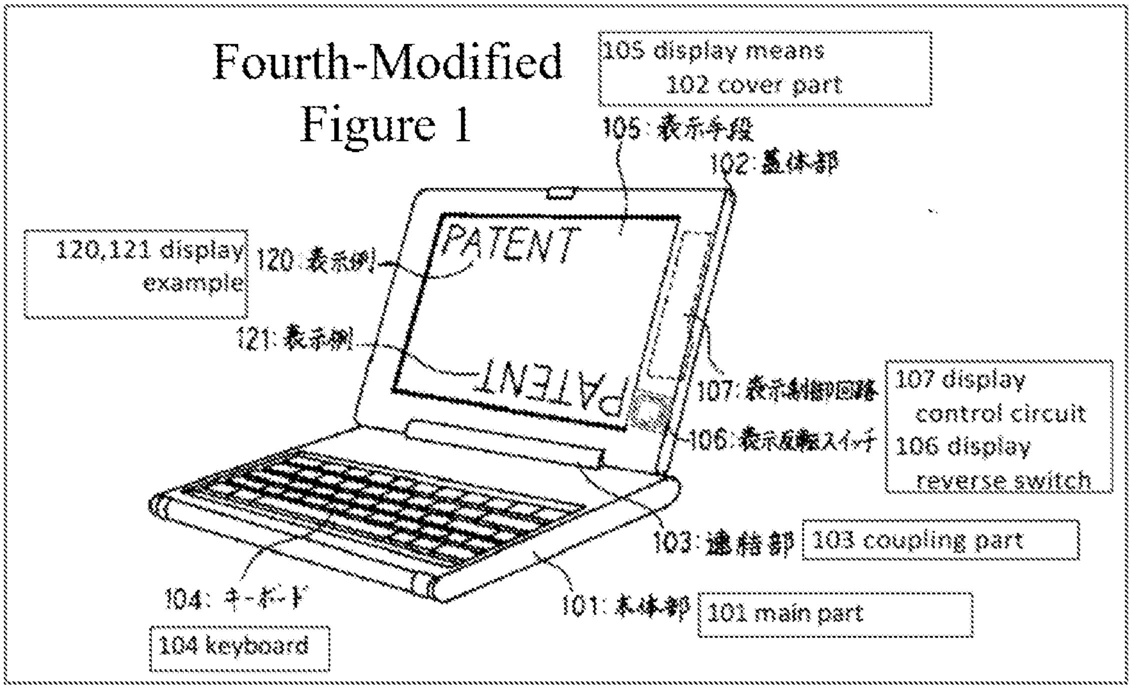
FIG. 1

Shimura's display reverse switch 106 switches the display between just two views—normal view and an inverted view (see red box in Figure 1 below).



With a portable computer that can be oriented in four different views, the POSITA would have been motivated to use a mechanism that can select between four views, such as Tsuji's four-way key switch, in place of the two-way display reverse switch 106 disclosed in Shimura. EX-1006, ¶35; EX-1010, ¶271. In this way, a user could control the image orientation in 90° increments by selecting a left, up, right, or down direction, which correspond to the orientations of Tsuji's Figures 5-8 above, respectively. EX-1010, ¶271. This modified system, incorporating Tsuji's 90° rotation functionality to the Shimura-Hisano Computer, will be hereinafter referred to as "the Shimura-Hisano-Tsuji Computer." The Fourth-Modified Figure 1 of Shimura (below) illustrates one example of a hardware control used to control the 90° rotation functionality implemented in the Shimura-Hisano-Tsuji Computer. *Id.*

Fourth-Modified
Figure 1



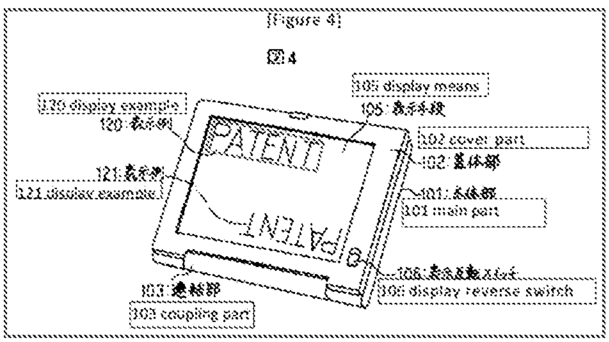
Finally, there would have been motivation to combine, and a reasonable expectation of success in combining Tsuji with Shimura and Hisano, because prior art elements are merely combined according to known methods to yield predictable results. *See KSR*, 550 U.S. at 415-21; EX-1010, ¶273. That is, Tsuji taught the well-known prior art functionality of rotating the orientation in 90° increments, and application of this teaching to Shimura and Hisano would have yielded a predictable portable computer that can rotate the orientation of the display means in 90° increments by selecting a view on the mechanism (e.g., Tsuji's four-way key switch 114 to select one of four possible views). EX-1010, ¶74-86, 273.

For the foregoing reasons, the POSITA would have been motivated to combine Shimura's and Hisano's teachings with Tsuji's teachings to arrive at the Shimura-Hisano-Tsuji Computer to further improve control over the screen image orientation in a portable computer using a display unit rotatably attached to a housing base. EX-1010, ¶¶261-274.

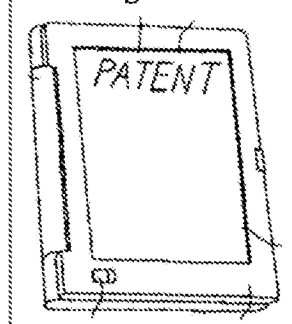
2. **Claim 8**

a. Limitation [8a]

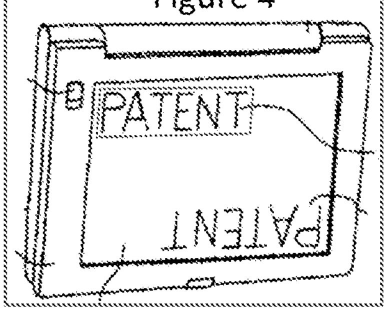
The Shimura-Hisano-Tsuji combination discloses [8a] and renders it obvious. *See* VII.D.1 (discussing four content orientations); Shimura's Figure 4 below; First-, Second-, and Third-Modified Figure 4 of Shimura below; EX-1010, ¶275.



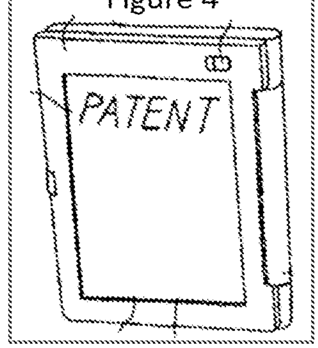
First Modified Figure 4



Second Modified Figure 4



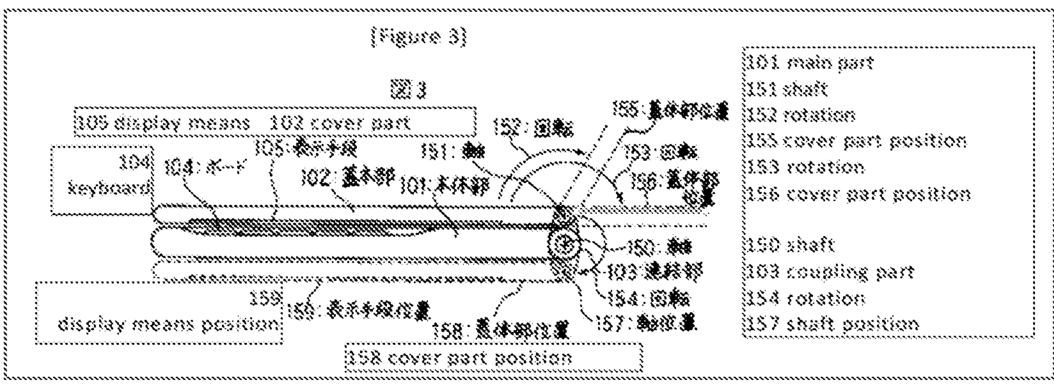
Third Modified Figure 4



b. <u>Limitation [8b]</u>

The Shimura-Hisano-Tsuji combination discloses [8b] and renders it obvious. *See* VII.D.1; EX-1010, ¶¶276-278.

A POSITA would have known to implement the four-way content orientation functionality in the claimed "flat mode." EX-1010, ¶277. For example, a user would likely use a landscape or portrait orientation on the Shimura-Hisano-Tsuji Computer in at least the flat mode (Shimura's Figure 3, where the blue line indicates where display means 105 would be, i.e., in cover part position 156). *Id.*



All four content orientation options would have been available to the user in the flat mode of the Shimura-Hisano-Tsuji Computer. EX-1010, ¶278. The user would have made the selection using, for example, Tsuji's four-way key switch or two display reverse switches 106 (one horizontal and one vertical). *Id.*

Accordingly, the Shimura-Hisano-Tsuji combination renders obvious Claim 8. EX-1010, ¶¶275-278.

3. **<u>Claim 9</u>**

a. Limitation [9a]

The Shimura-Hisano-Tsuji combination discloses [9a] and renders it obvious. *See* VII.D.1; [8a]; EX-1004, Shimura's Figure 4; First-, Second-, and Third-Modified Figure 4 of Shimura; EX-1010, ¶280.

b. Limitation [9b]

The Shimura-Hisano-Tsuji combination discloses [9b] and renders it obvious. *See* VII.D.1; [8a]; EX-1004, Figure 4; First-, Second-, and Third-Modified Figure 4 of Shimura; EX-1010, ¶281.

Accordingly, the Shimura-Hisano-Tsuji combination renders obvious Claim 9. EX-1010, ¶280-281.

4. **Claim 14**

a. Limitation [14a]

Shimura discloses [14a]. *See* VII.A.1; Claims 3, 5 13 (discussing normal view and inverted view); EX-1004, Figures 1, 4, 5; EX-1010, ¶283.

b. Limitation [14b]

The Shimura-Hisano combination discloses [14b] and renders it obvious. *See* VII.B.1; [4a]; [4b]; Claim 5; EX-1010, ¶284.

The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [14b]. *See* Claim 3; EX-1010, ¶285.

Accordingly, the Shimura-Hisano-Tsuji combination renders obvious Claim 14. EX-1010, ¶¶283-285.

5. **Claim 15**

a. Limitation [15a]

The Shimura-Hisano-Tsuji combination discloses [15a] and renders it obvious. *See* VII.D.1; [14a]; EX-1010, ¶287.

b. Limitation [15b]

The Shimura-Hisano-Tsuji combination discloses [15b] and renders it obvious. *See* VII.D.1; [8a]; EX-1010, ¶288.

Accordingly, the Shimura-Hisano-Tsuji combination renders obvious Claim 15. EX-1010, ¶287-288.

6. **Claim 16**

a. Limitation [16a]

The Shimura-Hisano combination discloses [16a] and renders it obvious. *See* VII.B.1; [4a]; [4b]; Claim 5; EX-1010, ¶290.

b. Limitation [16b]

The Shimura-Hisano combination discloses [16b] and renders it obvious. *See* VII.B.1; [4a]; [4b]; Claim 5; EX-1010, ¶291.

The Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [16b]. *See* Claim 3; EX-1010, ¶292.

Accordingly, the Shimura-Hisano-Tsuji combination renders obvious Claim 16. EX-1010, ¶¶290-292.

7. **Claim 20**

The Shimura-Hisano combination discloses the additional limitation in this claim and renders it obvious, and the Shimura-Hisano-Tsuji combination renders the claim obvious. *See* VII.B.1; [14a]; EX-1010, ¶294.

8. **Claim 23**

The Shimura-Hisano combination discloses the additional limitation in this claim and renders it obvious, and the Shimura-Hisano-Tsuji combination renders the claim obvious. *See* VII.B.1 (discussing R and L buttons 118 and 119 and touchscreen); [12f] (discussing display reverse switch 106); EX-1010, ¶295.

9. **Claim 25**

c. Limitation [25a]

Shimura discloses this limitation. *See* VII.A.1; [14a]; [19e]; EX-1010, ¶296.

d. Limitation [25b]

The Shimura-Hisano combination discloses [25b] and renders it obvious. *See* VI.C; VII.B.1; Claim 3; [4a]; [4b]; Claim 5; [19e]-[19g]; EX-1010, ¶297.

The Shimura-Hisano combination discloses the function and corresponding structure of [25b]. *See* VI.C; [19d]-[19g]; EX-1010, ¶298.

Accordingly, the Shimura-Hisano-Tsuji combination renders obvious Claim 25. EX-1010, ¶¶296-298.

E. Ground 4: Shimura in view of Hisano and Shigeo renders Claims 17, 18, 21, 22, 27, and 28 obvious.

1. Combination of Shimura, Hisano and Shigeo (hereinafter the "Shimura-Hisano-Shigeo combination")

For all the reasons set forth in VII.B.1 above, a POSITA would have been motivated to combine Shimura with Hisano. EX-1010, ¶¶150-169.

A POSITA would have been further motivated to combine Shigeo with Shimura and Hisano for several reasons. *See* EX-1010, ¶¶301-309. First, all three references are contemporaneous patents directed toward complementary solutions to highly analogous problems in the same fields of endeavor. All are directed toward a portable computer system usable in various display modes via a rotatable hinge. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶54, 87, 98, FIGs. 1, 8, 9; EX-1008, ¶8, FIGs. 1, 2; EX-1010, ¶301. All can change the displayed content's orientation in different display modes. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶54, 87, 98, 99, FIGs. 1, 8, 9; EX-1008, ¶¶10-16, FIGs. 1, 2; EX-1010, ¶301. Moreover, Hisano and Shigeo are both Toshiba patents. EX-1005, Cover Page; EX-1008, Cover Page. In addition, similar to Hisano, Shigeo discloses rotating displayed content based on an opening angle sensor 6. EX-1005, ¶99; EX-1008, Constituent Elements, ¶¶8, 10-16.

Shigeo discloses that the opening angle sensor 6 can be mechanical or electrical. EX-1008, ¶11. A POSITA would have understood this to mean that the opening angle sensor 6 can be at least: (1) a mechanical device, such as a limit switch, that outputs an on or off signal depending on whether the display component has rotated to a preset rotation angle (e.g., 180°) or (2) an electrical device (e.g., Hisano's hinge-rotation sensor) that outputs an electrical signal (e.g., 0-5V analog signal) that indicates a current rotation angle. *See* VII.B.1; [4a]; EX-1010, ¶302. A POSITA would have known that in the second case, the portable computer would store a predetermined rotation angle value for comparison with the hinge-rotation sensor's output. EX-1010, ¶302.

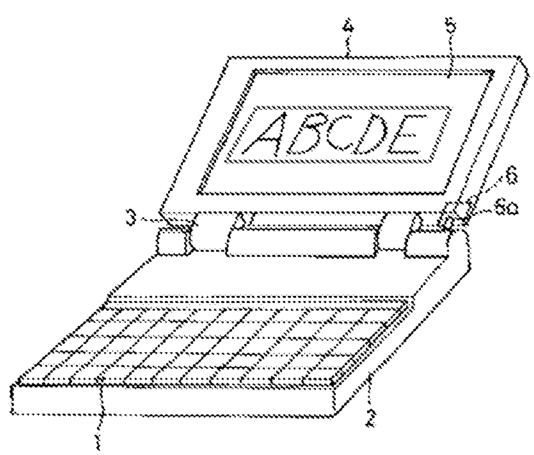
Hisano discussed controlling the orientation based on the hinge-rotation sensor. EX-1005, ¶99. Meanwhile, Shigeo discloses using the hinge-rotation sensor along with a predetermined angle (e.g., 180°) to invert the displayed content. EX-1008, ¶¶8, 10-16, Figures 1-2 (below; displayed content is boxed in red); EX-1010, ¶303. In other words, in Shigeo, rotating a lid body about the longitudinal axis over 180° would invert the displayed content. *Id.*

A POSITA would have been motivated to incorporate Shigeo's predetermined angle value (e.g., 180°) into the Shimura-Hisano Computer to arrive at the "Shimura-Hisano-Shigeo Computer." EX-1010, ¶305. Specifically, the Shimura-Hisano-Shigeo Computer would have automatically inverted the displayed content by comparing the hinge-rotation sensor output with a predetermined angle to trigger inversion of the displayed content. EX-1008, ¶¶2-4, 17, 18; EX-1010, ¶305. For example, this automatic inversion can occur when the lid body is opened beyond 180° compared to a base unit. *Id.*

To illustrate, the displayed content is in a normal view when the hinge-rotation sensor measures an angle less than a predetermined value (e.g., 180°), as illustrated in Shigeo's FIG. 1 (below left). Meanwhile, the displayed content is in an inverted view when the hinge-rotation sensor measures an angle greater than a predetermined value (e.g., 180°), as illustrated in Shigeo's FIG. 2 (below right).

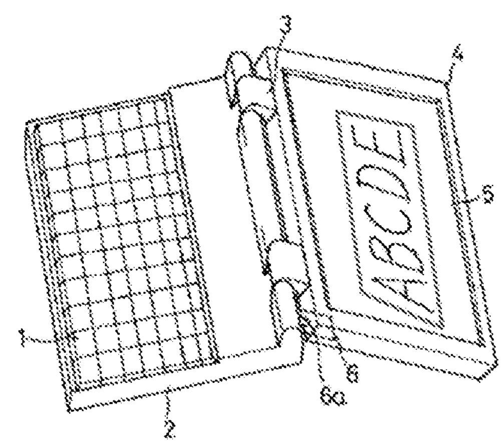
【図1】

[Figure 1]



【図2】

[Figure 2]



Additionally, Hisano discloses that the displayed content may be inverted based on some angle of the hinges. EX-1005, ¶99 ("[T]he rotating angle of the hinges 130A and 130B may be used to switch between a [normal view and an inverted view]."). Relying on this, a POSITA would have been motivated to find further disclosure of comparing a hinge-rotation sensor's angle output to a predetermined angle (e.g., 180°) to invert the displayed content, such as in Shigeo. EX-1010, ¶307.

Finally, there would have been motivation to combine, and a reasonable expectation of success in combining, Shigeo with Shimura and Hisano because the prior art elements are merely combined according to known methods to yield predictable results. *See KSR*, 550 U.S. at 415-21; EX-1010, ¶308. That is, Shigeo taught the well-known prior art concept of comparing a detected hinge-rotation angle to a stored predetermined rotation angle to invert a display. EX-1010, ¶81, 101, 308. And application of this teaching to Shimura and Hisano would have yielded a predictable portable computer that can invert the display at a predetermined angle (e.g., 180°). *Id.*

For the foregoing reasons, the POSITA would have been motivated to combine Shimura's and Hisano's teachings with Shigeo's teachings to arrive at the Shimura-Hisano-Shigeo Computer. EX-1010, ¶¶301-309.

2. **Claim 17**

a. Limitation [17pre]

The Shimura-Hisano combination discloses [17pre] and renders it obvious. *See* VII.B.1; [1pre]-[1b]; [11d]; EX-1010, ¶310.

b. Limitation [17a]

The Shimura-Hisano combination discloses [17a] and renders it obvious. *See* VII.B.1; [1c1]-[1c3]; EX-1010, ¶311.

c. <u>Limitation [17b]</u>

The Shimura-Hisano combination discloses [17b] and renders it obvious. *See* VII.B.1 (discussing hinge-rotation sensor); [4a]; EX-1010, ¶312.

d. <u>Limitation [17c]</u>

The Shimura-Hisano combination discloses [17c] and renders it obvious. *See* VII.B.1 (discussing hinge-rotation sensor); [4a]; EX-1010, ¶313.

e. <u>Limitation [17d]</u>

The Shimura-Hisano-Shigeo combination discloses [17d] and renders it obvious. *See* VII.B.1 (discussing hinge-rotation sensor); VII.E.1; [4a]; [11e]; EX-1010, ¶314.

f. <u>Limitation [17e]</u>

The Shimura-Hisano-Shigeo combination discloses [17e] and renders it obvious. *See* VII.B.1 (discussing hinge-rotation sensor); VII.E.1; [4a]; [11e]; EX-1010, ¶315.

g. <u>Limitation [17f]</u>

The Shimura-Hisano combination discloses [17f] and renders it obvious. *See* VII.B.1; Claim 3; EX-1010, ¶316.

h. <u>Limitation [17g]</u>

The Shimura-Hisano combination discloses [17g] and renders it obvious. *See* VII.B.1; [1e] (discussing laptop mode); [1f] (discussing easel mode); EX-1010, ¶317.

i. Limitation [17h]

The Shimura-Hisano combination discloses [17h] and renders it obvious. *See* VII.B.1; [4a]; [4b]; [17c]; EX-1010, ¶318.

j. Limitation [17i]

The Shimura-Hisano-Shigeo combination discloses [17i] and renders it obvious. *See* VII.E.1; Claim 5; [11e]; EX-1010, ¶319.

k. Limitation [17j]

The Shimura-Hisano-Shigeo combination discloses [17j] and renders it obvious. *See* VII.E.1; Claim 5; [11e]; EX-1010, ¶320.

Accordingly, the Shimura-Hisano-Shigeo combination renders obvious Claim 17. EX-1010, ¶¶310-320.

3. **Claim 18**

a. Limitation [18a]

The Shimura-Hisano combination discloses [18a] and renders it obvious. *See* VII.B.1; Claim 5; EX-1010, ¶322.

b. Limitation [18b]

The Shimura-Hisano combination discloses [18b] and renders it obvious. *See* VII.B.1; [4a]; [4b]; Claim 5; [11e]; EX-1010, ¶323.

c. Limitation [18c]

The Shimura-Hisano combination discloses [18c] and renders it obvious. *See* VII.B.1; [4a]; [4b]; Claim 5; [11e]; EX-1010, ¶324.

Accordingly, the Shimura-Hisano-Shigeo combination renders obvious Claim 18. EX-1010, ¶¶322-324.

4. **Claim 21**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders it obvious, and the Shimura-Hisano-Shigeo combination renders the claim obvious. *See* VII.B.1; VII.E.1; [4a]; [4b]; EX-1010, ¶¶326-327.

The Shimura-Hisano Computer, whose features are incorporated into the Shimura-Hisano-Shigeo Computer, includes Hisano's gravity sensor. A POSITA would have known that a gravity sensor is a type of the claimed "accelerometer." *See* [4a], [4b]; EX-1010, ¶327. EX-1014, *passim* (discussing that a Freescale accelerometer senses tilt based on components of gravity measured by the accelerometer, thus demonstrating that a gravity sensor is a type of accelerometer), Figures 2, 3, 4 below.

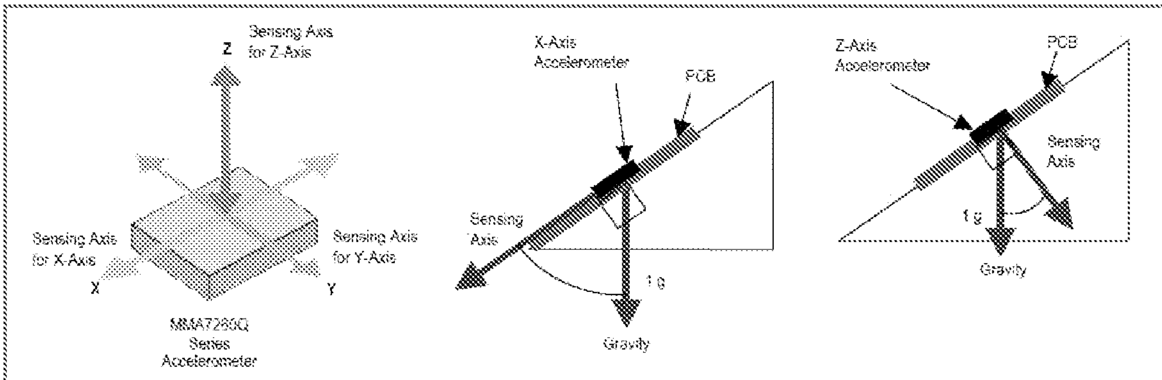


Figure 2. Sensing Axis for the MMA7260Q Accelerometer With X, Y, and Z-Axis for Sensing Acceleration

Figure 3. Gravity Component of a Tilted X-Axis Accelerometer

Figure 4. Gravity Component of a Tilted Z-Axis Accelerometer

5. **Claim 22**

The Shimura-Hisano combination discloses the additional limitation of this claim and renders it obvious, and the Shimura-Hisano-Shigeo combination renders the claim obvious. *See* VII.B.1; VII.E.1; [4a]; [4b]; EX-1010, ¶328.

6. Claim 27

a. Limitation [27a]

The Shimura-Hisano combination discloses this limitation and renders it obvious. *See* VII.B.1; [1pre]; [19e] (discussing frame mode); EX-1010, ¶329.

b. Limitation [27b]

The Shimura-Hisano-Shigeo combination discloses this limitation and renders it obvious. *See* VII.E.1; [1pre], [11e], & [19e] (discussing frame mode); EX-1010, ¶330.

When the hinge-rotation sensor of the Shimura-Hisano-Shigeo Computer detects a rotation angle "greater than the threshold degree of rotation" (i.e., Shigeo's predetermined angle), the gravity sensor is also used to determine whether the portable computer is in the easel mode or the claimed "frame mode." *See* VII.B.1; EX-1010, ¶331. When the rotation angle is greater than the threshold degree of rotation, the gravity sensor's output will differ as between the easel and frame modes. *See* VII.B.1. Thus, the portable computer is determined to be configured in the frame mode based on the hinge-rotation and gravity sensors. *See* Table 1; EX-1010, ¶331.

Accordingly, the Shimura-Hisano-Shigeo combination renders obvious Claim 27. *See* EX-1010, ¶¶329-331.

7. **Claim 28**

Shimura discloses the additional limitation of this claim, and the Shimura-Hisano-Shigeo combination renders the claim obvious. *See* VII.A.1; VII.B.1; VII.E.1; Claim 32; EX-1010, ¶333.

F. **Ground 5: Shimura in view of Hisano, Shigeo, and Choi renders Claim 11 obvious.**

1. Combination of Shimura, Hisano, Shigeo, and Choi (hereinafter the "Shimura-Hisano-Shigeo-Choi combination")

For all the reasons set forth in VII.E.1 above, a POSITA would have been motivated to combine Shimura with Hisano and Shigeo. EX-1010, ¶¶301-309.

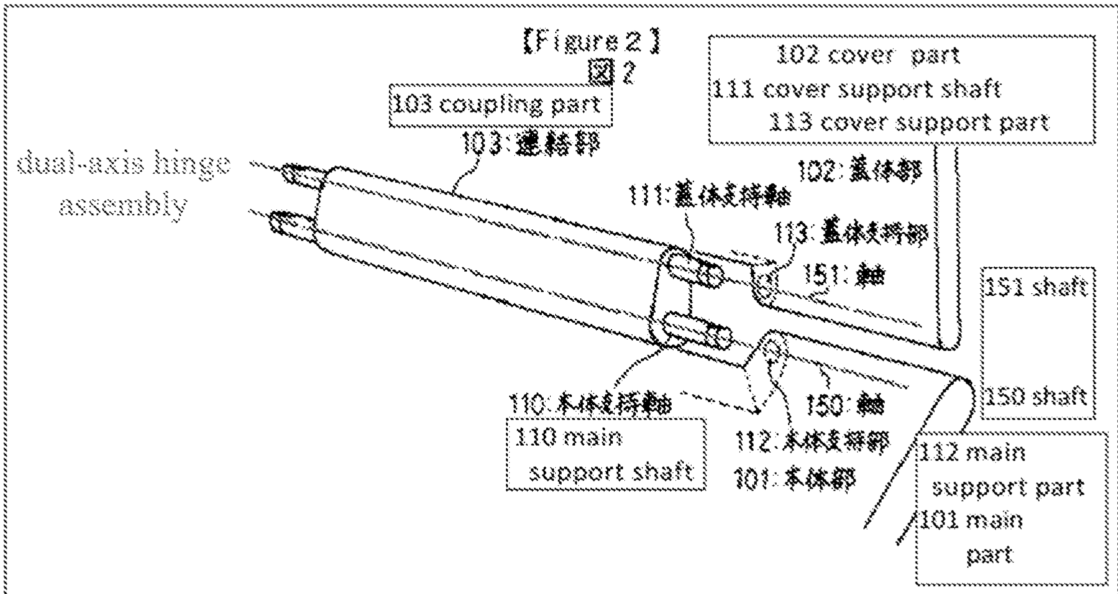
A POSITA would have been further motivated to combine Shimura, Hisano, and Shigeo with Choi for several reasons. EX-1010, ¶¶335-345.

First, the references are contemporaneous patents directed toward complementary solutions to highly analogous problems in the same fields of endeavor. Shimura, Hisano, Shigeo, and Choi are all directed toward portable computers usable in various display modes via a rotatable hinge. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶54, 87, 98, FIGs. 1, 8, 9; EX-1008, ¶8, FIGs. 1, 2; EX-1009, 3:35-50; EX-1010, ¶336.

Combining Shimura and Hisano to arrive at the Shimura-Hisano Computer that includes a dual-axis or single-axis hinge assembly would have been obvious.

EX-1010, ¶337; VII.B.1; Annotated Figure 2 of Shimura (below, red dashed lines);

Annotated FIG. 13 of Hisano (below, red dashed line).



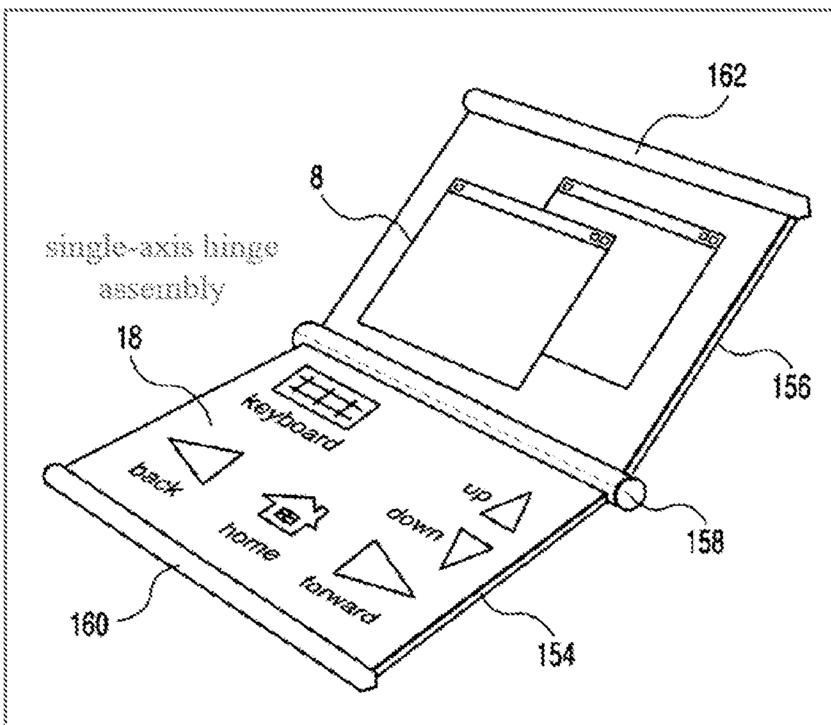


FIG. 13

Hisano also discloses a portable computer employing a different type of single-axis hinge assembly in Annotated FIG. 17 (below). EX-1010, ¶338.

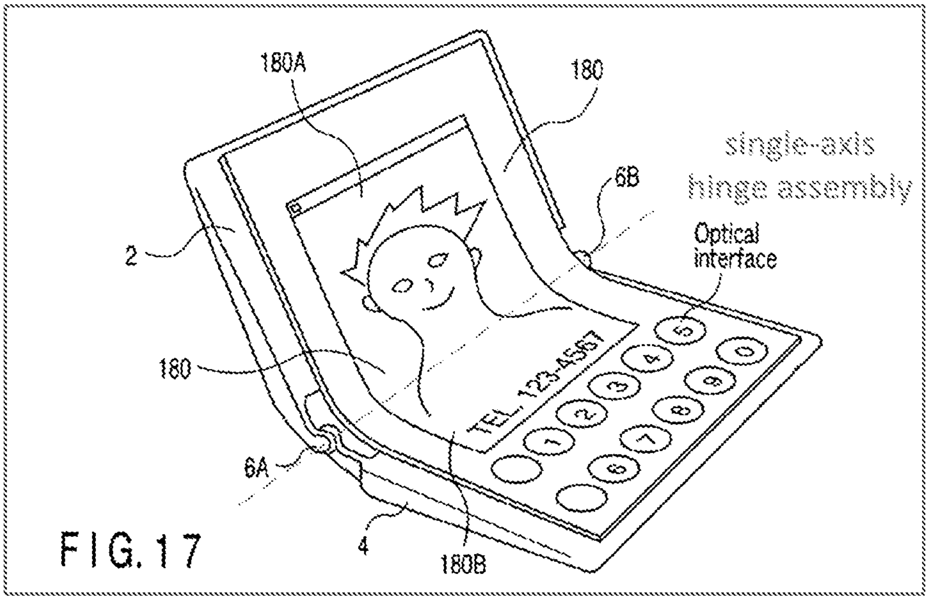
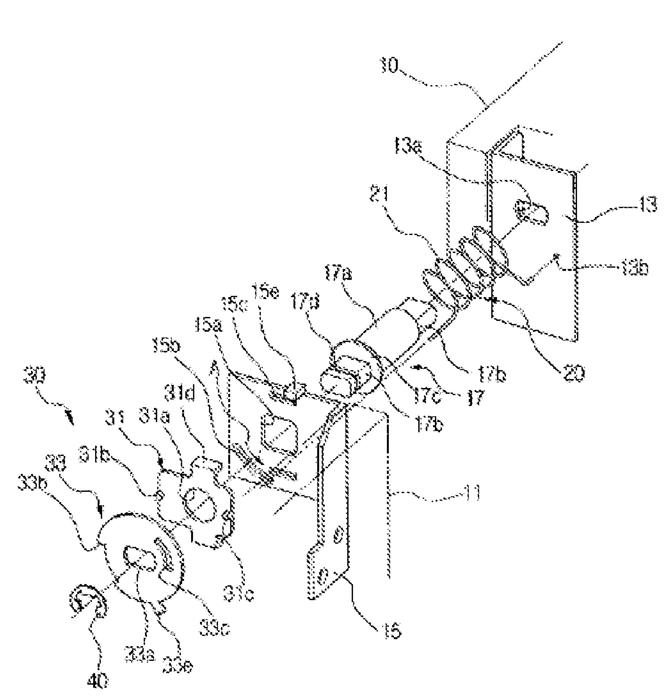


FIG. 17

Using such single-axis hinge assemblies of Hisano (e.g., hinge 158 or hinges 6A, 6B) in the Shimura Computer would have been obvious to a POSITA. EX-1010, ¶339. The display component and the base could thus be rotated about the single-axis hinge assembly to configure the portable computer into different display modes, including the laptop and easel modes illustrated in Shimura's Figures 1 and 5. *Id.*

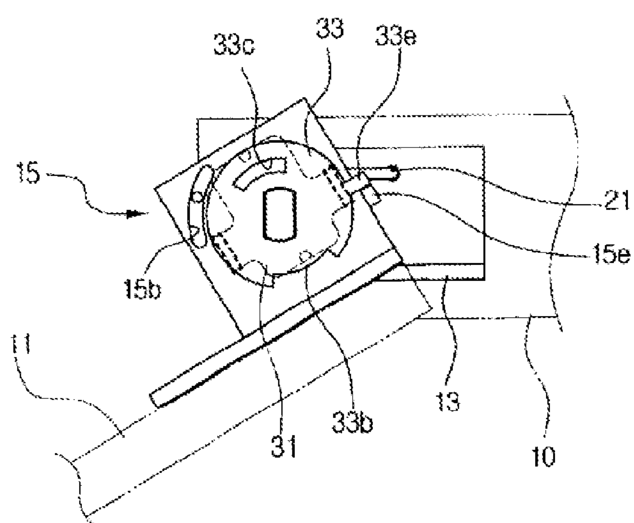
Shimura does not disclose the internal mechanism of the hinge assemblies (158, 6A, 6B). In the same field of endeavor, however, Choi discloses a hinge mechanism that could be used to construct such single-axis hinge assemblies. *See* VII.A.5; EX-1010, ¶340. The hinge apparatus is used to open and close a panel 11 with respect to a laptop body. EX-1009, Abstract, 3:44-47; FIG. 2 below.

FIG.2



Choi also discloses that the hinge mechanism allows the panel 11 to be opened, for example, from about 45° to 210°. EX-1009, 6:26-27, 38-39; FIG. 7 below.

FIG.7



The '688 Patent discusses "rotating the display component about the longitudinal axis 101 beyond approximately 180 degrees axis from the closed mode configures the portable computer into the easel mode." EX-1001, 10:50-53. Meanwhile, Choi's hinge mechanism can cover various display modes, including the laptop and easel modes recited in Claim 11. EX-1010, ¶342.

Thus, a POSITA implementing the Shimura-Hisano-Shigeo Computer would have looked to Choi for a detailed teaching of a hinge mechanism that could be used in the single-axis hinge assembly to allow the portable computer to be configured in various display modes, including the laptop and easel modes. EX-1010, ¶343.

There would have been motivation to combine, and a reasonable expectation of success in combining, Choi with Shimura, Hisano, and Shigeo because the prior art elements are merely combined according to known methods to yield predictable results. *See KSR*, 550 U.S. at 415-21; EX-1010, ¶344. I.e., Choi taught the well-known prior art hinge mechanism that could be used in single-axis hinge assemblies. EX-1010, ¶¶87-96, 344. Application of this teaching to the Shimura-Hisano-Shigeo Computer would have yielded a predictable portable computer that can be configured into various display modes, including the laptop and easel modes. *Id.*

For the foregoing reasons, the POSITA would have been motivated to combine Shimura's, Hisano's, and Shigeo's teachings with Choi's teachings to arrive at the Shimura-Hisano-Shigeo-Choi Computer. EX-1010, ¶¶335-345.

2. **Claim 11**

a. Limitation [11pre]

Shimura discloses [11pre]. *See* VII.A.1; [1pre]; EX-1010, ¶346.

b. Limitation [11a]

Shimura discloses [11a]. *See* VII.A.1; [1b]; EX-1010, ¶347.

c. Limitation [11b]

Shimura discloses [11b]. *See* VII.A.1; [1c1]; [1c3]; EX-1010, ¶348.

d. Limitation [11c]

The Shimura-Hisano-Choi combination discloses [11c] and renders it obvious. *See* VI.A; VII.F.1; EX-1010, ¶349.

Section VI.A discusses the function and corresponding structure for the "means for rotating" recited in [11c]. Member 158 is described as being coupled to the shaft 154. EX-1001, 10:35-38 ("As shown in FIG. 10, the shaft 154 is ***coupled to*** a member 158. This member 158 may be ***integral with or coupled to*** the bracket 140 which is, in turn, fastened to the display component, as discussed above."). The portions of the specification cited for the corresponding structure (i.e., 10:22-53, FIGs. 7A-10) describe a single-axis hinge assembly 138 having an axis defined by a shaft 154 located within a hinge housing 142. EX-1010, ¶350; Annotated FIG. 7B (red dotted line) & FIG. 9 below.

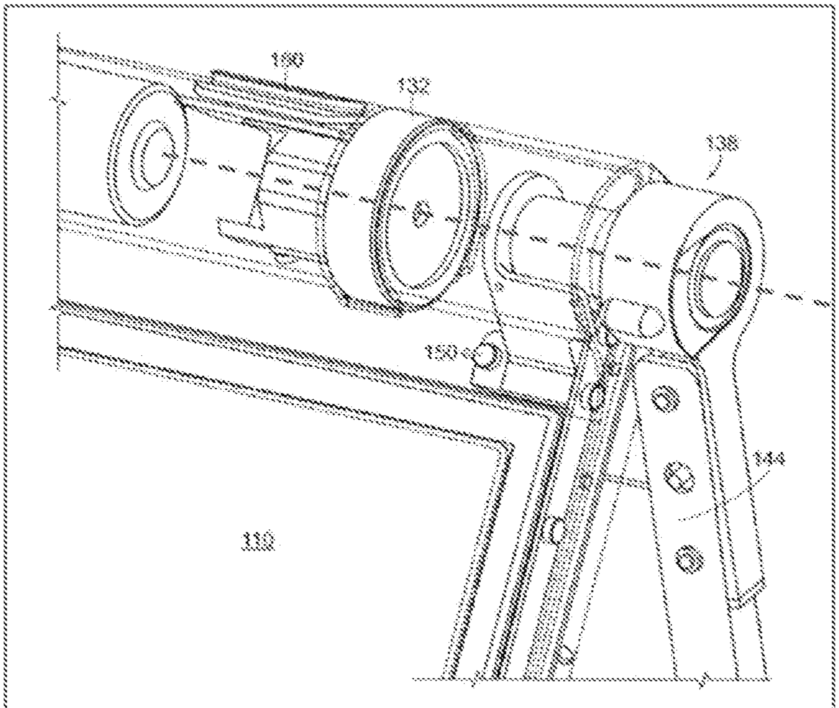


FIG. 7B

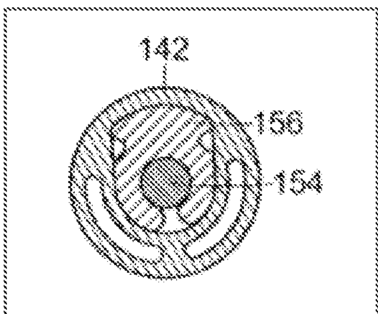


FIG. 9

FIG. 10 (below) shows the parts associated with the single-axis hinge assembly 138, including housing 142, shaft 154, spring 156, member 158, which may be integral with or coupled to bracket 140—all constituting the corresponding structure for the means-plus-function limitation [11c]. EX-1001, 10:34-41, EX-1010, ¶351.

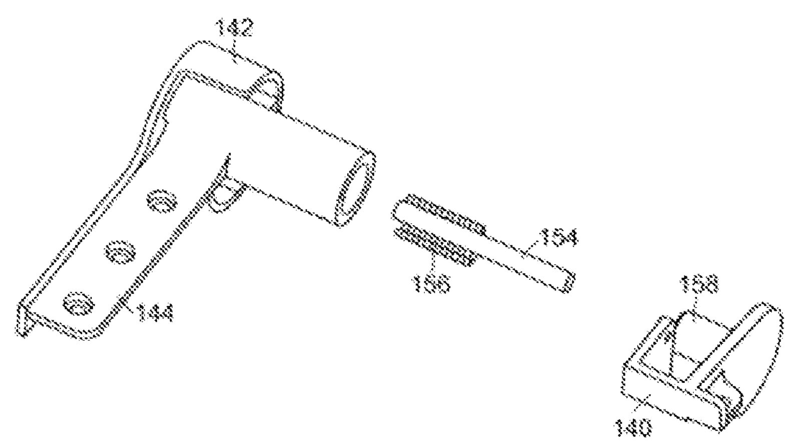


FIG. 10

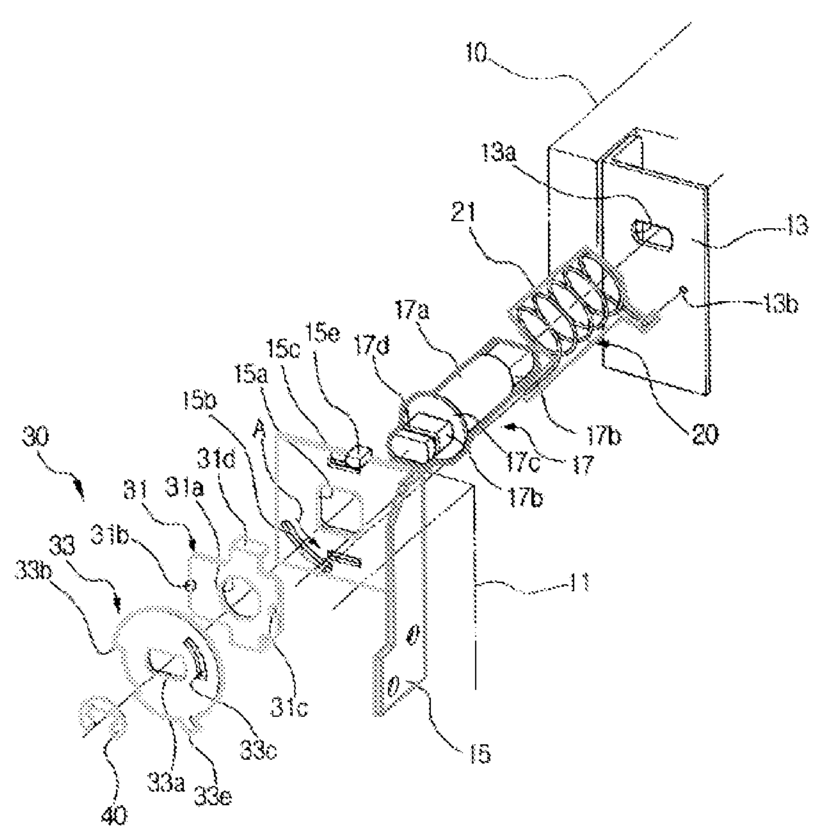
First, the Shimura-Hisano-Choi combination discloses the function for [11c]. *See* VI.A. As discussed above, the Shimura-Hisano-Choi Computer can be configured into multiple display modes (e.g., laptop and easel modes). *See* VII.B.1; VII.F.1; EX-1010, ¶351. The Shimura-Hisano Computer is able to do this by rotating the cover part 102 about the main part 101 via the single-axis hinge assembly disclosed in Hisano and Choi. *Id.*

Second, the Shimura-Hisano-Choi combination discloses the corresponding structure for [11c]. With reference to FIG. 2 (below), Choi discloses a single-axis hinge assembly ("hinge apparatus") that includes, among other elements, supporting bracket 15 fixed on panel 11, hinge shaft 17, and coil spring 21. EX-1009, 3:36-42, 52-56. The single-axis hinge assembly also includes structural elements coupled to hinge shaft 17, including:

- shaft passing hole 15a (orange) through which hinge shaft 17 is passed;
- plate spring 31 (orange) with shaft hole 31a (orange) through which hinge shaft 17 is passed;
- frictional plate 33 (orange) with coupling hole 33a (orange) connected to fixing portion 17b of hinge shaft 17; and
- fixing pin 40 (orange) connected to connection hole 17d of hinge shaft 17.

EX-1009, 4:7-14, 53-57, 60-61.

FIG.2



A POSITA would have known that these structural elements, either individually or in combination, constitute the member 158 because they are coupled to the shaft (17), as described in the '688 Patent. EX-1001, 10:35-38; EX-1010, ¶353.

Also, Choi discloses that the hinge mechanism allows the panel 11 to be opened, for example, from about 45° to 210°. *See* VII.F.1; EX-1009, 6:26-27, 38-39; EX-1010, ¶354. Thus, Choi's hinge mechanism can be used in Hisano's single-axis assemblies (e.g., 158 of FIG. 13 and 6A, 6B of FIG. 17, below) to cover various display modes, including the laptop and easel modes recited in Claim 11. EX-1010, ¶354.

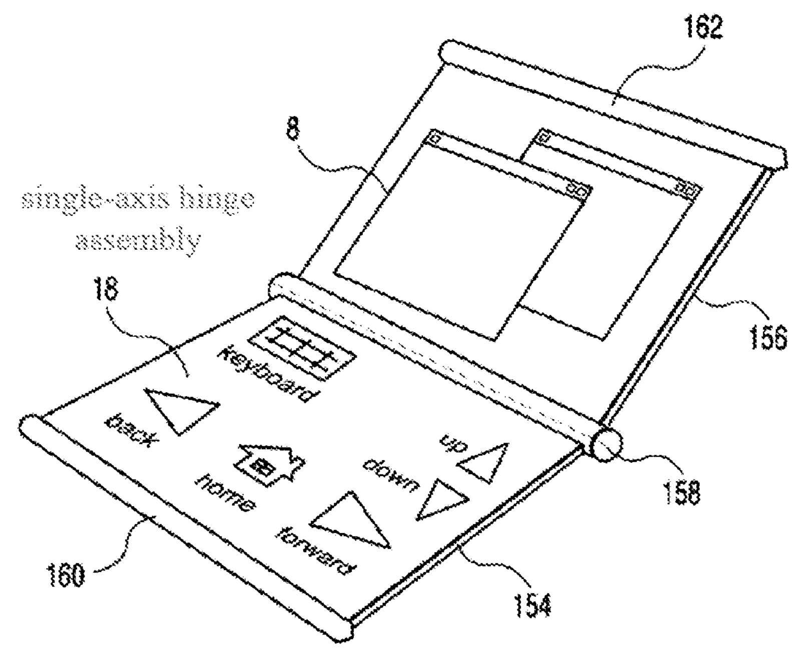


FIG. 13

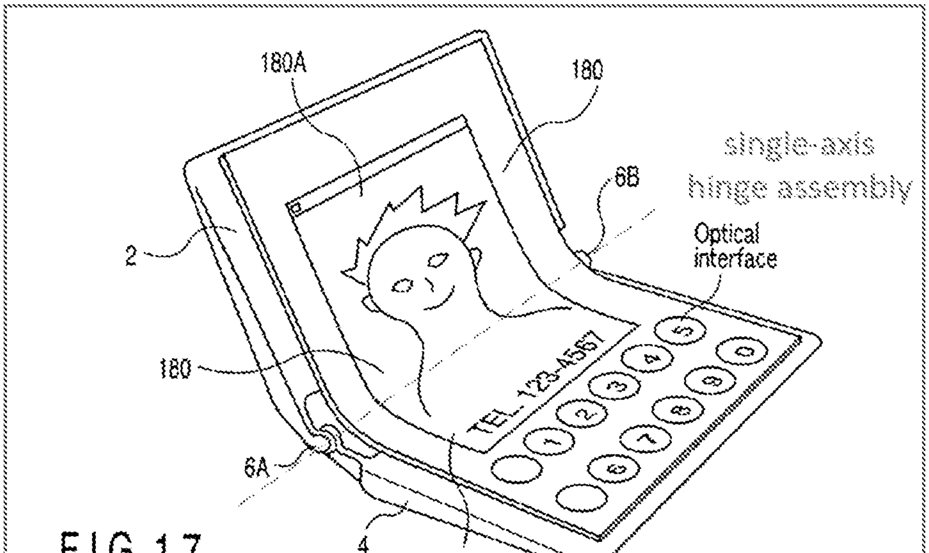
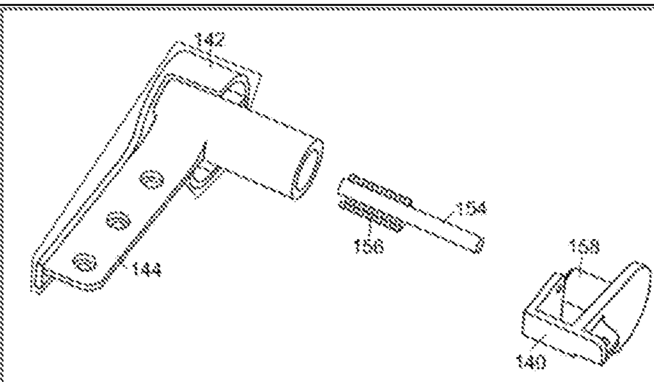
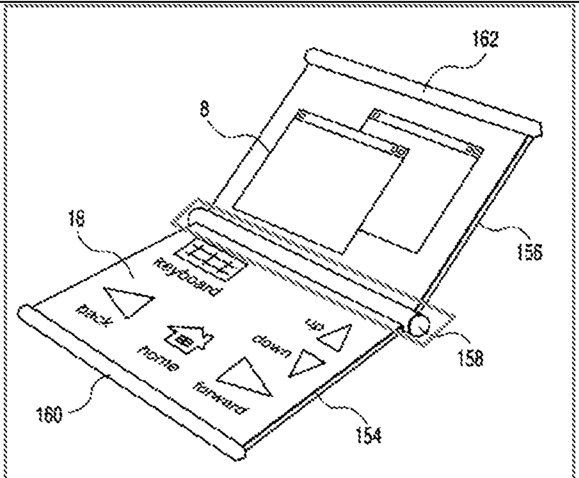


FIG. 17

The following table maps the corresponding structure for [11c] to the single-axis hinge assembly of the Hisano-Choi combination:

'688 Patent	Hisano-Choi
Housing (boxed in red)	
 FIG. 10	 FIG. 13

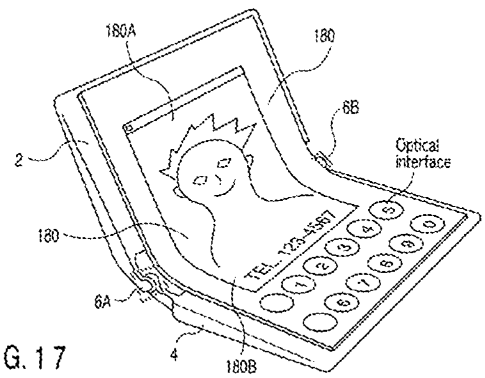
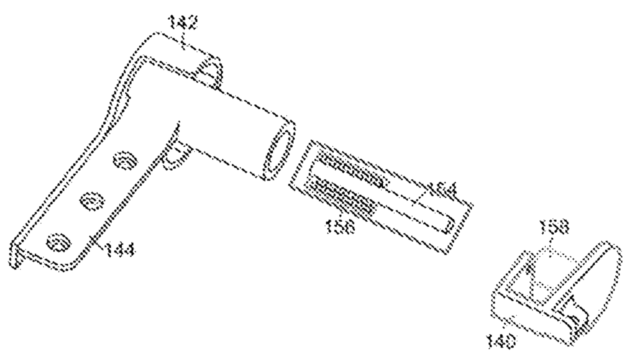
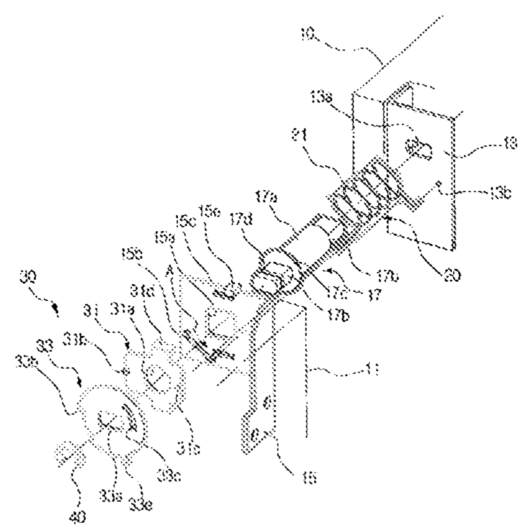
	 FIG. 17
Shaft (red), Spring (blue), Bracket (green), Member (orange)	
 FIG. 10	FIG.2 

Table 3

Therefore, the Hisano-Choi combination discloses and renders obvious [11c], including the function and corresponding structure for the means-plus-function limitation. *See* EX-1010, ¶¶350-355.

e. Limitation [11d]

The Shimura-Hisano combination discloses [11d] and renders it obvious. *See* VI.C (discussing Claim 11); VII.B.1; Claims 3, 5; EX-1010, ¶357. The

Shimura-Hisano combination discloses the function and corresponding structure of the means-plus-function limitation of [11d]. *See* Claim 3, EX-1010, ¶357.

f. Limitation [11e]

The Shimura-Hisano-Shigeo combination discloses [11e] and renders it obvious. *See* VI.B; VII.E.1; EX-1010, ¶¶358-362.

Section VI.B discusses the function and corresponding structure for the "means for detecting" recited in [11e]. The '688 Patent describes that "the portable computer 100 includes an orientation (or mode) sensor that is configured to detect whether portable computer is in the laptop mode or the easel mode, and to adjust the display accordingly." EX-1001, 8:17-20. The orientation or mode sensor can be a hinge-rotation sensor or an accelerometer. *Id.*, 8:38-44, 9:36-41; EX-1010, ¶359.

First, the Shimura-Hisano-Shigeo combination discloses the first and second functions of [11e]. *See* VI.B. As discussed above, the Shimura-Hisano-Shigeo Computer uses hinge-rotation and/or gravity sensors to detect a current display mode (e.g., a laptop or easel mode) based on a predetermined angle. *See* VII.B.1; VII.F.1; EX-1010, ¶360.

Second, the Shimura-Hisano-Shigeo combination discloses the corresponding structure for [11e]. In the Shimura-Hisano-Shigeo Computer, the hinge-rotation sensor measures an angle and if it is less than a predetermined value (e.g., 180°), this indicates a laptop mode and a normal view is displayed; if the measured angle is more, this indicates an easel mode and an inverted view is displayed. *See* VII.E.1; EX-1010, ¶361.

Therefore, the Shimura-Hisano-Shigeo combination discloses and renders obvious [11e], including the corresponding structure for the means-plus-function limitation. EX-1010, ¶¶359-361.

Accordingly, the Shimura-Hisano-Shigeo combination renders obvious Claim 11. EX-1010, ¶¶346-362.

VIII. CONCLUSION

Based on the foregoing, Petitioner respectfully requests that a Trial be instituted and that the Challenged Claims be canceled as unpatentable.

Respectfully submitted,

Dated: March 18, 2021

<u>/s/ Martin R. Bader</u>
Martin R. Bader (Reg. 54,736)
SHEPPARD MULLIN RICHTER & HAMPTON LLP
12275 El Camino Real, Suite 100
San Diego, CA 92130
Tel.: (858) 720-8900
Fax: (858) 509-3691

Counsel for Petitioner

CERTIFICATION UNDER 37 C.F.R. § 42.24(D)

I certify that the foregoing complies with the type-volume limitation of 37 C.F.R. § 42.24 and contains 13,936 words based on the word count indicated by the word-processing system used to prepare the paper, and excluding those portions exempted by § 42.24(a).

Date: March 18, 2021

/s/ Martin R. Bader
Martin R. Bader
Registration No.: 54,736

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e) and 42.105(a), the undersigned hereby certifies that the foregoing **PETITION FOR INTER PARTES REVIEW UNDER 35 U.S.C. §311 ET SEQ. AND 37 C.F.R. §42.100 ET SEQ. (CLAIMS 1-9 AND 11-32 OF U.S. PATENT NO. 8,289,688)**, including all exhibits and supporting evidence, was served in its entirety on March 18, 2021, by electronic mail pursuant to written agreement, upon counsel for the Patent Owner, the WOLF GREENFIELD & SACKS, P.C. firm, to the following individuals and email addresses:

Michael Albert, Michael.Albert@WolfGreenfield.com
Gerald Hrycyszyn, Gerald.Hrycyszyn@WolfGreenfield.com
Marie A. McKiernan, Marie.McKiernan@wolfgreenfield.com
Eric Rutt, Eric.Rutt@WolfGreenfield.com
WGS-Litlv.Lenovo@WolfGreenfield.com
WOLF GREENFIELD & SACKS, P.C.
600 ATLANTIC AVENUE
BOSTON MA 02210-2206

Respectfully submitted,

Dated: March 18, 2021

/s/ *Martin R. Bader*
Martin R. Bader (Reg. No. 54,736)
SHEPPARD MULLIN RICHTER & HAMPTON LLP
12275 El Camino Real, Suite 100
San Diego, CA 92130
Tel.: (858) 720-8900
Fax: (858) 509-3691

Counsel for Petitioner

Paper No. __

Filed on behalf of Patent Owner by:
Gerald B. Hrycyszyn, Reg. No. 50,474
Richard F. Giunta, Reg. No. 36,149
Jason Balich, Reg No. 67,110
WOLF, GREENFIELD & SACKS, P.C.
600 Atlantic Avenue
Boston, MA 02210
(617) 646-8000 Phone
(617) 646-8646 Fax

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO (UNITED STATES) INC.,
Petitioner,

v.

LITL LLC,
Patent Owner

Case No. IPR2021-00681
Patent No. 8,289,688

PATENT OWNER'S PRELIMINARY RESPONSE

TABLE OF CONTENTS

TABLE OF AUTHORITIES

CASES

STATUTES

REGULATIONS

LISTING OF EXHIBITS

Exhibit	Description
2001	[No Author Listed], The Litl webbook. European Consumers Choice. URL=https://www.europeanconsumerschoice.org/hi-tech/litl-webbook-computer-test-and-reviews/ [last accessed June 25, 2021]
2002	[No Author Listed], Litl Webbook Beats ChromeOS, Becomes First Cloud Computer. CoolThings. November 16, 2009. URL:https://www.coolthings.com/litl-webbook-beats-chromeos-becomes-first-cloud-computer/ [last accessed June 25, 2021]
2003	Noe, The Litl Webbook: A more social computing device. November 5, 2009. Corr77. URL:https://www.core77.com/posts/15122/The-Litl-Webbook-A-more-social-computing-device [last accessed June 25, 2021]
2004	Saxena, CES 2010: All New Litl Webbook Makes Its Debut Appearance. Elite Choice. URL:https://elitechoice.org/luxury/ces-2010-all-new-litl-webbook-makes-its-debut-appearance [last accessed June 25, 2021]
2005	McDonald, LiTL Webbook Review. Little Tech Girl. August 31, 2010. URL:https://littletechgirl.com/2010/08/31/litl-webbook-review/ [last accessed June 25, 2021]
2006	Strauss, Litl Webbook Re-Defines Computing. ABC News. December 14, 2009. URL:https://abcnews.go.com/Technology/GadgetGuide/litl-webbook-defines-computing/story?id=9311095 [last accessed June 25, 2021]
2007	Scinto, Introducing The Litl WebBook. The Gadgeteer. November 19, 2009. URL:https://the-gadgeteer.com/2009/11/19/introducing-the-litl-webbook/ [last accessed June 25, 2021]
2008	[No Author Listed], All-New Litl Webbook Debuts at 2010 CES. Cision. January 5, 2010. URL:https://www.prnewswire.com/news-releases/all-new-litl-webbook-debuts-at-2010-ces-80716797.html [last accessed June 25, 2021]
2009	Disclaimer in Patent Under 37 CFR 1.321(a)
2010	U.S. Patent 6,771,494
2011	U.S. Patent 6,266,236

I. INTRODUCTION

Lenovo's Petition is fatally flawed procedurally and substantively. Institution should be denied.

A. The Petition Is Procedurally Improper

The Petition's five Grounds purported to demonstrate how all limitations in each of thirty-one challenged claims are met by the prior art. For more than 75% of the limitations addressed, the Petition's ***entire explanation*** was a conclusory statement—e.g., "Shimura discloses [1g]" (Pet., 56)—supported by cross-reference(s) to elsewhere in the Petition. Many of the Petition's cross-referenced sections do nothing more than make a different conclusory statement supported by cross-reference(s) to yet other sections. The Petition's nested cross-references often require review of voluminous (e.g., 70+) pages of cross-referenced material to even attempt to determine how or why Lenovo alleges a single claim limitation is met by a single ground.

Institution should be denied because the Petition's "web of internal cross-references" "improperly shifts the burden of deciphering Petitioner's arguments onto Patent Owner and the Board" and results in the Petition failing to meet the requirements imposed by the statute and the rules to establish with particularity how the prior art allegedly meets the challenged claims. *Apple v. Contentguard Holdings,* IPR2015-00442, Paper 9, 7-10 (PTAB July 13, 2015) ("*Contentguard*"), citing *CiscoSys. v. C-Cation Techs.*, IPR2014-00454, Paper 12, 10 (PTAB Aug. 29, 2014) (informative) ("*Cisco*"); 35 U.S.C. § 312(a)(3); 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(4)-(5).

Compounding the problem, the laborious process of tracing through the Petition's cross-references often fails to lead to ***any*** discussion where the Petition mapped the claim language to the prior art. Indeed, for some claim elements, the Petition referred back only to sections that never even discussed the claim language, let alone explain how or why the claim element is allegedly met by the prior art.

The Petition failed to meet the most fundamental requirements imposed by the statute and the rules to state the grounds "with particularity" and to demonstrate how every element of each challenged claim is met by the prior art.[1]

[1] The Petition also failed to comply with the word count limit because Lenovo used multiple tactics the Board has found improper attempts to circumvent the word count limit as discussed in § V below.

B. The Petition's Grounds Fail on the Merits

The inventions described and claimed in U.S. Patent No. 8,289,688 ("the '688 Patent") was groundbreaking in 2008. They earned substantial contemporaneous praise and have become industry standards that are ubiquitous today. They were anything but ubiquitous in the timeframe relevant to this proceeding.

Lenovo could not find a single prior art reference disclosing the combination of features in any challenged claim. All Grounds were based on alleged obviousness. Yet, Lenovo ignored substantial objective evidence of non-obviousness. None of Lenovo's hindsight-driven combinations establish obviousness of a single challenged claim. All five Grounds fail on the merits for the reasons detailed below.

II. LITL'S '688 PATENT

Before the LiTL Webbook, "home computers were essentially the same as office computers," and home users "struggle[d] with complex interfaces designed in pre-web times." Ex. 2001, 1. LiTL worked for years to develop its Webbook. LiTL recruited leading user experience design ("UXD") experts and worked closely with some of the world's leading technology and UXD consultancies. *Id.*, 1-2.

This design effort led to the filing of provisional application no. 61/041,365 on April 1, 2008, to which the '688 Patent claims priority. Ex. 1001, 1. The named inventors all worked for Fuseproject, one of the world's leading design firms. Ex. 2001, 2.

The '688 Patent discloses and claims a portable computer configurable between a plurality of display modes (e.g., "a laptop mode, an easel mode, a frame mode, and a flat mode"). Pet., 4. In some embodiments, a sensor detects what mode the computer is in and adjusts the display accordingly. *Id.*, 7. In other embodiments, integrated navigation hardware allows a user to manipulate displayed content regardless of the mode. *Id.*, 8.

A. Disputed Claims

The Petition challenged claims 1-9 and 11-32 of the '688 Patent, including independent claims 1, 11, 12, 17, 19, and 29. Claim 29 has been disclaimed (*see* Ex. 2009) and is not at issue in this proceeding. 37 C.F.R. § 42.107(e) ("No *inter partes* review will be instituted based on disclaimed claims.").

Claims 1-9, 11-28 and 30-32 are at issue in this proceeding and are referred to herein as the "Disputed Claims."

B. The Disputed Claims Cover LiTL's Webbook

LiTL launched its Webbook in November 2009. Ex. 2002, 1 ("Litl Webbook Beats ChromeOS, Becomes First Cloud Computer"). The LiTL Webbook is nearly indistinguishable from the figures in the '688 Patent:

<u>LiTL Webbook</u>

Ex. 2001, 1.

<u>'688 Patent Figures 1 & 4</u>

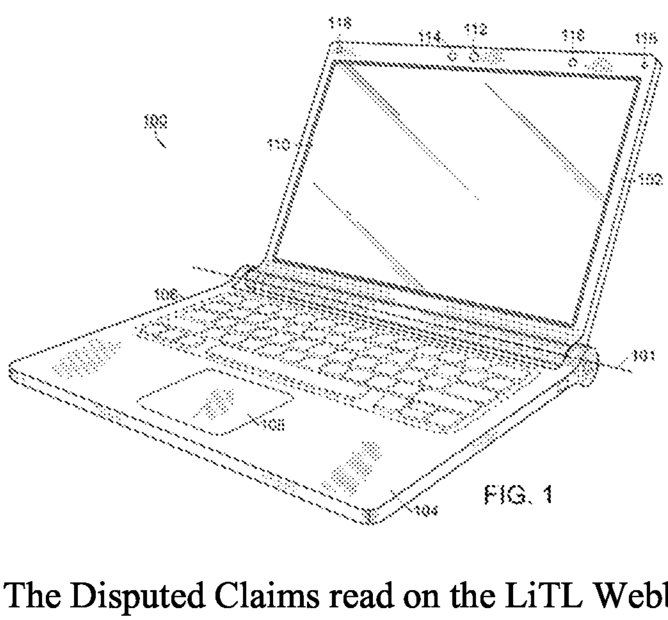


FIG. 1

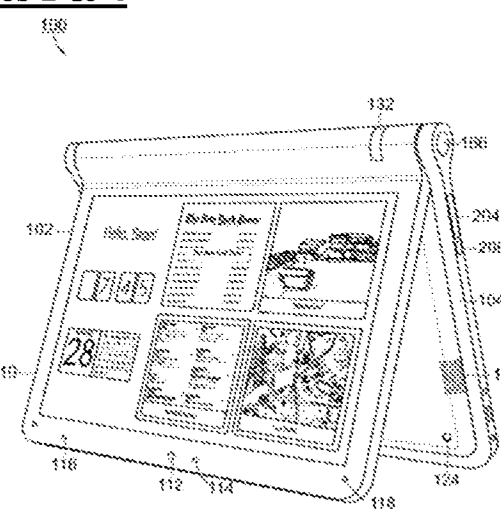


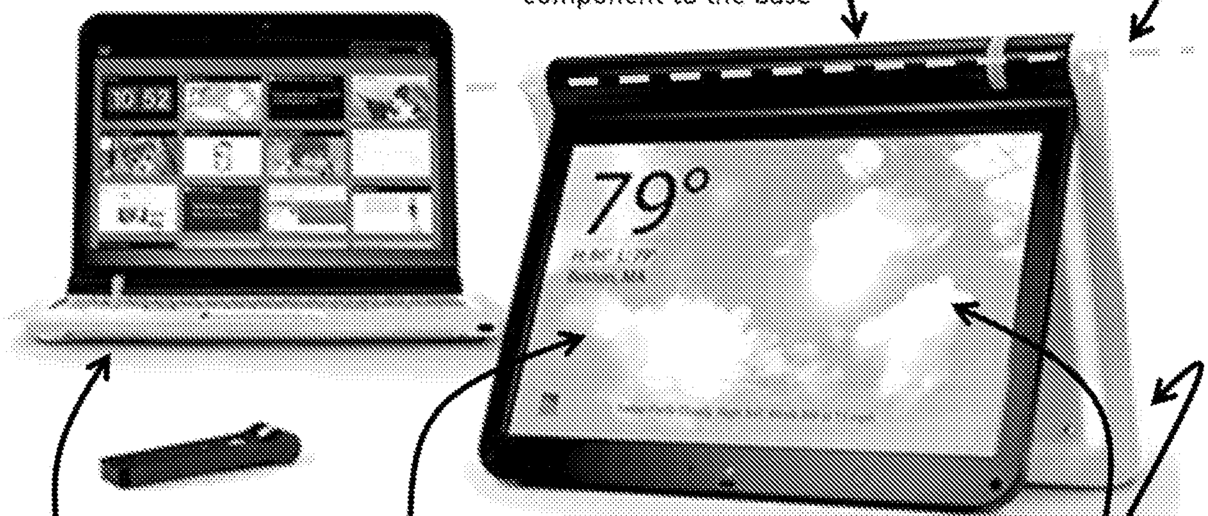
FIG. 4

The Disputed Claims read on the LiTL Webbook. This is demonstrated below using claim 1 as an example and adopting the Petition's claim limitation labels:

[1pre]: A portable computer configurable between a plurality of display modes

[1c1]: a hinge assembly at least partially housed within the base and the display component configured to pivotably couple the display component to the base

[1c2]: a single longitudinal axis running along an interface between the display component and the base

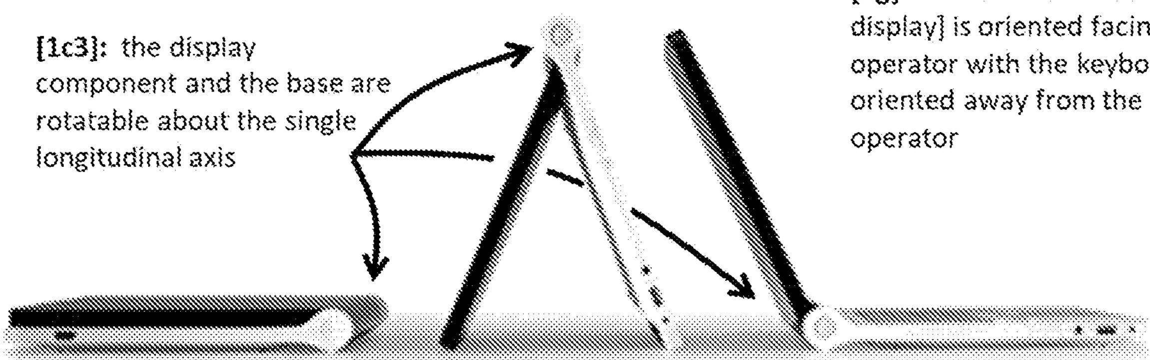


[1a]: a single display component including a display screen

[1b]: a base including a keyboard

[1g]: in the easel mode [the display] is oriented facing the operator with the keyboard oriented away from the operator

[1c3]: the display component and the base are rotatable about the single longitudinal axis



[1pre]: a closed mode

[1d]: the display screen is disposed substantially against the base

[1pre]: an easel mode

[1f]: rotating … [the display] … beyond approximately 180 degrees … configures the … computer into the easel mode

[1pre]: a laptop mode

[1e]: … the single display component is oriented towards the operator and the keyboard is oriented to receive input from the operator

Ex. 2003, 2; *see also* Ex. 1012 (claim listing).[2]

C. Claimed Aspects of LiTL's Webbook Received Contemporaneous Praise

Industry publications lavished praise on aspects of the LiTL Webbook claimed by the '688 Patent, including integrated navigation controls and the ability to convert between notebook and easel modes. For example, an article covering the 2010 Consumer Electronics Show stated, "[t]he all new webbook boasts of a ***highly innovative convertible design*** that allows for the display to be flipped over and viewed as a standalone screen." Ex. 2004, 1.[3] A November 2009 article stated, "[p]hysically, ***it looks exciting***, toting a 12.1-inch display that can open past 180 degrees, allowing you to ***prop it on a table like an overpowered LCD frame***." Ex. 2002, 2. An August 2010 product review touted the LiTL Webbook's "***[p]atented hinge to convert to easel mode***," its "[b]uilt-in scroll wheel for easy navigation," and its "[f]ull-sized keyboard." Ex. 2005, 4. A December 2009 ABC News report titled "Litl Webbook Re-Defines Computing" highlighted "two interesting display options that set it apart from traditional laptops" including one in which the "screen flips around into ***easel mode*** allowing the full 12-inch screen

---

[2] Words in images on pages 6 and 10 have been counted in certifying compliance with this paper's word count limit.

[3] Emphasis is added unless noted otherwise.

to display … anything … while hiding the keyboard." Ex. 2006, 3. Other 2009-2010 articles also recognized the innovative claimed features of the LiTL Webbook. Ex. 2001, 1; Ex. 2003, 1, 3; Ex. 2007, 2; Ex. 2008, 1.

III. THE PETITION FAILED TO IDENTIFY WITH PARTICULARITY HOW THE PRIOR ART IS ALLEGED TO MEET THE DISPUTED CLAIMS

The Petition failed to meet the requirements for institution because it failed to point out "with particularity" how the prior art discloses the limitations of the Disputed Claims. 35 U.S.C. § 312(a)(3); *see also* 37 C.F.R. §§ 42.22(a)(2) (the petition "must include … a detailed explanation of the significance of the evidence") and 42.104(b)(5) (the petition "must" identify "specific portions of the evidence that support the challenge").

A. The Petition's Conclusory Analysis Improperly Relied On a Web of Nested Cross-References

Ground 1 began with a section alleging reasons to combine Shimura and Hisano to form the "Shimura-Hisano combination." Pet., 37-49 (§ VII.B.1). Next, the Petition purported to map the Shimura-Hisano combination to claim 1 limitation-by-limitation. *Id.*, 49-56 (§ VII.B.2). When it reached **limitation [1c2]** (*id.*, 54), instead of identifying with particularity how and why the Shimura-Hisano combination allegedly meets it, the Petition's only explanation was a single conclusory sentence stating:

> [t]he Shimura-Hisano combination discloses [1c2] and renders it obvious. *See* VII.B.1 (discussing single-axis hinge assembly); EX-1010, ¶178.

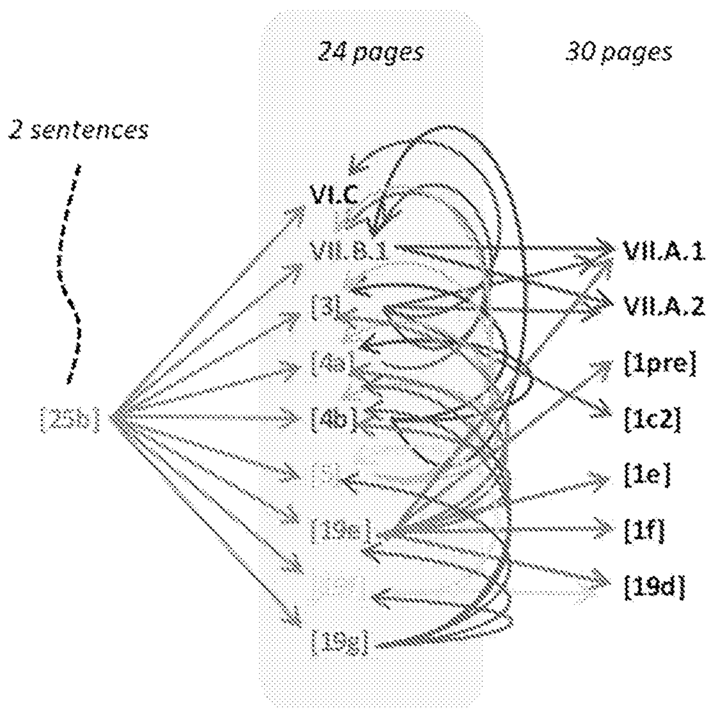
If Section VII.B.1 had mapped the language of [1c2] to the Shimura-Hisano combination, a cross-reference to that section would have been appropriate. But Section VII.B.1 ***never even mentions*** the limitations of claim 1.

Section VII.B.1 includes internal cross-references to two other sections (VII.A.1 and VII.A.2) spanning ten pages. Pet., 17-26. Those sections do not help Lenovo because they also fail to map the language of [1c2] to the Shimura-Hisano combination.

Nowhere in the thirteen pages of Section VII.B.1, or in the ten pages of the other sections it cross-references, is the language of [1c2] ever mapped to the Shimura-Hisano combination. Thus, the Petition's single conclusory sentence for limitation [1c2] spawns a search through twenty-three pages of the Petition to understand how or why Lenovo alleged the Shimura-Hisano combination meets limitation [1c2], and that search yields no such explanation.

Limitation [25b] is an even worse example. The Petition made the conclusory assertions that "[t]he Shimura-Hisano combination discloses [25b] and renders it obvious" because it "discloses the function and corresponding structure of [25b]." Pet., 91. ***No analysis*** supports those conclusory assertions. Instead, the

Petition relied entirely on a string-cite of no fewer than ***nine*** cross-references. *Id.* (citing "VI.C; VII.B.1; Claim 3; [4a]; [4b]; Claim 5; [19e]-[19g]"). The nine cross-referenced sections—totaling twenty-four pages—in turn cross-reference fifteen sections (including eight circular references) as illustrated below.



Following the web of nested cross-references requires reviewing ***thirty pages of the Petition***—all to support the Petition's conclusory assertion that limitation [25b] is met. Worse yet, nowhere in those thirty pages did the Petition map the language in limitation [25b] to the Shimura-Hisano combination.

Lenovo's expert Declaration largely parroted the Petition and thus also repeatedly made a conclusory statement that the prior art meets a particular claim limitation and "supported" that conclusion only by cross-reference(s) to elsewhere in the Declaration. For example, the Declaration's allegation in ¶¶ 297-298 that the Shimura-Hisano combination meets limitation [25b] is *verbatim* the same as in the Petition, except the cross-references are within the Declaration rather than within the Petition:

> The Shimura-Hisano combination discloses [25b] and renders it obvious. ~~*See* VI.C; VII.B.1~~*See* ¶¶123, 124, 150-169; Claim 3; [4a]; [4b]; Claim 5; [19e~~]-[19g]; EX-1010, ¶297.~~].
>
> The Shimura-Hisano combination discloses the function and corresponding structure of [25b]. ~~*See* VI.C;~~*See* [19d]-[19g~~]; EX-1010, ¶298.~~].

The Declaration cited no evidence to support the assertion that [25b] is met, and instead cross-referenced other paragraphs and "analysis" collectively spanning twenty-six pages. But it did not stop there. The directly cross-referenced Declaration paragraphs in turn cross-referenced twenty-three other Declaration sections (including circular cross-references). All told, to support the two conclusory statements in ¶¶ 297-298, the Declaration cross-referenced or cited fifty-nine pages of the Declaration and never mapped the words in limitation [25b] to the prior art.

The Petition (and its supporting Declaration) employed this same approach—where the only analysis "supporting" a conclusory statement alleging a claim limitation is met was a cross-reference to other sections—for more than 75% (65 of 86) of the claim limitations the Petition addressed as illustrated below.

Ground	Petition *Only* Provided Cross-References
1	**22 of 35 claim elements**
	[1c2], [1c3], [1e], [1g], [2], [4b], [5], [6], [7], [19pre], [19a], [19b], [19c], [19d], [29pre], [29b], [29c], [29d], [29e], [29f], [30], and [31]
2	**10 of 12 claim elements**
	[12pre], [12a], [12b], [12c1], [12c2], [12d], [12e], [13a], [13b], and [24]
3	**12 of 14 claim elements**
	[9a], [9b], [14a], [14b], [15a], [15b], [16a], [16b], [20], [23], [25a], and [25b]
4	**17 of 19 claim elements**
	[17pre], [17a], [17b], [17c], [17d], [17e], [17f], [17g], [17h], [17i], [17j], [18a], [18b], [18c], [22], [27a], and [28]
5	**4 of 6 claim elements**
	[11pre], [11a], [11b], and [11d]

B. The Web of Nested Cross-References Improperly Shifts the Burden of Deciphering Petitioner's Arguments onto Patent Owner and the Board

The Petition "may be considered ***only*** if" it "identifies, in writing and ***with particularity***, each claim challenged, the grounds … and ***the evidence that supports the grounds*** for the challenge to each claim[.]" 35 U.S.C. § 312(a)(3). "The petition ***must*** specify where each element of the claim is found in the prior art patents or printed publications relied upon." 37 C.F.R. § 42.104(b)(4). The Petition "***must*** include … ***a <u>detailed</u> explanation of the significance of the evidence***." 37 C.F.R. § 42.22(a)(2).

Institution should be denied because the Petition failed to comply with these fundamental requirements.

The Board consistently denies institution where the petition and/or its supporting declaration forces the patent owner and the Board to hunt through the record to attempt to decipher a petitioner's arguments and the evidence alleged to support them. *See Apple v. Ziilabs*, IPR2015-00963, Paper 8, 20-21 (PTAB Oct. 1, 2015) ("*Ziilabs*") (denying institution where an expert declaration had "numerous nested string citations to other portions of his Declaration" that "effectively obscure the evidence"); *Glaxosmithkline Consumer Healthcare Holdings v. Cipla*, IPR2020-00369, Paper 7, 13 (PTAB July 31, 2020) (denying institution where petition cites "about 60 paragraphs of [the expert's] declaration to support its contentions," forcing the Board to "play archeologist with the record.").

The Petition's approach of making a conclusory statement followed by a web of nested cross-references has been ***specifically*** rejected by the Board because it improperly forces the patent owner and the Board "to play archeologist with the record." *Contentguard,* IPR2015-00442, Paper 9, 9-10, citing *Cisco*, IPR2014-00454, Paper 12, 10. The petition in *Contentguard* had the same structure as Lenovo's Petition—it began with a general description of the prior art (like §§ VII.A.1-6 of the Petition), described generally a resulting combination (like § VII.B.1 of the Petition), and then purportedly mapped the combination to the challenged claims. IPR2015-00442, Paper 9 at 6. The mapping "relie[d] on all the previous summaries and descriptions … [with the] result of all these layers of analysis [being] that the final unpatentability analysis is two or three levels removed from the actual disclosure of the references." *Id.* at 6-7. The Board denied institution because the "web of internal cross-references" "improperly shifts the burden of deciphering Petitioner's arguments onto Patent Owner and the Board." *Id.* at 7, 9.

Again, the Petition relied on a conclusory assertion that the prior art meets a claim limitation "supported" by a web of nested cross-references for over three-quarters (65 of 86) of the limitations that the Petition addressed. Even if the Board believes it is possible for every one of these 65 limitations, through significant effort, to decipher Petitioner's arguments and the specific evidence alleged to support them (it is not), institution should be denied because Congress and the Board have made it clear that Lenovo cannot subject the Board and the Patent Owner to that burden. *Contentguard,* IPR2015-00442, Paper 9, 9-10*;* 35 U.S.C. § 312(a)(3); 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(4).

IV. LENOVO'S EXPERT TESTIMONY CANNOT SAVE THE PETITION

A. The Testimony Merely Parroted the Petition

As detailed below, in numerous circumstances where the Petition is deficient, Lenovo's expert Declaration (Ex. 1010) did nothing more than parrot the Petition and thus has the same shortcomings.

In addition, given that Mr. Ward's "analysis" did little more than parrot the Petition, his testimony should be given no weight. *See e.g. Tesla v. Nikola*, IPR2019-01646, Paper 7, 19 (PTAB Mar. 27, 2020) (denying institution, holding "Mr. Baker's testimony simply repeats the conclusions articulated in the Petition" which "is entitled to little or no weight."); *One World Techs. v. Chervon*, IPR2020-00885, Paper 21, 29 (PTAB Nov. 6, 2020) (similar); *Fitbit v. Koninklijke Philips*, IPR2020-00774, Paper 13, 25 (PTAB Oct. 16, 2020) (similar); *Micro-Tech (Nanjing) v. Bos. Sci. Scimed.*, IPR2020-00185, Paper 11, 19-20 (PTAB May 4, 2020) (similar); *Initiative for Med., Access & Knowledge (I-Mak) v. Gilead Pharmasset*, IPR2018-00122, Paper 10, 21 (PTAB May 21, 2018) (similar).

B. The Declaration and Exhibits Cited Therein Cannot Be Incorporated by Reference into the Petition

The Petition block-cited a large number of paragraphs from the Declaration throughout. For example, the Petition often (*see* Pet., 9, 40, 44, 48, 79, 104) block-cited large portions of the Declaration's "State of the Art" section (¶¶ 57-105) which is 4,341 words long, is not found in the Petition, and cited ten exhibits nowhere cited in the Petition (Exs. 1015-1017, 1019-1024, and 1032). That is improper because the ***Petition*** must identify the evidence needed to support the requested relief and must provide a detailed explanation of how the cited evidence supports that relief. 35 U.S.C. §§ 312(a)(3), 314(a); 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(5); *Cisco,* IPR2014-00454, Paper 12, 10 ("It is improper to incorporate by reference arguments from one document into another document. 37 C.F.R. § 42.6(a)(3).... [W]e will not consider arguments that are not made in the Petition, but are instead incorporated by reference to the cited paragraphs… of [the] Declaration.").

V. LENOVO CIRCUMVENTED THE WORD COUNT LIMIT

Lenovo certified that the Petition is just under the word count limit, but improperly circumvented that limit.

A. 700+ Words in Images

The Petition used images to reproduce claims, prosecution history and text from an exhibit to improperly avoid counting more than 700 words that are in the Petition and, if properly counted, would have put the Petition well over the word count limit. Pet., 9 and 13 (images of reproduced claims include 375 words); *id.*, 10 (image reproduces 231 words from the prosecution history); *id.*, 48 (image reproduces 124 words from an exhibit).

It was improper to use images to reproduce text in the Petition without counting those words because such "words in images are included in the word count limit." *Arctic Cat v. Polaris Indus.*, IPR2017-00433, Paper 11, 2 (PTAB May 31, 2017); *see also St. Jude Med. v. Snyders Heart Valve*, IPR2018-00105, Paper 7, 2-3 (PTAB Jan. 12, 2018) ("*St. Jude*") (similar).

Counting the words in the images puts the Petition over the word count limit Lenovo needed to comply with to have a trial instituted on its Petition. 37 C.F.R. § 42.24(a)(2) ("Petitions to institute a trial must comply with the stated word counts").

B. The Petition Improperly Moved Arguments to an "Exhibit"

Lenovo moved an entire section of the Petition (§ VII.A.6) "depicting different modified Portable Computers of Shimura used in the Grounds" to an exhibit. Pet., 37. Ex. 1013 is not evidence—it is ***171 words of argument*** that explain the combinations used in the Grounds, cannot be incorporated by reference into the Petition (37 C.F.R. § 42.6(a)(3)) and needed to be in the Petition itself.

C. The Petition Impermissibly Used Atypical Spacing Techniques

The Petition eliminated spaces between the paragraph symbol "¶" and paragraph number, and between the exhibit identifier ("EX") and exhibit number, saving 722 words from the word count. The Board has found both techniques to be "formatting tricks designed to avoid the word count limit for petitions." *EMC Corp. v. Intell. Ventures*, IPR2017-00429, Paper 11, 27-28 (PTAB July 5, 2017); *see also St. Jude*, IPR2018-00105, Paper 12, 3-4 (April 3, 2018) (similar).

VI. THE PETITION FAILED TO DEMONSTRATE UNPATENTABILITY OF ANY DISPUTED CLAIM

A. Claim Construction

1. Display Orientation Module (claims 3-5, 11, 13-14, 16, 19 and 25)

The Petition alleged that "[f]or purposes of this petition only, 'display orientation module' is assumed to be a means-plus-function limitation." Pet., 14-16.

LiTL does not concede that the "display orientation module" clause in any challenged claim is a means-plus-function limitation. However, the Board need not determine whether this term is or is not a means-plus-function limitation because the Board "need only construe terms 'that are in controversy, ***and only to the extent necessary to resolve the controversy***.'" *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (internal quotation marks and citation omitted). Here, the Board need not determine whether the term is properly construed as a means-plus-function limitation to "resolve the controversy" between the parties, because the Petition fails to properly apply the law relating to identifying the corresponding structure for an alleged mean-plus-function limitation and thus institution must be denied because Lenovo cannot prevail under the theory the Petition advanced. *Id.*

Having identified the "display orientation module" as a means-plus-function limitation, Rule 42.104 makes clear that the Petition "***must*** identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function." 37 C.F.R. § 42.104(b)(3). The Petition fails to properly comply with this requirement which is fatal to a number of grounds the Petition advanced.

Lenovo bears the burden to prove its case in the manner the Petition advances. *See In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir.

2016) (petitioner's burden of persuasion to prove unpatentability never shifts, citing 35 U.S.C. §316(e)); *id.* at 1381 (Board must "base its decision on arguments that were advanced by a party" and has no power to "raise, address, and decide unpatentability theories never presented by the petitioner"); *accord Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1330 (Fed. Cir. 2019); *Nautilus Hyosung, Inc. v. Diebold, Inc.*, IPR2016-00580, Paper 15, at 7 (PTAB Jan. 31, 2017)("The Board must base its analysis on the arguments and evidence presented in the Petition[.]"); *Duo Security v. StrikeForce Technologies*, IPR2017-01064, Paper 7 at 6 (PTAB October 16, 2017) (denying institution because the petition fell short of the requirements for construing an alleged means-plus-function limitation). On its face the Petition fails to carry its burden because the Petition fails to properly apply the law for construing "a means-plus-function limitation under 35 U.S.C. §112, ¶6." Pet. at 15.

The Petition identified different "functions" for the different "display orientation modules" in the Disputed Claims (Pet., 14-16), and alleged the "corresponding structure for the [claimed] display orientation modules includes ***at least*** hardware ***and/or*** software (e.g., central processing unit, memory, and ***other components*** of the portable computer) configured to orient the displayed content in various display modes." Pet., 16; *see also* Rule 42.104(b)(3) ("[w]here the claim to be construed contains a means-plus-function … limitation …the construction of the claim must identify the specific portions of the specification that describe the structure … corresponding to each claimed function."). The Petition repeats the same "corresponding structure" construction for every other "claimed function" the Petition alleges is performed by the alleged means-plus-function limitation (i.e., [3], [4b], [5], [11d], [13a], [14b], [16b], [19d]-[19g], [25b]). Pet. at 59-63, 75, 89-91, 112.

The Petition fails to comply with the "Content of petition" requirements under Rule 42.104(b)(3) because the Petition fails to properly apply the law relating to identifying the corresponding structure for an alleged mean-plus-function limitation for at least three reasons:

First, the qualifier "at least" (Pet., 16) suggests the specification's corresponding structure could encompass other unidentified structure(s). Petitioner had to identify ***all*** of the corresponding structure, not just some of it. *Arista Networks, Inc. v. Cisco Sys.*, IPR2015-00976, Paper 9, 9 (PTAB Oct. 19, 2015) ("corresponding structure . . . must include ***all structure*** that actually performs the recited function," denying institution), *citing Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1119 (Fed. Cir. 2002) ("corresponding structure must include ***all structure*** that actually performs the recited function"). By qualifying its identification of corresponding structure with "at least," the Petition flatly admits that it has not even attempted to identify ***all*** the corresponding structure for a limitation the Petition alleges is a means-plus-function limitation. Consequently, by its own terms the Petition fails to comply with the mandatory ("must") requirement of Rule 42.104(b)(3).

Second, alleging that "***other*** [unidentified] components of the portable computer" (Pet., 16) are part of the corresponding structure fails to identify what those "other components" are and thus also fails to identify all the corresponding structure. *Samsung Elecs. Co. v. Cellect*, IPR2020-00559, Paper 14, 16 (PTAB July 21, 2020) ("'electronic components' in general does not convey sufficiently specific corresponding structure for purposes of supporting a means-plus-function recitation in the challenged claims").

Third, because the Petition took the position that the corresponding structure for the "display orientation module" "includes at least hardware **and/or software** . . . configured to orient the displayed content in various display modes," the law demands that the Petition ***also*** identify "the algorithm that transforms the general purpose microprocessor to a special purpose computer" that performs the alleged claim functions. *Aristocrat Techs. Australia v. Int'l Game Tech.*, 521 F.3d 1328, 1336 (Fed. Cir. 2008) (identifying a microprocessor with "appropriate programming" was insufficient to identify corresponding structure for means-plus-function purposes; "the algorithm that transforms the general purpose microprocessor to a special purpose computer" must be identified); *Finisar Corp.*

v. DirecTV Group, 523 F.3d 1323, 1340–41 (Fed. Cir. 2008) ("Simply reciting 'software' . . . is not enough."); *Rain Computing v. Samsung Elecs. Am.*, 989 F.3d 1002, 1008 (Fed. Cir. 2021) ("[W]here a general purpose[] computer is the corresponding structure and it is not capable of performing the [claimed] function absent specialized software, an ***algorithm*** is required."). The Petition failed to identify any such algorithm in its claim construction for the alleged means-plus-function limitation "display orientation module."

The Board routinely denies institution where a petitioner fails to identify an algorithm as the corresponding structure for an alleged means-plus-function limitation implemented via a computer. *See e.g.*, *Askeladden v. Digital Verification Sys.*, IPR2018-00745, Paper 9, 10 (PTAB Aug. 24, 2018) (denying institution; "The reference to 'a computer program' is too generic to identify any specific structure…. Petitioner has not identified the underlying ***algorithm*** of any such program."), citing *Aristocrat*, 521 F.3d at 1333 ("the disclosed structure is … the disclosed ***algorithm***."); *Live Power Intel. v. Genscape Intangible Holding*, IPR2019-00169, Paper 7, 10 (PTAB June 7, 2019) (denying institution; "corresponding structure must include the ***algorithm***.").

Lenovo alleged the "display orientation module" should be construed as a means-plus-function clause, but then wholly failed to apply the controlling law on properly construing such claims. The Petition's showing for claims 3-5, 11, 13-14, 16, 19 and 25 all fail because they all rely on Lenovo's improper construction that failed to properly identify the corresponding structure in the specification for claim elements the Petition alleged are means-plus-function limitations.

For this reason alone, the Petition's grounds are facially deficient for nine of the thirty Disputed Claims.

2. Other Constructions

For the purposes of this Preliminary Response only, Patent Owner does not challenge Petitioner's other claim construction arguments because the Petition fails even if those constructions are adopted.

B. The Board Should Not Conduct a Trial on this Facially Deficient Petition

As demonstrated below, the Petition failed to establish that Lenovo met its burden to demonstrate that it is reasonably likely to prove unpatentability of ***any*** of the thirty Disputed Claims. If the Board agrees, institution ***mus***t be denied. 37 C.F.R. 42.108(c).

Additionally, the Board has the discretion to deny institution where a trial would be an inefficient use of the Board's resources because it would involve a trial on numerous deficient grounds. *Deeper v. Vexilar*, IPR2018-01310, Paper 7, 42-43 (PTAB Jan. 24, 2019) (informative). A trial should not be conducted on Lenovo's facially deficient Petition.

C. Ground 1 Fails for Claims 1-7

Ground 1's allegation that claims 1-7 are rendered obviousness by Shimura and Hisano fails for three independent reasons.

1. <u>Independent Reason 1</u>: Lenovo Failed to Establish that a Computer with a Single-Axis Hinge that Supports Easel Mode Would Have Been Obvious over Shimura and Hisano

Claims 1-7 require a portable computer configurable into "an ***easel mode***" and comprising "a hinge assembly … [that] defines a ***single longitudinal axis***" (hereafter "a single-axis hinge") that enables the display to be rotated "beyond approximately 180 degrees from the closed position" to configure "the computer into the easel mode." Ex. 1001, 17:10-21, 17:31-35. The Petition admitted that in "easel mode," "the computer base and its display component stand vertically forming an inverted 'V,'" as shown in Fig. 4 of the '688 Patent. Pet. 4-5.

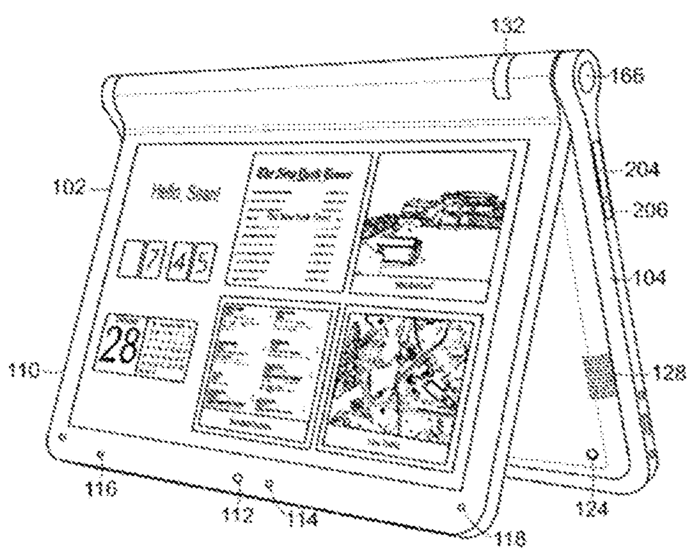
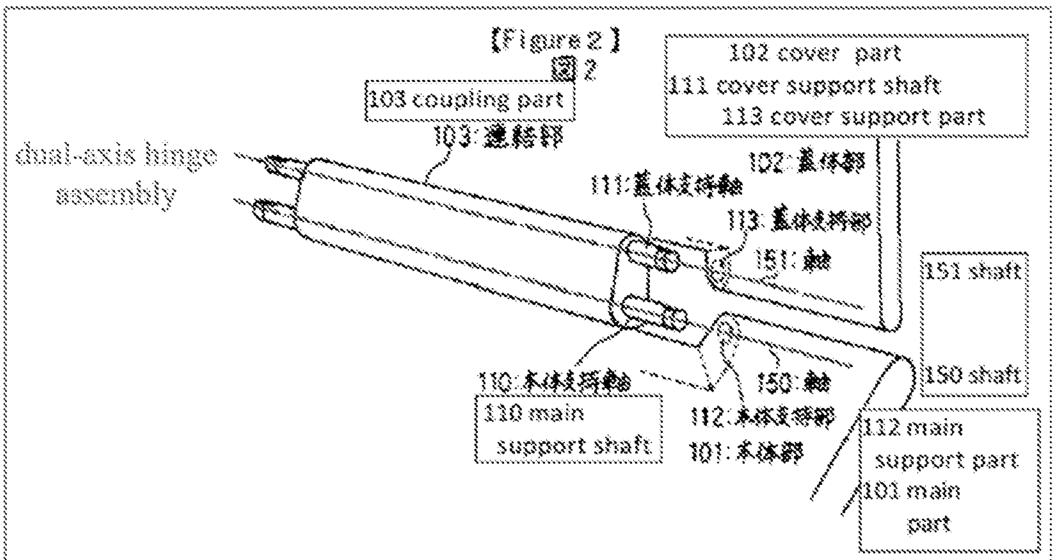


FIG. 4

The Petition alleged Shimura's computer can be configured into easel mode (*id.*, 49, 55), but as the Petition acknowledged, Shimura's computer has a "***dual***-axis hinge assembly" shown below. *Id.*, 38. Shimura nowhere discloses a single-axis hinge assembly (Exs. 1003-1004) and the Petition never alleged it does.



Lenovo alleged Hisano discloses "***both*** a dual-axis hinge assembly … ***and*** a single-axis hinge assembly." Pet. 38-40 (emphasis original). But Hisano discloses only one embodiment (Fig. 9) as capable of being configured in easel mode, and that embodiment has a ***dual***-axis hinge. Hisano does not disclose that any of its ***single***-axis hinges can rotate far enough to allow configuration in easel mode, and the Petition never alleged that it does.

Thus, the Petition identified no disclosure in Shimura ***or*** Hisano of a single-axis hinge capable of allowing rotation beyond 180 degrees to allow configuration into easel mode as claimed. The Petition's conclusory allegation that these references nevertheless somehow render obvious a computer with a single-axis hinge having this capability is flawed for numerous reasons.

a. Lenovo Failed to Establish that Hisano's Single-Axis Hinge Was a "Design Choice" for Shimura's Computer Having an Easel Mode

The Petition alleged Hisano discloses a single-axis hinge in Fig. 13. Pet., 25-26, 38-39. But as Lenovo's annotated Fig. 13 (reproduced below from Pet., 40) shows, Hisano only illustrates this single-axis hinge as rotating less than 180º from the closed position. Hisano never describes Fig. 13's single-axis hinge as capable of rotating even to 180º—let alone "beyond approximately 180º" as claim 1 requires—and never describes any of its single-axis hinges as allowing configuration into easel mode.

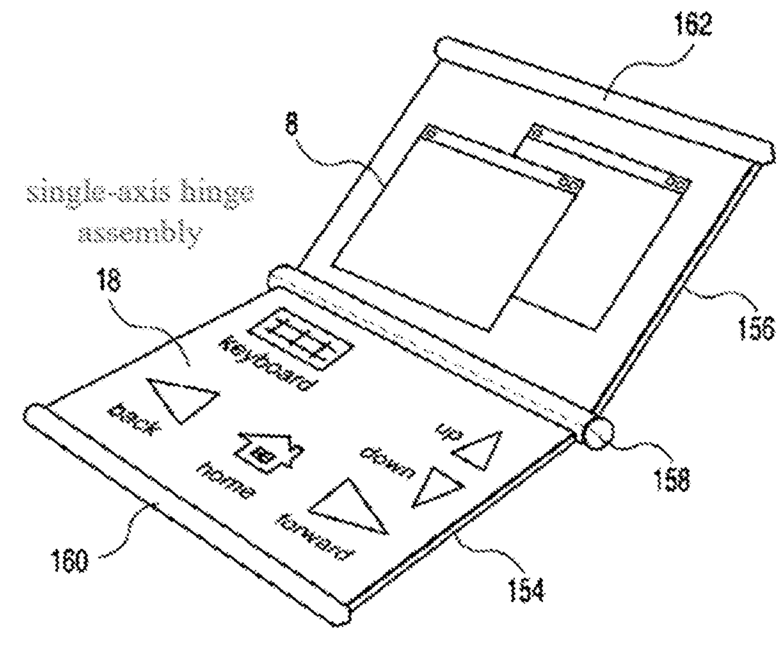


FIG. 13

Lenovo noted Hisano's disclosure of single-axis and double-axis "hinge assemblies" and alleged it "would have been a mere design choice" to use one over the other in Shimura's computer. *Id.*, 40 (citing the single-axis hinge in Hisano Fig. 13). But Hisano, like Shimura, only discloses a computer configurable into easel mode by using a ***dual***-axis hinge. Hisano, Fig. 9; Shimura, Fig. 5. Based on the teachings of Shimura and Hisano, the "design choice" was clear—for a computer configurable into easel mode a POSA would have chosen one of the hinges Shimura and Hisano disclose as capable of sufficient rotation to support easel mode, and all such hinges in Shimura and Hisano are dual-axis.

A POSA following this clear "design choice" based on Shimura and Hisano would have been led to a resulting combination that does not meet claims 1-7 as discussed in § VI.C.1.b below. The assertion that a POSA would have chosen Hisano's single-axis hinge—despite it nowhere being described as capable of supporting configuration in easel mode—is based on nothing but improper hindsight bias infecting Lenovo's attempt to reconstruct the claims from the teachings of Shimura and Hisano.

The Petition failed to establish that a POSA, "motivated to combine Shimura with Hisano" as Ground 1 alleged (Pet., 37), and interested in maintaining the ability of Shimura's computer to be configurable into easel mode, would have made the "design choice" to use Hisano's single-axis hinge that is nowhere described as capable of supporting easel mode. Ground 1 fails for this reason alone.

b. Lenovo Failed to Establish that the Shimura-Hisano Combination Meets All Claim 1's Elements

"Obviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination." *Unigene Lab'ys v. Apotex*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). To demonstrate obviousness of claim 1, the Petition needed to show "that [a POSA] would have selected and combined those prior art elements" ***arranged as required by claim 1*** "to yield the claimed invention." *Id.* The Petition failed to do so.

The Petition improperly mapped numerous claim 1 limitations to Shimura individually rather than to the Shimura-Hisano combination. *See e.g.*, Pet., 49 ("Shimura discloses [1pre] … Shimura's Figure 5 discloses the claimed 'easel mode'"), 53 ("Shimura discloses [1c1]"), 54 ("Shimura discloses [1d]").

For limitation [1f] that recites rotating "about the single longitudinal axis beyond approximately 180 degrees … into the easel mode," the Petition alleged the limitation is met by "[t]he Shimura-Hisano combination employing ***<u>the</u>*** single-axis hinge assembly" "discussed in VII.B.1." *Id.*, 55. The ***only*** single-axis hinge assembly "discussed in VII.B.1" is identified in Lenovo's annotated version of Hisano Fig. 13 (reproduced below from Pet., 40):

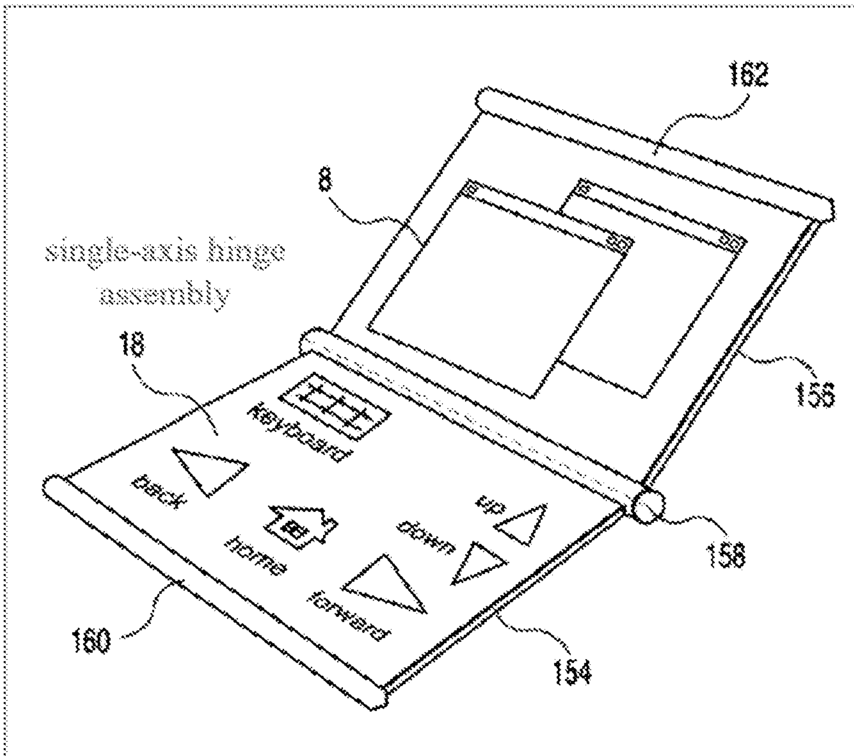


FIG. 13

Thus, "***the*** single-axis hinge assembly" the Petition alleged meets limitation [1f] is the one in Hisano Fig. 13. Pet., 55. But Hisano does not disclose this hinge assembly as allowing rotation "beyond approximately 180 degrees … into the easel mode" as [1f] requires, and the Petition never even alleged that it does. The Petition failed to establish that its Shimura-Hisano combination meets limitation [1f].

Nothing else in the Petition corrected this clear failing to establish that [1f] is met by "the Shimura-Hisano Computer employing the single-axis hinge assembly." *Id.*, 55. The Petition never alleged a POSA would have modified Hisano Fig. 13's single-axis hinge in some way to allow it to rotate sufficiently to support configuration in easel mode, let alone submitted evidence establishing how and why a POSA would have made such an unspecified modification. *Id.*, 37-40.

Indeed, in alleging that "the Shimura-Hisano Computer would be configured into the easel mode" by rotation "about the ***single*** longitudinal axis beyond approximately 180 degrees," the Petition cited only to ***Shimura's*** disclosure of its Figure 5 embodiment which has a ***dual***-axis hinge that allows rotation into easel mode and is ***not even used*** in "the Shimura-Hisano Computer employing the ***single***-axis hinge assembly." *Id.*, 55 (citing "EX-1004, ¶17"). This again improperly argued the references individually rather than demonstrating that the alleged Shimura-Hisano ***combination*** meets all claim 1's elements arranged as claim 1 requires. *Unigene*, 655 F.3d at 1360.

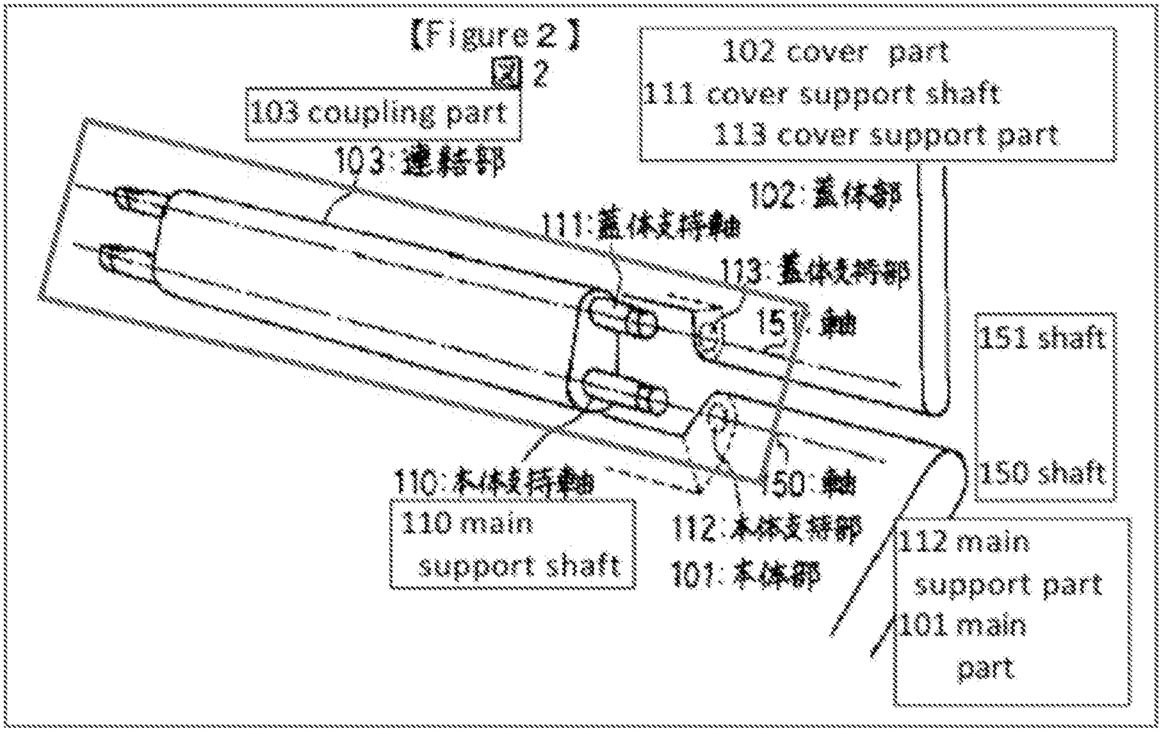
The expert declaration cannot save Ground 1. To support the Petition's conclusory argument that single-axis and dual-axis hinges are interchangeable, the Petition block-cited eleven paragraphs (*see* Pet., 40, citing EX-1010, ¶¶ 87-96, 154) that total 779 words and cited references nowhere cited in the Petition. This improper attempt to circumvent the word count limit must be rejected. *See* § IV.B above. Neither the exhibits uncited in the Petition, nor declaration testimony purporting to explain their alleged relevance, can be incorporated by reference into the petition. 37 C.F.R. § 42.6(a)(3). That is fatal to any attempt by Lenovo to rely on that evidence, because "***the Petition*** … must identify … [t]he exhibit number of the supporting evidence … and the relevance of the evidence." 37 CFR § 42.104(b)(5).

The Petition failed to establish that its Shimura-Hisano Combination is configurable in easel mode and comprises a ***single***-axis hinge rotatable "beyond approximately 180 degrees" as required by claim 1. Ground 1 fails for claims 1-7 for this additional reason.

2. Independent Reason 2: Lenovo Failed to Establish that the Shimura-Hisano Combination Meets Limitation [1c]'s Requirement that the Hinge Assembly Be at Least Partially Housed Within the Base and Display Components

Limitation [1c1] (*see* Ex. 1012, 1) requires the hinge assembly be "at least partially housed within the base and the display component." The Petition never even alleged this limitation is met by the Shimura-Hisano ***combination***, and instead alleged "Shimura discloses [1c1]." Pet., 53. That is fatal. *Unigene*, 655 F.3d at 1360.

To support its assertion that "Shimura discloses [1c1]," the Petition relied on Shimura's ***dual***-axis hinge assembly. Pet. 53-54 (using the annotated figure reproduced below). But given that the Petition alleged that claim 1 is met by "[t]he Shimura-Hisano combination employing the ***single***-axis hinge assembly" "discussed in VII.B.1" (*id.*, 55), Shimura's dual-axis hinge assembly is ***not*** used in the Shimura-Hisano combination. *Id.* 53-54.



The hinge assembly in the Shimura-Hisano combination is Hisano Fig. 13's single-axis hinge (Pet., 40, 55), but the Petition never alleged that Hisano's single-axis hinge is "at least partially ***housed within*** the base and the display component." Thus, the Petition never even alleged that the Shimura-Hisano ***combination's*** "single-axis hinge assembly" is at least partially housed in the base and display component as [1c1] requires, and it certainly did not submit evidence and argument to meet Lenovo's burden of establishing that.

The Petition's showing for [1c1] is fundamentally flawed. Lenovo only argued that this limitation was met by Shimura individually rather than by the hinge assembly of the Shimura-Hisano combination. That fails as a matter of law.

Unigene, 655 F.3d at 1360. Ground 1 fails for Claims 1-7 for this independent reason.

3. **Independent Reason 3: Lenovo Failed to Even Allege that the Hinge Assembly in the Shimura-Hisano Combination Defines a "Longitudinal Axis Running Along an Interface"**

Limitation [1c2] requires that the hinge assembly define a "longitudinal axis running along an interface between the display component and the base." As discussed in § III.A above, the Petition's only explanation was a single conclusory sentence stating (*see* Pet., 54):

> [t]he Shimura-Hisano combination discloses [1c2] and renders it obvious. *See* VII.B.1 (discussing single-axis hinge assembly); EX-1010, ¶178.

If § VII.B.1 mapped the Shimura-Hisano combination to [1c2], a cross-reference to that section may have sufficed. But that is not the case. Section VII.B.1 only purported to explain why a POSA would have combined various features of Shimura and Hisano and what the resulting Shimano-Hisano combination is—it did not attempt to map the Shimano-Hisano combination to ***any limitation*** of any Disputed Claim.

Compounding the problem, § VII.B.1 included internal cross-references to two additional sections. The Board has denied institution in similar circumstances when a petition impermissibly uses a "web of internal cross-references" that "improperly shifts the burden of deciphering Petitioner's arguments onto Patent Owner and the Board." *Contentguard*, IPR2015-00442, Paper 9, 7-9; *see also* *Ziilabs*, IPR2015-00963, Paper 8, 20-21 (denying institution where there were "numerous nested string citations."); *see* § III.B above.

If the Board were to wade through § VII.B.1 and the other sections of the Petition cross-referenced thereby, the Board would find ***no*** explanation of how or why the hinge assembly in the Shimura-Hisano combination was alleged to define a single longitudinal axis "running along an interface between the display component and the base" because the Petition never mapped limitation [1c2] to the Shimura-Hisano combination. Section VII.B.1 and the sections it cross-references never even used the word "interface" in the same context as in [1c2][4] (i.e., an interface between the display component and the base). The Board and the Patent Owner should not be forced to guess as to Lenovo's position.

The statute and the rules require that the Petition do more than simply identify disclosure in the prior art and allege in conclusory fashion that it meets a claim limitation without explaining how or why that is so. Congress made clear the Petition "may be considered ***only*** if" it "identifies, in writing and ***with***

[4] Hisano uses "interface" in the different contexts of an "input interface," an "operational interface," and a "human interface." Hisano, [0100]-[0102].

particularity … the evidence that supports the grounds for the challenge to each claim[.]" 35 U.S.C. § 312(a)(3). It is not enough for the Petition to identify the challenged claim, the grounds of unpatentability and the supporting evidence. 37 C.F.R. § 42.104(b)(1)-(2), (5). The Petition also "***<u>must</u> specify where each element of the claim is found*** in the prior art" and "***must*** include … ***a <u>detailed</u> explanation of the significance of the evidence***." 37 C.F.R. §§ 42.22(a)(2); 42.104(b)(4). The Petition did not meet these requirements.

Even if the Petition had ***implied*** that [1c2] is met by the Shimura-Hisano combination in a particular way (its complete silence did not), that would have fallen short of the strict statutory and regulatory requirements Lenovo needed to comply with. 35 U.S.C. § 312(a)(3); 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(4)-(5); *Garmin Int'l. v. LoganTree*, 825 F. App'x 894, 898-99 (Fed. Cir. 2020) ("[A] petitioner…has the burden of demonstrating unpatentability by a preponderance of the evidence; ***bare assertion through implication that a reference discloses a claim limitation, without more, is not enough to meet this burden***.").

The Petition's failure to make any showing of how or why the Shimura-Hisano Combination meets [1c2] is an additional independent reason Ground 1 fails for claims 1-7.

D. Ground 1 Fails for Claim 19

Ground 1 fails for claim 19 for three independent reasons.

1. Independent Reason 1: Lenovo Failed to Establish the Cited Prior Art Discloses the Claimed "Display Orientation Module"

As discussed in § VI.A.1 above, Lenovo alleged the display orientation module is a means-plus-function limitation and failed to properly apply the law regarding construing such a limitation by failing to properly identify the specification's "corresponding structure." Ground 1 fails for claim 19 for this reason alone.

But even if Lenovo's claim construction were correct, the Petition failed to demonstrate that the Shimura-Hisano combination meets it. Given that the Petition alleged the orientation module was a means-plus-function limitation, the Petition needed to demonstrate that the prior art performs the "function" the Petition identified for this limitation. *Transclean Corp. v. Bridgewood Servs.,* 290 F.3d 1364, 1372 (Fed. Cir. 2002). The Petition failed to do so.

The Petition divided the alleged "function" performed by claim 19's display orientation module into limitations [19d]-[19g]. Pet., 15-16. The Petition's entire showing of how the lengthy "function" in [19d] is allegedly met was the conclusory assertion that "[t]he Shimura-Hisano combination discloses the function … of [19d]. *See **Claim 3***; Ex.-1010, ¶208." Pet., 61. This fails because the "function" the Petition identified as performed by [19d]'s display orientation module is ***different*** than the "function" the Petition identified for claim 3. *Id.*, 14-16.

The Petition never specified how ***limitation [19d]'s*** particular orientation module is allegedly found in the prior art. That failing is fatal. 37 C.F.R. § 42.104(b)(4).

2. Independent Reason 2: Lenovo Failed to Establish that the Cited Prior Art Discloses a "Frame Mode"

Claim 19 requires the orientation module be configured to detect "a change between a laptop mode, an easel mode, and a ***frame mode***." Ex. 1001, 20:32-34. Lenovo alleged Shimura discloses a frame mode but Lenovo is wrong—the Shimura disclosure alleged to show a frame mode instead shows a tablet mode.

a. Frame Mode

The '688 Patent explains the "frame mode" is "illustrated in FIG. 26." Ex. 1001, 16:1-3. As shown in Figure 26, the frame mode is characterized by (i) the keyboard is face-down on a surface, (ii) the screen faces up, and (iii) the base and display components form a non-zero angle 134 like easel mode's inverted "V." *Id.*, 16:1-13.

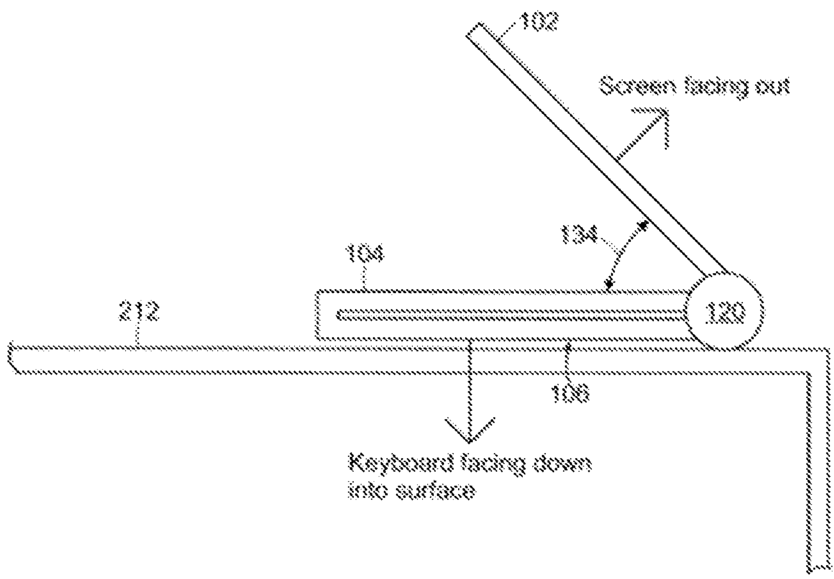


FIG. 26

b. Tablet Mode

The '688 Patent acknowledged "tablet mode" was a known mode where the "display … [is] rotated and ***folded against*** the base." *Id.*, 1:33-55 (citing U.S. Patents Nos. 6,771,494 ("the '494 Patent") (Ex. 2010) and 6,266,236 ("the '236 Patent") (Ex. 2011)).

In the '494 Patent's tablet mode, the display is folded ***against*** the base "in a similar manner to a tablet of paper," as shown in Figs 4(c) and 5 below. Ex. 2010, 1:31-34, 3:1-6. "In the tablet configuration, the display unit 10 is tilted ***360 degrees*** relative to the bottom disclosure 12 from its original starting position in the closed configuration." *Id.*, 7:54-65.

FIG.4(c)

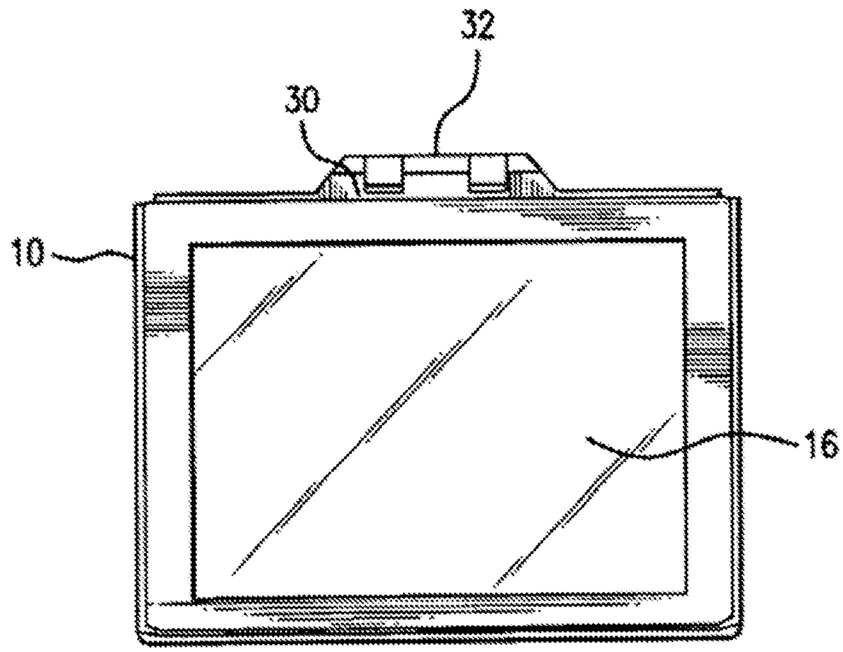


FIG.5

In the ’236 Patent’s “tablet mode” the display and base are back-to-back, as shown in Figure 2. Ex. 2011, 3:1-3.

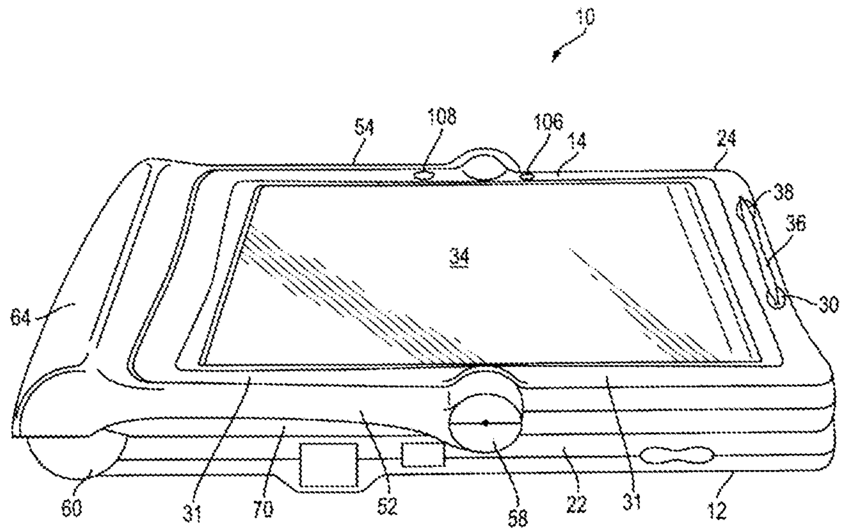


Figure 2

Because they are cited in the '688 Patent, the '494 and '236 patents are ***intrinsic*** evidence that inform how the claims should be construed. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) ("the 'intrinsic evidence,' … includes the prior art cited….").

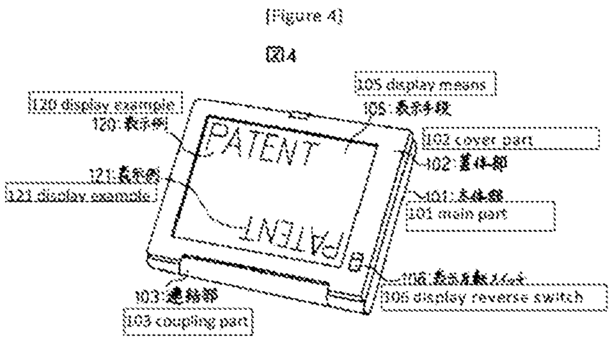
The intrinsic evidence is clear that "tablet mode"—where the display component is flush against the base—is different than the "frame mode" illustrated in FIG. 26 where the keyboard faces down ***and*** a non-zero angle is formed between the display component and the base, "form[ing] an inverted 'V'" like in easel mode. Ex. 1001, 16:5-13.

c. Lenovo Mischaracterized Shimura's Tablet Mode as Frame Mode

Hisano does not disclose a frame mode and the Petition never alleged it does. Instead, the Petition alleged "the easel and frame modes of the Shimura-Hisano computer can have the exact same hinge rotation angle," with Shimura Fig. 4 allegedly showing the frame mode and Shimura Fig. 5 showing the easel mode. Pet., 42-43.

Shimura never says its computer has a "frame mode" and never shows a computer configured as in Fig. 26 of the '688 Patent. Despite that, Lenovo argued that "Shimura discloses the claimed frame mode ***because it shows the keyboard face down and the display facing upward***, as required by the '688 Patent. *See* VII.A.1 n.1; EX-1001, 16:1-5; EX-1004, ¶¶16, 18, FIG. 4." Pet., 62. The portions of Shimura cited ("EX-1004, ¶¶16, 18, FIG. 4") disclose tablet mode—not frame mode. Lenovo mischaracterized the '688 Patent as disclosing that the keyboard facing down and the display up are determinative of the computer being in frame mode. That is necessary but ***not*** sufficient. The specification says frame mode is "illustrated in Fig. 26" which shows a configuration having a non-zero "inverted 'V'" angle between the base and the display. Ex. 1001, 16:5-13. The portions of Shimura cited in the Petition show a tablet mode—which the intrinsic evidence makes clear is ***not*** frame mode.

Shimura Fig. 4 (Tablet Mode)



'688 Patent (Frame Mode)

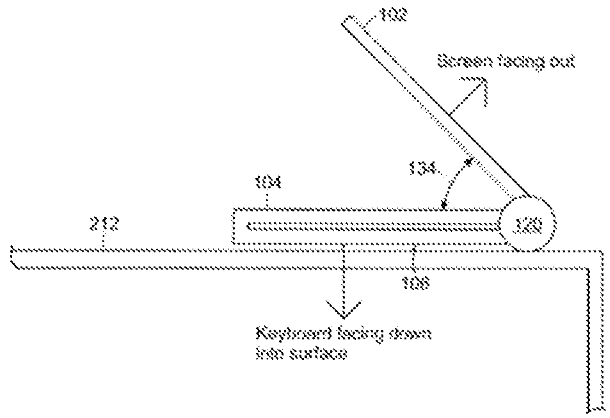


FIG. 26

The Petition's cross-reference to "Section VII.A.1 ***n.1***" does not help Lenovo. Pet., 62. There is no footnote 1 in Section VII.A.1. If Lenovo meant footnote 2, that would similarly mischaracterize the intrinsic evidence as teaching that keyboard down/display up is all that is required for frame mode. Footnote 2 also alleged Shimura's computer could be configured to an angle of 340° but never alleged that Shimura shows the computer configured as in Fig. 26 of the '688 Patent. Shimura includes no such disclosure.

The Petition failed to establish that Shimura discloses claim 19's frame mode.

d. The Petition's Obviousness Arguments Fail Because They Are Based on Shimura's Teaching of Tablet Mode

Lenovo alleged a POSA "would have incorporated a gravity sensor ... in the Shimura-Hisano Portable Computer to distinguish between the easel and ***frame modes***." Pet., 45. Indeed, the "[e]xemplary logic" Lenovo constructed[5] and illustrated in Table 1 alleged the gravity sensor is "[n]ot used" for any reason other than to differentiate between easel and ***frame modes***. *Id.*, 46.

To establish obviousness, Lenovo needed to establish a supportable non-hindsight reason why a POSA would have modified Shimura's computer to incorporate a gravity sensor. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) ("warning against ... slipping into use of hindsight"). Given that Shimura does not disclose a frame mode (*see* § VI.D.2.c above), the "reason" Lenovo offered for modifying Shimura to include a gravity sensor—"to distinguish between the easel and ***frame modes***" (Pet., 45)—is entirely unsupported. Ground 1 fails for claim 19 for this additional reason.

---

[5] This "logic" is not found in Shimura, Hisano nor any other prior art reference. Lenovo fabricated it out of whole cloth in an improper attempt to reconstruct the claims in hindsight.

Apparently recognizing the fatal deficiency in its argument that Shimura's tablet mode is a frame mode, Lenovo separately noted Shimura's disclosure of 0°-360° rotation between the display and the base and its disclosure of easel mode. *Id.*, 62. Based on this, the Petition stated in a conclusory fashion that "a POSITA would have found it obvious to take the Shimura Computer in Figure 5 below and lay the keyboard (104) face down on a surface, while keeping the rotation angle the same." Pet., 62 (reproducing Shimura's Figure 4—***not*** Figure 5). The only "support" for this conclusory assertion is the citation to "EX-1010, ¶211" but that testimony is entitled to no weight because it merely parrots the conclusory assertion. *See* § IV, above. Shimura's disclosure of 0°-360° rotation is consistent with Shimura's disclosure of tablet (Figure 4) and easel (Figure 5) modes, and does not remotely suggest an entirely different mode (frame mode) nowhere mentioned in Shimura.

Lenovo's assertion that a POSA would have added a gravity sensor to Shimura to differentiate between its easel mode and ***a frame mode that Shimura nowhere describes*** is based on nothing but Lenovo's improper hindsight attempt to reconstruct the Disputed Claims.

e. Lenovo Failed to Establish that the Shimura-Hisano Combination's Hinge Assembly Supports Frame Mode

Lenovo's conclusory assertion that a POSA "would have found it obvious" to use Shimura's computer in a frame mode as shown in Fig. 26 of the '688 patent (Pet., 62) is further unsupported because the Petition provided no evidence that the hinge assembly in the Shimura-Hisano Combination is capable of supporting the display component in that configuration.

In easel mode (Fig. 4 below), the display and base components are both supported by a surface (e.g., a table). Conversely, in frame mode (Fig. 26 below), the hinge must support the display to prevent it from collapsing into tablet mode. A hinge designed to support easel mode is not necessarily designed to support frame mode (e.g., a simple door hinge would support a configuration like easel mode but would collapse and be unable to support a configuration like frame mode).

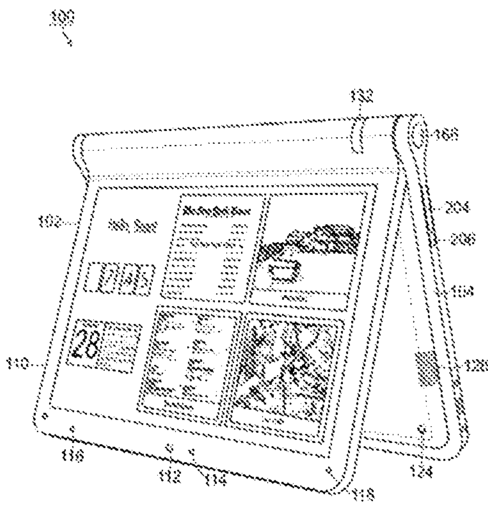


FIG. 4

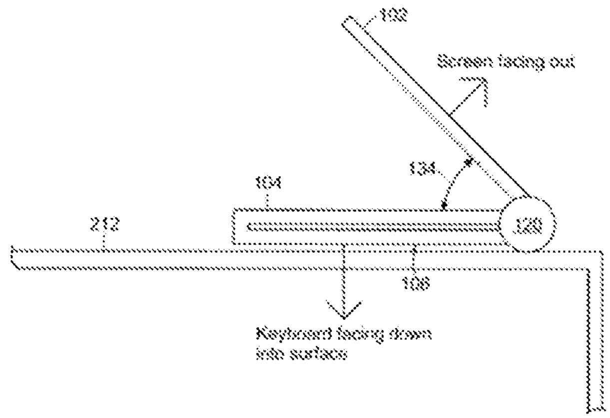


FIG. 26

Given that neither Shimura nor Hisano discloses a frame mode, neither discloses that its hinge assembly supports frame mode. Lenovo alleged the "Shimura-Hisano Computer" has "a single-axis ***or*** dual axis hinge assembly" but never identified a specific hinge assembly relied on for allegedly rendering claim 19 obvious. Pet., 41 (emphasis original). To support its assertion that a POSA would have been motivated to add a sensor to Shimura to support placing Shimura's computer in frame mode, Lenovo needed to establish that the computer's hinge assembly was physically capable of configuring the computer in frame mode, and the Petition failed to make any such showing.

3. <u>Independent Reason 3</u>: Lenovo Failed to Demonstrate [19c]'s "Orientation Sensor" Is Met by the Shimura-Hisano Combination

a. The Petition Failed to Identify How or Why Limitation [19c]'s Orientation Sensor Is Met

The Petition's entire showing is the conclusory sentence that "[t]he Shimura-Hisano combination discloses [19c] and renders it obvious. *See* [4a]; [4b]; EX-1010, ¶206." The Declaration testimony ("EX-1010, ¶206") should be given no weight because it merely repeats this conclusion verbatim. *See* § IV, above.

To establish that [19c] is met, the Petition relied entirely on its explanation of how the Shimura-Hisano combination allegedly meets claim 4. But claim 4 recites "a mode sensor which detects a current display mode" (Ex. 1001, 17:46-48), ***not*** an "orientation sensor which detects a physical orientation of the single display unit relative to the base unit" as required by [19c]. *Id.*, 20:23-24.

The Petition lacks ***any*** showing that maps [19c]'s orientation sensor to the Shimura-Hisano combination.

b. The Petition Cannot Meet the Claimed "Orientation Sensor" by Implication

The Petition's analysis for claim 4 identified hinge-rotation sensors and gravity sensors, and alleged a "combination" thereof meets claim 4's mode sensor. Pet., 59. Given that Lenovo never mapped [19c]'s orientation sensor to the Shimura-Hisano combination, Lenovo's reliance on its claim 4 analysis to purportedly show how [19c]'s orientation sensor is allegedly met is entirely unclear. Was Lenovo alleging [19c]'s "orientation sensor" (singular) is met by a hinge-rotation sensor? By a gravity sensor? By some unspecified combination of sensors (plural)?

The Board and the Patent Owner should not be forced to guess as to Lenovo's position—a "detailed explanation" of the evidence that specifies "***where*** each element of the claim is found in the prior art" needed to be in the Petition. 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(4); *see also* 35 U.S.C. § 312(a)(3) (grounds needed to be stated "with particularity") and *Garmin*, 825 F. App'x at 899 ("bare assertion through implication that a reference discloses a claim limitation, without more, is not enough to meet [Petitioner's] burden.").

E. Ground 1 for Claims 29-32

1. Claim 29

LiTL disclaimed independent claim 29 (Ex. 2009), so that claim is not disputed in this proceeding. 37 C.F.R. § 42.107(e) ("No *inter partes* review will be instituted based on disclaimed claims.").

2. Claims 30-32

Claims 30-32 depend from claim 29 and survive LiTL's disclaimer of claim 29. *Gen. Elec. Co. v. Raytheon Techs. Corp.*, 983 F.3d 1334, 1340 (Fed. Cir. 2020) (When an independent claim is disclaimed, the Board is "left to rule on only the patentability of dependent claims.").

Claim 30, and claims 31-32 that depend therefrom, requires transitioning the computer into "***frame mode***." Ex. 1001, 22:27-28.

The Petition's entire showing for claim 30 was the conclusory assertion that "[t]he Shimura-Hisano combination discloses the additional limitation of this claim and renders the claim obvious. *See* VII.B.1; [19e]; [29a]; EX-1010, ¶225." Pet., 65. The cited Declaration testimony ("EX-1010, ¶225") is entitled to no weight because it merely parrots the conclusory assertion. *See* § IV, above. Lenovo's cross-references to "VII.B.1; [19e]; [29a]" ultimately relied on Shimura's tablet mode to meet the claimed frame mode, which fails for the reasons discussed in § VI.D.2 relating to claim 19.

Thus, Ground 1 fails for claims 30-32.

F. Ground 2 Fails

Ground 2 alleged independent claim 12, and claims 13, 24, and 26 that depend therefrom, would have been obvious over Shimura in view of Tsuji. Pet., 66. Ground 2 fails for two independent reasons.

1. <u>Independent Reason 1</u>: Lenovo Failed to Establish that Shimura And Tsuji Render Obvious a Computer with "Integrated Navigation Hardware Control that Would Be Accessible in Each of the Plurality of Modes"

Claim 12 requires a hinge assembly that permits rotation into laptop or easel mode. Limitation [12f] further requires "at least one integrated navigation hardware control configured to control features and manipulate content displayed on the portable computer," and that at least one of the integrated navigation hardware controls is "accessible in each of the plurality of modes including when the keyboard is inaccessible or oriented away from the user." Thus, there must be at least one integrated hardware control that is not on the keyboard so it is accessible in easel mode.

Integrated navigation hardware was an innovative feature of LiTL's invention that drew contemporaneous industry praise. *See* § II.C above. Lenovo's hindsight-driven arguments that attempt to reconstruct claim 12 assert that three different "controls" meet [12f]: (1) Shimura's display reverse switch; (2) Tsuji's buttons; and (3) Tsuji's touch screen. All these assertions fail.

a. Lenovo Failed to Establish Shimura's Display Reverse Switch is "Navigation Hardware" as Claimed

Lenovo alleged Shimura's "display reverse switch 106" "discloses the claimed 'integrated navigation hardware.'" Pet., 73-74. Despite that, the Petition never alleged that Shimura's switch 106 meets ***all*** the requirements of the integrated navigation hardware, which must be "configured ***to control features***" as well as to manipulate content.

Lenovo's conclusory assertion that Shimura's switch 106 meets [12f] uses ellipses to replace the requirement that the navigation hardware is "configured to control features." Pet., 73. The Petition presented no argument or evidence to establish that Shimura's switch 106 is "configured to control features." *Id.* That is fatal to Lenovo's assertion that Shimura's switch 106 is an "integrated navigation hardware control" as required by [12f].

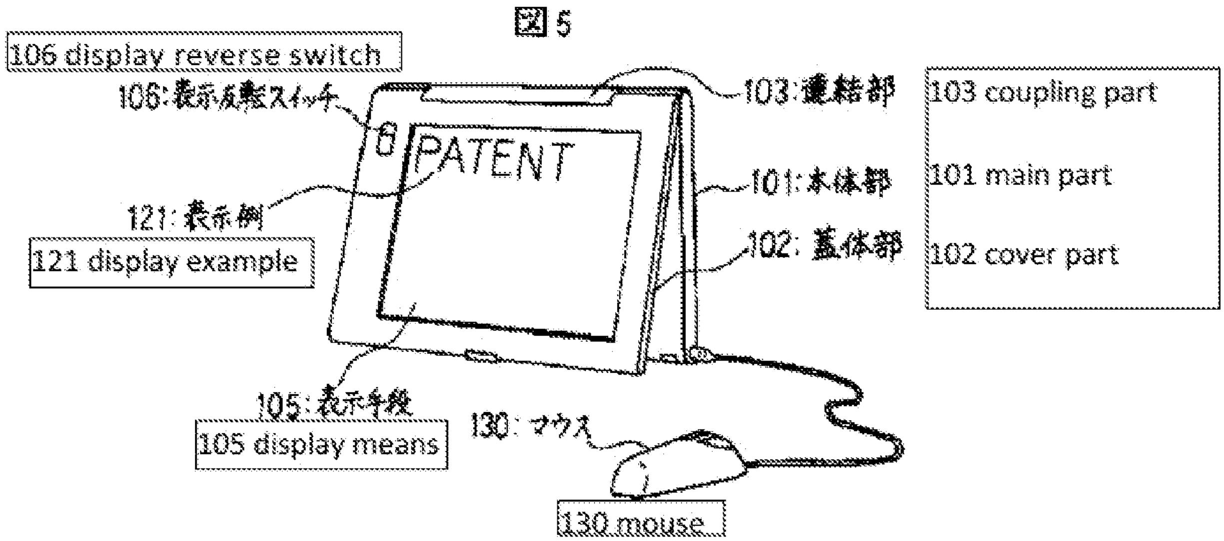
b. Lenovo's Reliance on Tsuji's Buttons Fails

Lenovo alleged a POSA would have added Tsjui's buttons 118-119 to Shimura's laptop and that those buttons meet the claimed integrated navigation hardware. Pet., 66-69, 71-72. Those arguments fail because: (1) the Petition failed to establish that a POSA would have added Tsuji's buttons to Shimura's laptop and (2) those buttons would not be accessible in laptop mode.

i. Shimura's Laptop

Shimura discloses a "type of portable personal computer is popularly known as ***a lap-top computer***." Shimura, [0003]. Figure 5 depicts Shimura's laptop in easel mode with a mouse. *Id.*, Fig. 5.

[Figure 5]



ii. Tsuji's PDA

Tsuji discloses a PDA-style device. Tsuji, [0034] ("the user can use the computer 1 in the same style as that of normal PDA (Personal Digital Associates) … (hereinafter referred to as a PDA style)."). Tsuji's Figures 11-12 show Tsuji's device is a hand-held device.

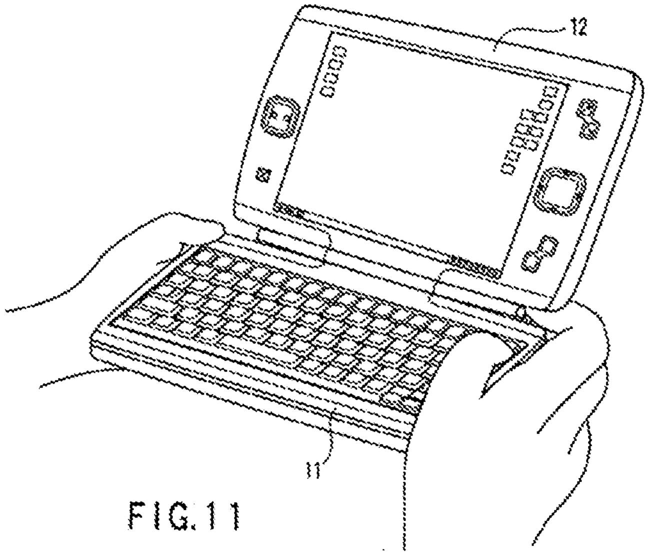


FIG. 11

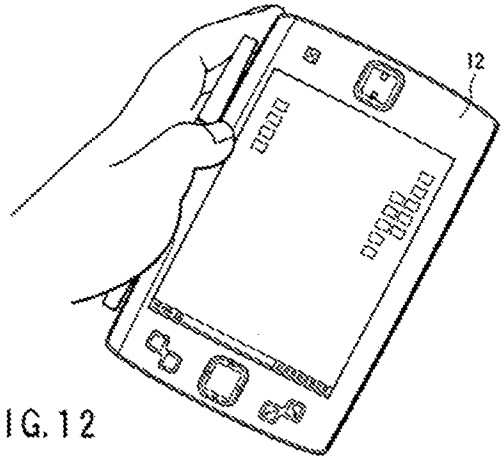


FIG. 12

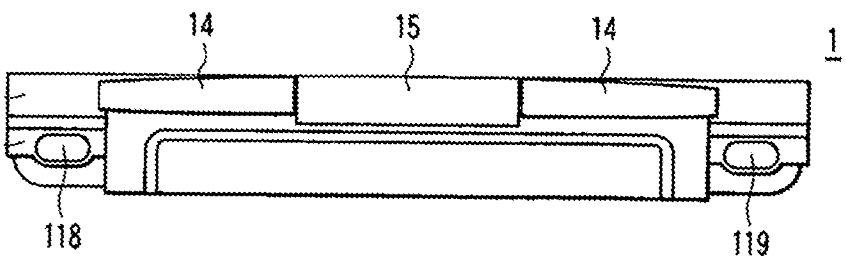


FIG. 4

"R and L button switches 118 and 119 are provided on the back of the computer main body 11" so "[a] user can thus operate the keyboard 111 with thumbs while supporting the computer 1 with both hands as shown in FIG. 11 and simultaneously operate the R button switch 118 with, e.g., the right forefinger or the L button switch 119 with, e.g., the left forefinger." Tsuji, [0041].

Thus, buttons 118-119 are on the back of Tsuji's handheld device (Fig. 4) so a user can hold the device in both hands, operate the keyboard with the user's thumbs, and operate the R/L buttons with the user's fingers.

iii. Lenovo Failed to Establish a POSA Would Have Put Tsuji's Buttons on Shimura's Laptop

Only one thing motivated Lenovo to place Tsuji's buttons on the back of Shimura's laptop—hindsight bias in an attempt to reconstruct claim 12. None of the Petition's scattershot "reasons" a POSA allegedly would have modified Shimura's laptop to add Tsuji's buttons is supportable.

First, Lenovo alleged Tsuji and Shimura are in the "same field[]." Petition, 66. This fails factually and legally. As anyone who owns a laptop and a PDA knows, these are different devices with different uses. But even if Shimura and Tsuji were in the same field, that is legally insufficient to provide a reason to combine them. *Ayla Pharma v. Novartis*, IPR2020-00295, Paper 12, 10 (PTAB Aug. 6, 2020) (("simply demonstrating that a set of references are all directed to the same problem is not, by itself, a sufficient rationale to combine the references"), citing *Wyers v. Master Lock Co*., 616 F.3d 1231, 1238 (Fed. Cir. 2010), *In re Kahn*, 441 F.3d 977, 987–88 (Fed. Cir. 2006) (whether a POSA would have combined references "picks up where the analogous art test leaves off")).

Second, Lenovo alleged "Tsuji provides express motivation for the proposed modification" which improves "user operability … regardless of the display mode" because R/L buttons 118-119 "are exposed regardless of whether the computer 1 is used in a PC style or a PDA style." Pet., 67.

For PC style, Tsuji says the device can be supported on a surface (e.g., a desk or the user's lap) or held in "both hands" as in Fig. 11 below. Tsuji, [0040]. The ***only*** benefit Tsuji describes for buttons 118-119 in PC-style use is when the device is held in both hands because then the user operates the keyboard with the thumbs. *Id.*, [0040]-[0044]. Tsuji says buttons 118-119 can be programmed "for assisting a user in operating the keyboard 111" with the thumbs by programming buttons 118-119 to perform the functionality of some keyboard keys (e.g., [Ctrl], [Shift], [^], [<]). *Id.* A POSA would not have been motivated by these teachings to add buttons 118-119 to Shimura's full-size laptop, because Shimura never says its full-size laptop is hand-held or that its keyboard is operated with the thumbs. A user operating Shimura's laptop in laptop mode can simply access the keyboard keys that already provide the functionality that Tsuji programmed buttons 118-119 to perform to support a user holding Tsuji's PDA-sized device in both hands and operating its keyboard with the thumbs.

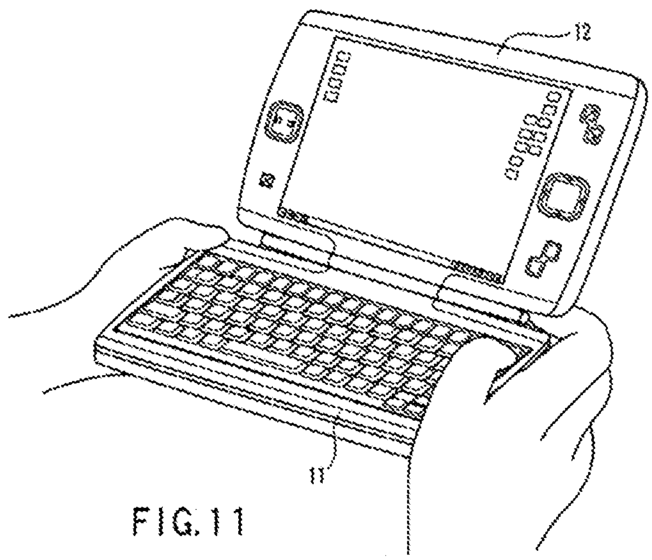


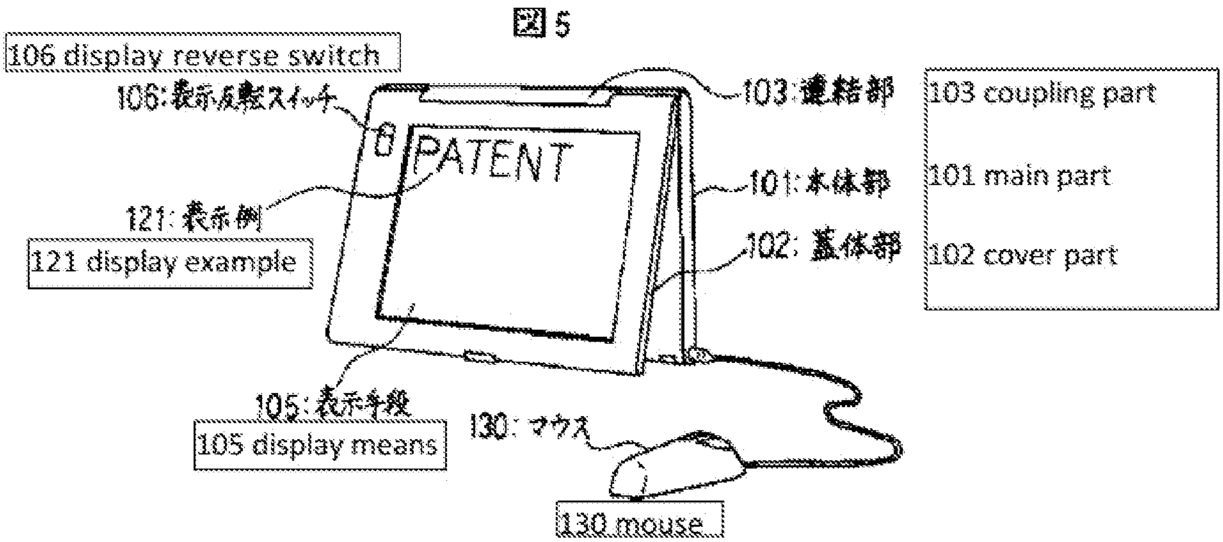
FIG. 11

Third, Lenovo's suggestion that R/L buttons 118-119 would improve user operability in Shimura's easel mode—where Shimura says the laptop is placed on a table (*see* Shimura, [0017])—fares no better. Lenovo asserted the buttons would allow a user to navigate the Shimura-Tsuji computer "regardless of the display mode (e.g., laptop or easel mode) and without any additional input devices (e.g., external pen or mouse)." Pet., 68-69. That assertion is ***refuted by <u>both</u> Shimura and Tsuji***.

Tsuji says that in "PDA style" user input operations are performed "chiefly with a stylus (pen)" and that buttons 118-119 are used "for assisting a user in performing an input operation ***with a stylus (pen)***." Tsuji, [0045]. Given that Shimura does not teach that its display is capable of receiving input via a stylus, the benefit Tsuji describes buttons 118-119 as providing in "PDA style" is inapplicable to Shimura. Pet., 67. And Tsuji directly refutes Lenovo's assertion that buttons 118-119 allow navigation in PDA style "without any additional input devices (e.g., ***external pen*** …)" *Id.*, 68-69.

Additionally, Shimura says that in easel mode the keyboard facing away from the user is not a problem only because the "***mouse 130 is connected and it is a mouse centered operating environment***." Shimura, [0017]; *see also* Fig. 5 (showing use of a mouse in easel mode). Thus, the only input technique Shimura describes in easel mode is via a mouse and supported by a "mouse centered operating environment." The Petition failed to explain how Shimura's "mouse-centered operating environment" (which is not modified in the Shimura-Tsuji combination) would work with buttons 118-119. And given that Shimura's mouse provides demonstrably better user operability than forcing the user to continually reach forward to operate buttons on Shimura's computer in easel mode, Lenovo's assertion that replacing Shimura's mouse with buttons 118-119 would "improve user operability" (Pet., 67) fails.

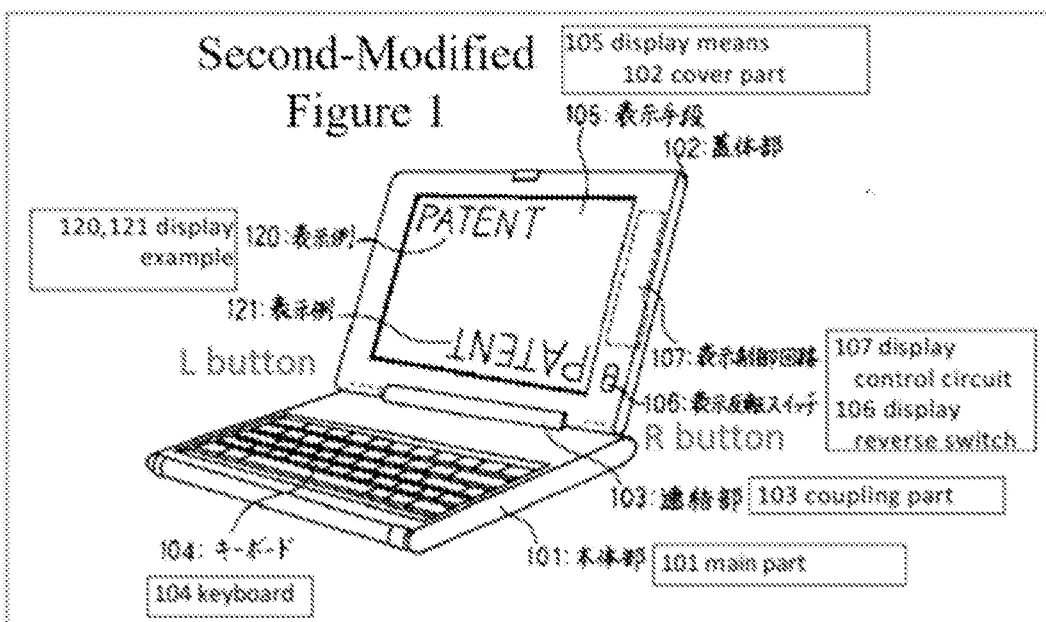
【Figure 5】



Fourth, Lenovo's assertion that its combination is nothing more than combining prior art elements according to known methods fails. Petition, 69. To fit under that rationale, Lenovo needed to establish that no changes would be required other than combining the elements. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326-27 (Fed. Cir. 2009). Lenovo made no such showing. As detailed above, Tsuji's buttons are used in PDA-style with a stylus pen not used in Shimura, and Shimura uses a mouse as the input device in easel mode. Shimura's "operating environment" (Shimura, [0017]) would need to be reprogrammed to use buttons 118-119 instead of (or in addition to) a mouse in easel mode, which eliminates the availability of the prior art elements combined according to known methods rationale. *DePuy Spine,* 567 F.3d 1326-27.

iv. Lenovo Failed to Establish that Buttons on the Back of Shimura's Laptop Would Be Accessible in Laptop Mode

The Petition mapped the "integrated navigation hardware control" to the L/R buttons a POSA allegedly would have added to the back of Shimura's laptop. Pet., 71-72. Even if Lenovo established that a POSA would have put Tsuji's L/R buttons 118-119 on the back of Shimura's laptop (it did not), the Petition failed to establish that those buttons are "accessible in each of the plurality of modes" as claimed. Citation to the Declaration at ¶ 247 cannot save Lenovo because it only parrots the same conclusory assertion and is entitled to no weight. *See* § IV, above.



Limitation [12f] makes clear that "accessible" means the navigation hardware control is not oriented away from the user because [12f] characterizes the keyboard as "inaccessible" when oriented away from the user. Lenovo's own "Second-Modified Figure 1" (above) shows ***the R/L buttons are inaccessible when Shimura's computer is in the laptop mode***—that's why the red lines are dashed. Pet., 72. Thus, Lenovo's reliance on Tsuji's R/L buttons to meet the claimed navigation control hardware accessible in "both [***laptop*** and easel] modes" fails. *Id*.

The Petition never alleged [12f]'s requirement for at least one integrated navigation hardware control "accessible in each of the plurality of modes" is met by the R/L buttons being accessible in easel mode and a different navigation hardware control being accessible in laptop mode, and instead relied on the R/L buttons being accessible "in ***both*** modes." *Id; Nautilus Hyosung*, IPR2016-00580, Paper 15 at 7 ("The Board must base its analysis on the arguments and evidence presented in the Petition and not upon what the Petitioner *could have* argued.").

If Lenovo had made such an argument it would have failed, because the Petition only identified two other things as being "navigation control hardware"—Shimura's display reverse switch 106 and Tsuji's touch screen—and failed to demonstrate that either is navigation hardware control as claimed for the reasons discussed in § VI.F.1.a above (display reverse switch 106) and § VI.F.1.c below (Tsuji's touch screen).

c. Lenovo's Reliance on Tsuji's Touch Screen Fails

i. Lenovo Failed to Establish a Reason for Its Modification to Shimura's Laptop

The Petition stated in conclusory fashion that a POSA "would have been motivated to incorporate Tsuji's touch screen" into Shimura (Pet., 74) but failed to establish any "reason" why a POSA would have been motivated to make that modification. *KSR*, 550 U.S. at 418 (a "reason" must be provided to modify a prior art reference to support obviousness). The Petition failed to comply with this fundamental requirement. Lenovo's reliance on Tsuji's touch screen in Shimura's computer fails for this reason alone.

ii. Lenovo Failed to Establish that Tsuji's Touch Screen Meets [12f]

The Petition made the conclusory assertion that "***Tsuji's*** touch screen" meets [12f]'s "integrated navigation hardware," and "supported" that assertion only by alleging Tsuji's touch screen is "capable of the same basic functionality as a mouse (e.g., selecting or moving displayed content)." Pet., 74. That assertion is unsupported by ***any*** evidence and fails to establish that all [12f]'s requirements are met.

The Petition only cited Tsuji, [0031], which states "a touch screen device … is capable of recognizing a position indicated by a stylus (pen) or a user's finger." Tsuji, [0031]. Tsuji, [0031] says ***nothing*** about the touch screen having the capabilities of a mouse or about it "selecting or moving displayed content" as the Petition alleged. Pet., 74. The Petition's entire basis for alleging Tsuji's touch screen meets the claimed navigation hardware control is unsupported by the cited portion of Tsuji. Citation to the Declaration at ¶ 250 cannot save Lenovo because it only parrots the same conclusory assertion[6] and is entitled to no weight. *See* § IV, above.

Additionally, Lenovo never even attempted to map the alleged touch screen capabilities to limitation [12]. Even if the touch screen were capable of "selecting or moving displayed content" as Lenovo alleged (Pet., 74), and even if that might be considered to meet [12f]'s requirement that the hardware control be configured to "manipulate content displayed on the portable computer," the Petition did not even attempt to explain how or why this would meet [12f]'s ***additional*** requirement that the navigation hardware control be configured to "control features."

[6] The Declaration also quotes Tsuji's paragraph [0031].

2. <u>Independent Reason 2</u>: Lenovo Failed to Map Limitation [12c2] to the Shimura-Tsuji Combination

The Petition's entire showing for limitation [12c2] was the conclusory statement that "Shimura discloses [12c2]. *See* VII.A.1; [1c2]; EX-1004, Figures 2, 3; EX-1010, ¶240." Pet., 70. This conclusory statement fails to "specify where each element of the claim is found in the prior art." 37 C.F.R. § 42.104(b)(4)).

Lenovo's cross-referenced sections "VII.A.1; [1c2]" further cross-reference other sections, requiring Patent Owner and the Board to review eighteen pages of the Petition simply to determine how Lenovo alleges limitation [12c2] is met. Lenovo failed to meet its burden to demonstrate unpatentability of claim 12 for that reason alone. *See* § III.B (citing *Contentguard* and other authority). If the Board traces through Lenovo's nested cross-references, it will never find a mapping of the requirements of [12c2] to the Shimura-Tsuji combination. *See* § VI.C.3 above (discussing the Petition's failure to map limitation [1c2] to the prior art; [12c2] has similar language to [1c2], and Lenovo cross-references to arguments for [1c2] to try to meet its obligation to map [12c2] to the prior art, but fails for the same reasons it fails for [1c2] explained in § VI.C.3 above).

G. Ground 3 Fails

Ground 3 alleged claims 8-9, 14-16, 20, 23 and 25 would have been obvious over Shimura in view of Hisano and Tsuji. Pet., 76. That is a ***new*** combination not relied upon in Grounds 1-2.

Claims 8-9 and 23 depend directly or indirectly from claim 1. Claims 14-16, 20, and 25 depend directly or indirectly from claim 12. For these dependent claims, the Petition merely alleged that the ***newly introduced*** limitations are purportedly met by the Shimura-Hisano-Tsuji combination. Lenovo failed to demonstrate that the Shimura-Hisano-Tsuji combination ***also*** meets the requirements of claim 1 to support obviousness of claims 8-9 and 23 that depend therefrom, and failed to demonstrate that the Shimura-Hisano-Tsuji combination meets the limitations of claim 12 to establish obviousness of claims 14-16, 20, and 25 that depend therefrom. Ground 3 fails for this reason alone.

If the Board considers the Petition to have implicitly alleged that the Shimura-Hisano-Tsuji combination meets claim 1's limitations for the same reasons as the Shimura-Hisano combination in Ground 1, then Ground 3 fails for claims 8-9 and 23 for the same reasons Ground 1 fails for claim 1. *See* § VI.C above.

If the Board considers the Petition to have implicitly alleged the Shimura-Hisano-Tsuji combination meets claim 12's limitations for the same reasons as the Shimura-Tsuji combination in Ground 2, then Ground 3 fails for claims 14-16, 20, and 25 for the same reasons Ground 2 fails. *See* § VI.F above.

H. Ground 4 Fails

Ground 4 alleged independent claim 17, and claims 18, 21-22, and 27-28 that depend therefrom, would have been obvious over Shimura in view of Hisano and Shigeo. Pet., 92. Ground 4 fails for two independent reasons.

1. <u>Independent Reason 1</u>: Lenovo Failed to Establish Limitations [17b]-[17d] Are Met

Limitations [17b]-[17d] recite "detecting a degree of rotation" of the display relative to the base, "providing a signal representative of the degree of rotation" and "comparing the degree of rotation with respect to a threshold degree of rotation."

a. Lenovo Failed to Map [17b]-[17c] to the Prior Art

The Petition's entire "analysis" for each of limitations [17b] and [17c] was a conclusory sentence alleging "[t]he Shimura-Hisano combination discloses [[17b] / [17c]] and renders it obvious. *See* VII.B.1 (discussing hinge-rotation sensor); [4a]; EX-1010, [¶312/¶313]." Pet., 96. This showing is fatally deficient for two reasons.

First, Ground 4 is based on the Shimura-Hisano-***Shigeo*** combination, but the Petition alleged limitations [17b]-[17c] are met by a ***different*** combination—the "Shimura-Hisano combination." *Id.* Indeed, cross-referenced sections "VII.B.1" and "[4a]" relate only to the Shimura-Hisano combination. The Petition failed to map all claim 17's limitations to Ground 4's Shimura-Hisano-***Shigeo*** combination.

Second, the Petition never applied the language of limitations [17b]-[17c] to the prior art. Neither cross-referenced section even mentions a ***"degree of rotation"*** or uses the word "degree" at all. Section VII.B.1 described the "Shimura-Hisano combination" and never applied the language of [17b]-[17c] to that combination. Limitation [4a] never mentions a "degree of rotation" so the cross-referenced section discussing [4a] never maps the requirements of [17b]-[17c] to the prior art.

b. Lenovo Failed to Map [17d] to the Prior Art

Limitation [17d] requires comparing "to a threshold degree of rotation." The Petition's entire "analysis" for [17d] was the conclusory assertion that "[t]he Shimura-Hisano-Shigeo combination discloses [17d] and renders it obvious. *See* VII.B.1 (discussing hinge-rotation sensor); VII.E.1; [4a]; [11e]; EX-1010, ¶314." Pet., 96.

Given that Shigeo is not part of the combination discussed in VII.B.1 or [4a], those cross-referenced sections manifestly do not map [17d] to the Shimura-Hisano-***Shigeo*** combination.

Section VII.E.1 described the Shimura-Hisano-Shigeo combination but never mapped [17d] onto it.

Neither limitation [4a] nor limitation [11e] ever mentions a "degree of rotation" so the Petition's cross-referenced sections discussing [4a] and [11e] do not map the requirements of [17d] to the prior art. Additionally, the cross-reference to [11e] is circular. The Petition's analysis of [11e] comes later (Ground 5) and referred back to Ground 4's analysis of "the Shimura-Hisano-Shigeo combination." Pet., 112. Thus, Ground 4 suggested there is analysis of [17d] to be found in Ground 5, but Ground 5 merely referred back to Ground 4 where there is no such analysis. The Petition's web of internal cross-references suggests there is meat to Lenovo's analysis someplace else in the Petition, but if the Board goes through the laborious process of following through the internal cross-references, there is no mapping of limitation [17d] to the Shimura-Hisano-Shigeo combination ***anywhere*** in the Petition.

c. Failure to Map [17b]-[17d] to the Prior Art Is Fatal

The Petition cannot meet its burden of demonstrating how each element of claim 17 is met by the Shimura-Hisano-Shigeo combination by never mapping the requirements of limitations [17b]-[17d] to the prior art. Ground 4 fails for this reason alone. *See* 37 C.F.R. § 42.104(b)(4).

d. Lenovo Failed to Address What "Detecting a Degree of Rotation" Requires

It is not LiTL's burden to prove the Shimura-Hisano-Shigeo combination does not meet the requirements of [17b]-[17d]—it was Lenovo's burden to prove that the combination ***does*** meet those requirements and Lenovo demonstrably failed to do so.

As discussed above, Lenovo's conclusory assertions that [17b]-[17c]'s requirements of "detecting a degree of rotation" and providing a signal representative thereof are met by "the Shimura-Hisano combination" was "supported" by cross-references to Section VII.B.1 and [4a]. Pet., 96. The "analysis" for [4a] said the combination includes "hinge-rotation and gravity sensors" and cross-referenced the same Section VII.B.1. *Id.*, 59. Thus, the Petition's "showing" for [17b]-[17c] collapses to Section VII.B.1, which described the "Shimura-Hisano Combination" (***not*** the Shimura-Hisano-***Shigeo*** combination alleged to render claim 17 obvious) and failed to map claim 17's limitations to ***any*** combination. *Id.*, 37.

Section VII.B.1's Shimura-Hisano Combination used "Hisano's hinge-rotation sensor." *Id.*, 41. Hisano's rotation sensor can detect if the angle of rotation is greater than 180° (Fig. 9) or less than 180° (Fig. 10). Hisano, [0098]-[0099]. To support the described functionality, Hisano's rotation sensor need only act like a "switch" and produce a simple binary output that indicates whether the angel exceeds 180° or not.

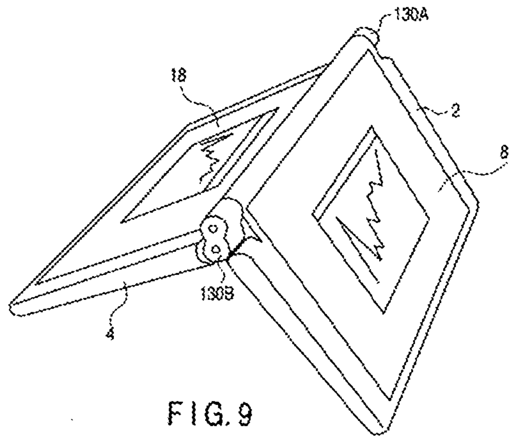


FIG. 9

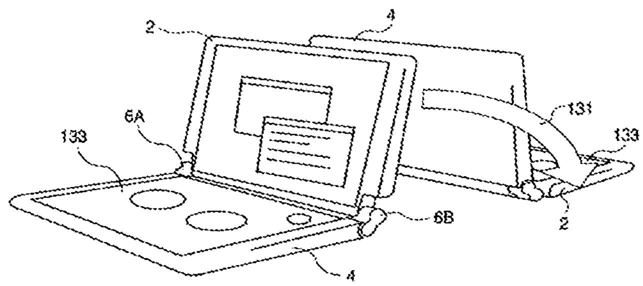


FIG. 10

The Petition offered no explanation of how or why Hisano's sensor is alleged to detect, and provide a signal representative of, a degree of rotation as claimed. The Petition offered no construction of "degree of rotation." Pet., 11-17. If it was Lenovo's position that a signal representative of a "degree" of rotation requires that the signal represent one three-hundred-and-sixtieth of a circumference of a circle, the Petition failed to demonstrate that Hisano meets that requirement. If it was Lenovo's position that a signal representative of a degree of rotation can be a binary signal (e.g., indicating whether rotation is less than or greater than 180°), the Petition offered no argument or analysis explaining that that was

Lenovo's position or supporting such a construction. That is fatal. 37 C.F.R. § 42.104(b)(3)-(4) (the Petition "***must identify***" how the claim is to be construed and how the "construed claim" is unpatentable).

The Petition's citation to a single paragraph of the Declaration for each of limitations [17b]-[17d] cannot save Lenovo because those paragraphs 312-314 merely parrot the Petition's conclusory statements and should be given no weight. *See* § IV, above.

2. Independent Reason 2: Lenovo Failed to Map All the Requirements of Limitation [17a] to the Shimura-Hisano-Shigeo Combination

The Petition's entire showing was the conclusory statement that "[t]he ***Shimura-Hisano*** combination discloses [17a] and renders it obvious. *See* VII.B.1; [1c1]-[1c3]; EX-1010, ¶311." Pet., 95. This fails for three reasons.

First, Ground 4 is based on the "***Shimura-Hisano-Shigeo*** Computer." *Id.* The assertion that [17a] is met by a different computer (the "Shimura-Hisano combination") fails to map all claim 17's limitations to the Shimura-Hisano-Shigeo Computer.

Second, to assess whether Lenovo met its burden to specify where [17a] is "found in the prior art" (37 C.F.R. § 42.104(b)(4)), Lenovo requires Patent Owner and the Board to review four other sections of the Petition ("VII.B.1; [1c1]-[1c3]") that in turn cross-reference other sections and require a review of twenty-four pages of the Petition. Lenovo failed to meet its burden to demonstrate unpatentability of claim 17 with particularity for that reason alone. *See* § III.B (citing *Contentguard* and other authority).

Third, if the Board were to trace through Lenovo's web of nested cross-references, it will never find a mapping of the requirements in limitation [17a] to "the Shimura-Hisano combination" or to the "Shimura-Hisano-<u>Shigeo</u> Computer."

I. Ground 5 Fails

Ground 5 alleged obviousness of independent claim 11 over a combination of Shimura, Hisano, Shigeo, and Choi. Pet., 100. Ground 5 fails for two independent reasons.

1. <u>Independent Reason 1</u>: Lenovo Failed to Establish the Combination Meets [11d]'s "Display Orientation Module"

a. Lenovo's Construction Failed

As discussed in § VI.A.1, the Petition alleged the display orientation module is a means-plus-function limitation and then failed to meet the requirements the Federal Circuit has imposed for properly construing a means-plus-function limitation where the alleged corresponding structure is a programmed computer. Ground 5 fails for this reason alone.

b. The Petition Failed to Apply Its Own Construction of the Function of the Alleged Means-Plus-Function Limitation

To meet its burden on a limitation the Petition alleged is a means-plus-function limitation, the Petition must demonstrate the prior art performs the "function" the Petition identified for the alleged means-plus-function limitation. *Transclean*, 290 F.3d at 1372 (for a means-plus-function limitation the prior art "must disclose the recited function ***identically***"). The Petition failed to do so.

Lenovo's entire showing of how [11d]'s "function" is allegedly met was the conclusory assertion that "[t]he Shimura-Hisano combination discloses the function … of [11d]. *See **Claim 3***; Ex.-1010, ¶357." Pet., 111-112. This fails because the requirements imposed by claim 3 on the display orientation module are ***not*** the same as those imposed on [11d]'s display orientation module. Indeed, the "function" Lenovo identified as performed by [11d]'s display orientation module is ***different*** than the "function" Lenovo identified as performed by claim 3's display orientation module. *Id.*, 14-16.

The Petition never even attempted to map the alleged "function" of [11d] to the Shimura-Hisano-Shigeo-Choi combination that is the basis of Ground 5 or to any other prior art combination. That is fatal. 37 C.F.R. § 42.104(b)(4).

2. <u>Independent Reason 2</u>: Lenovo Failed to Establish that a POSA Following the Teachings of Shimura, Hisano, Shigeo and Choi Would Have Been Led to a Computer that Meets [11c]'s Means for Rotation

Lenovo alleged [11c]'s "means for rotation" is a means-plus-function limitation with the specification's corresponding structure being the "hinge assembly and associated parts (housing 142, shaft 154, springs 156, member 158, bracket 140) illustrated in FIGs. 7A-10 and described in the specification at 10:22-53." Pet., 12-13. Lenovo said this structure forms a "***single-axis*** hinge assembly." *Id.*, 105.

Lenovo alleged a POSA following the teachings of Shimura, Hisano, Shigeo and Choi would have been led to a computer with a single-axis hinge assembly that supports configuration in easel mode, and that the resulting combination meets [11c]. *Id.*, 100-105.

a. Lenovo Failed to Establish that a POSA Would Have Used the Single-Axis Hinge Assembly of Hisano or Choi in Shimura's Computer that Is Configurable in Easel Mode

Limitation [11c] requires "means for rotating the display … relative to the base to configure the portable computer between a laptop mode and an ***easel mode***." As explained in § VI.C.1 above, Lenovo admitted easel mode requires the hinge to rotate far enough to form an inverted V where the display component faces one direction and the base component's keyboard faces the opposite direction as shown below.

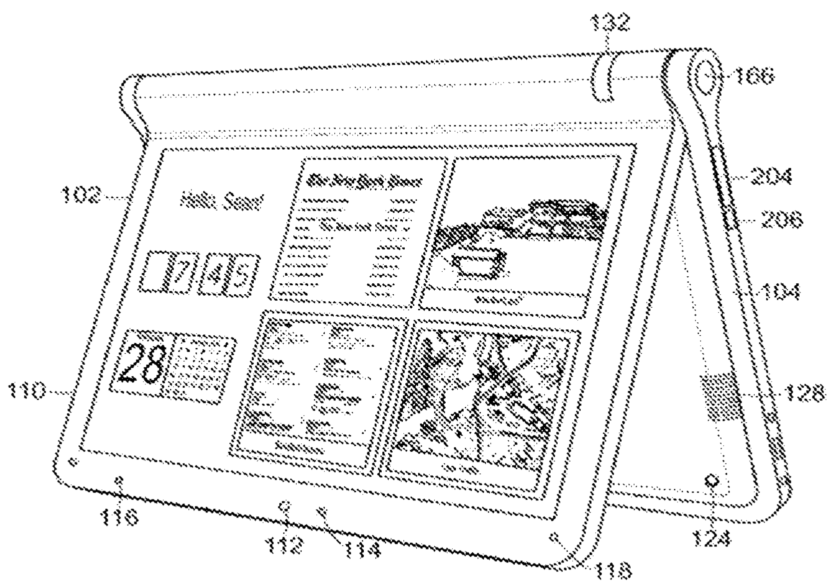


FIG. 4

Ground 5 alleged a POSA would have used "Choi's hinge mechanism … in Hisano's single-axis assemblies" (Pet., 109) and that "the single-axis hinge assembly of the Hisano-Choi combination" meets the specification's "corresponding structure for [11c]" (*id.*, 110) so "the Hisano-Choi combination discloses and renders obvious [11c]." *Id.*, 111.

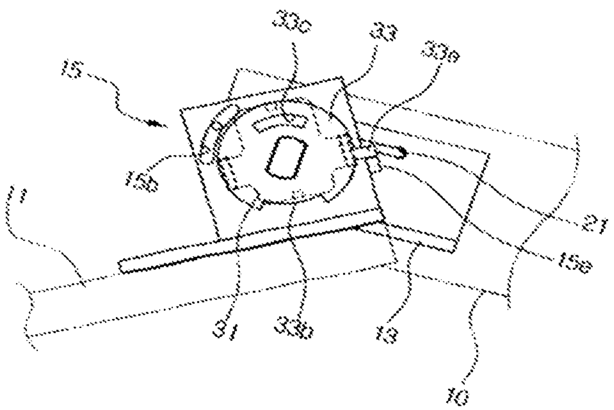
In alleging that it would have been obvious based on Hisano to use a dual-axis or single-axis hinge in Shimura, the Petition cross-referenced § VII.B.1. *Id.*, 100-101. As explained in Section VI.C.1.a of this Response, the Petition's "reasons to combine" in VII.B.1 failed to establish that a POSA seeking to retain Shimura's easel mode would have used Hisano's single-axis hinge assembly because that hinge assembly cannot rotate far enough to form the inverted V required for easel mode.

The Petition's conclusory assertion that using Hisano's single-axis hinge "in the Shimura computer would have been obvious" (*id.*, 102) was "supported" only by citation to "EX-1010, ¶339," which merely parrots that legal conclusion and should be given no weight. *See* § IV above.

Lenovo's allegation that "Choi's hinge mechanism can cover … easel mode[]" (Pet., 104) was "supported" only by citation to "EX-1010, ¶342" which Declaration testimony parrots this conclusion and notes that Choi can rotate beyond 180°.

Choi's hinge can rotate 210°. Ex. 1009, 3:25-26, 6:26-27, Fig. 7. As seen in Choi's Fig. 7, 210° is not far enough to form an inverted V of the type formed by the allegedly "corresponding structure" in the '688 Patent.

Choi, Fig 7 **’688 Patent, “inverted ‘V’”**



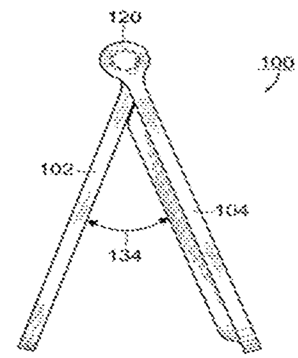


FIG. 5

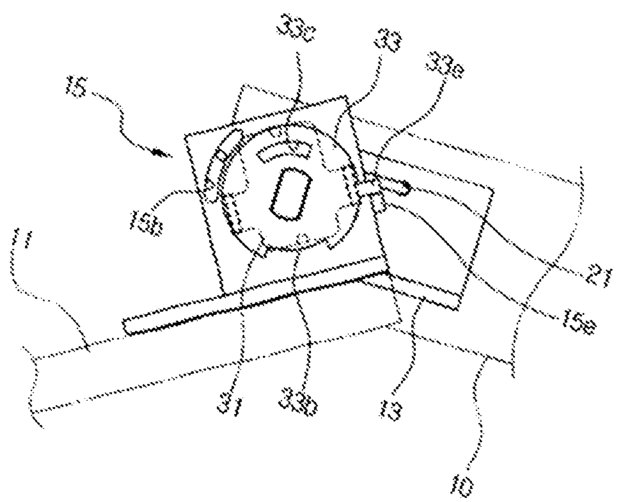
Lenovo’s assertion that a POSA would have been motivated to replace Shimura’s dual-axis hinge, which supports easel mode, with Hisano-Choi’s single-axis hinge that does not, fails on its face. The only thing that “motivated” that modification of Shimura was Lenovo’s improper attempt to reconstruct claim 11 in hindsight.

b. Lenovo Failed to Establish the Shimura-Hisano-Shigeo-Choi Combination Meets [11c]’s Function

Even if a POSA had a reason to modify Shimura to use Hisano-Choi’s single-axis hinge, the Petition failed to establish that the resulting Shimura-Hisano-Shigeo-Choi combination meets the function the Petition identified for [11c], which requires rotating the display “to configure the portable computer between a laptop mode ***and an easel mode***.” Pet., 13.

As demonstrated in § VI.I.2.a immediately above, the resulting combination with Choi's hinge could only rotate to 210° which is insufficient to perform [11c]'s identified "function" of rotating into easel mode. Lenovo failed to establish that [11c]'s identified function is met "identically" and Ground 5 fails for this additional reason. *Transclean*, 290 F.3d at 1372.

Choi, Fig 7



'688 Patent, "inverted 'V'"

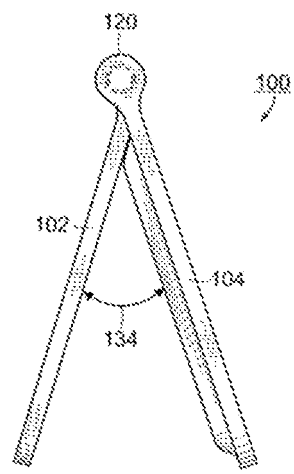


FIG. 5

c. Lenovo Failed to Establish that the Shimura-Hisano-Shigeo-Choi Combination Has the Specification's Corresponding Structure for [11c] or an Equivalent

Lenovo alleged the specification's corresponding structure includes the hinge assembly shown, *inter alia*, in Fig. 7B that supports easel mode. Pet., 13.

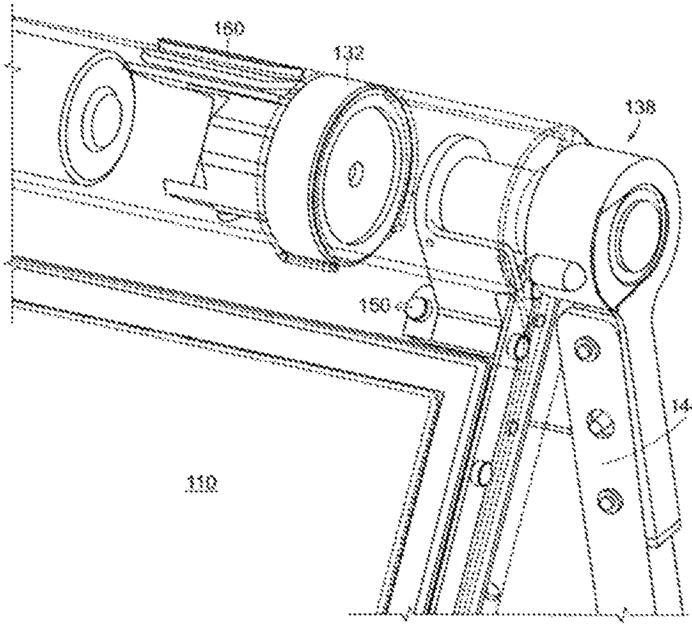
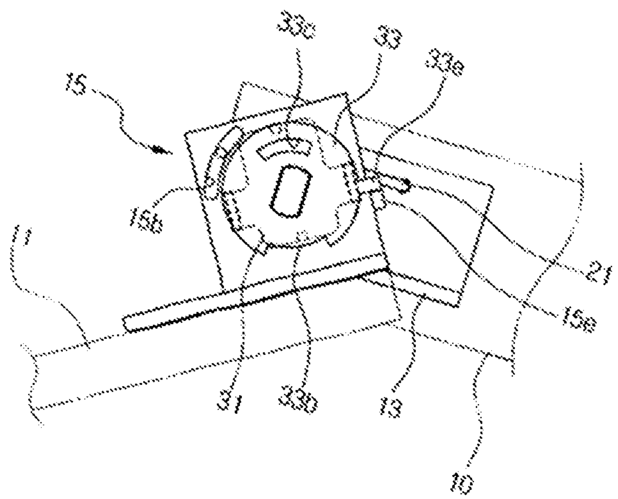


FIG. 7B

Lenovo alleged Choi's hinge mechanism is the same as the specification's "corresponding structure." *Id.*, 110-111. These structures are demonstrably not the same because the specification's "corresponding structure" Lenovo identified supports a far greater degree of rotation. *See e.g.*, Ex. 1001, 10:31-33 (describing rotation to 320°). Even if the Board were to somehow consider Choi's 210° rotation sufficient to (poorly) support easel mode, a hinge assembly that supports rotation to only 210° is demonstrably not the same structure as a hinge assembly that supports a far greater degree of rotation.

Choi, Fig 7 | **'688 Patent, "inverted 'V'"**



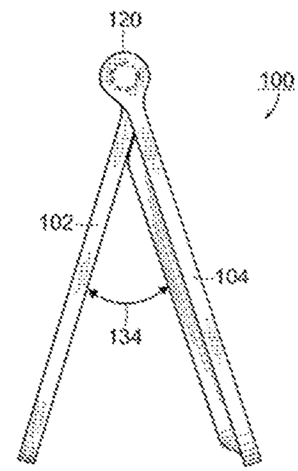


FIG. 5

The Petition made ***no argument*** that Hisano-Choi's structure is an "equivalent" to the specification's corresponding structure so no such argument can be considered. But even if the Petition had made such an argument, a POSA designing a computer ***configurable into easel mode*** would not consider Choi's hinge that rotates only 210° to be "equivalent" for that purpose to the "corresponding structure" in the '688 Patent that Lenovo identified (see Section VI.I.2-VI.I.2.c). These structures are demonstrably not "equivalent" because: (1) the specification's "corresponding structure" (Pet., 12-13) supports a far greater degree of rotation than Choi's hinge which rotates only 210°, *see e.g.*, Ex. 1001, 10:31-33 (describing rotation to 320°); and (2) there is no evidence that Choi's 210° hinge can support an easel mode (*see e.g.*, Ex. 1001, Fig 5, reproduced above) like the '688 Patent's 320° hinge can.

VII. CONCLUSION

For the foregoing reasons, the Board should deny institution.

Respectfully submitted,

Date: June 25, 2021

/ Richard F. Giunta /

Richard F. Giunta, Reg. No. 36,149
Gerald B. Hrycyszyn, Reg. No. 50,474
Jason Balich, Reg No. 67,110

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24, the undersigned certifies that the foregoing Patent Owner's Preliminary Response contains 13,832 words, including words in images on pages 6 and 10, but excluding; a table of contents, a table of authorities, a certificate of service or word count, or appendix of exhibits or claim listing. Patent Owner has relied on the word count feature of the word processing system used to create this paper in making this certification.

Date: June 25, 2021

/ Brooke Lunn /
Brooke Lunn
Paralegal
WOLF, GREENFIELD & SACKS, P.C.

CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6 (e)(4)

I certify that on June 25, 2021, I will cause a copy of the foregoing document, including any exhibits filed therewith, to be served via electronic mail, as previously consented to by Petitioner, upon the following:

Martin R. Bader	mbader@sheppardmullin.com
Nam H. Kim	nkim@sheppardmullin.com
Mike Kim	mskim@sheppardmullin.com
	LegalTm-LNV-LTL@sheppardmullin.com

Date: June 25, 2021

/ Brooke Lunn /
Brooke Lunn
Paralegal
WOLF, GREENFIELD & SACKS, P.C.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO (UNITED STATES) INC.
Petitioner

v.

LITL LLC
Patent Owner

IPR Case No. IPR2021-00786
U.S. Patent No. 9,880,715

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. §311 *ET SEQ.* AND 37 C.F.R. §42.100 *ET SEQ.* (CLAIMS 1-20 OF U.S. PATENT NO. 9,880,715)

EXHIBIT LIST

EXHIBIT	DESCRIPTION
1001	U.S. Pat. No. 9,880,715 ("the '715 Patent")
1002	Prosecution History of the '715 Patent
1003	JP 1994-242856 to Shimura
1004	Certified English translation of JP 1994-242856 ("Shimura")
1005	U.S. Pub. No. 2005/0062715 to Tsuji et al. ("Tsuji")
1006	Windows XP Home Edition: The Missing Manual (2nd Edition) ("Pogue")
1007	Declaration of Jean Ward
1008	Curriculum Vitae of Jean Ward
1009	Claim Listing
1010	U.S. Pub. No. 2008/0059888 to Dunko ("Dunko")
1011	U.S. Pub. No. 2006/0034042 to Hisano et al. ("Hisano")
1012	U.S. Pub. No. 2005/0122318 to Tonouchi et al. ("Tonouchi")
1013	JP 2002-258982 to Kiyoyuki
1014	Certified English translation of JP 2002-258982 ("Kiyoyuki")
1015	JP 1996-179851 to Shigeo
1016	Certified English translation of JP 1996-179851 ("Shigeo")
1017	DE 1031455A1 to Schweizer
1018	Certified English translation of DE 1031455A1 ("Schweizer")

EXHIBIT	DESCRIPTION
1019	Clifford & Gomez, Measuring Tilt with Low-g Accelerometers (2005) ("Freescale")
1020	U.S. Pat. No. 6,493,216 to Lin ("Lin")
1021	U.S. Pat. No. 8,151,105 to Park et al. ("Park")
1022	Ride, MIT's $100 Laptop (2005) ("MIT")
1023	U.S. Pat. No. 6,882,335 to Saarinen ("Saarinen")
1024	Panasonic CF-19 Operating Instructions
1025	Panasonic CF-T8 Operating Instructions
1026	Hardy, Lenovo ThinkPad X61 Tablet PC Review (2007)
1027	Lenovo ThinkPad X61 Tablet Service and Troubleshooting Guide
1028	Dell Latitude XT Tablet
1029	Motion Computing M1400 Tablet PC User Guide
1030	Motion Computing M1400 Tablet PC Addendum
1031	HP Compaq Tablet PC TC1100 QuickSpecs
1032	Sony Vaio VGN-UX280P (UX Series MicroPC) Spec Sheet
1033	Declaration of Michael J. Hopkins
1034	Declaration of Liliana Nunez
1035	WaybackMachine Archive of https://www.windows-help-central.com/show-desktop-icon-in-xp-missing.html
1036	Excerpts of Windows XP Hacks & Mods: For Dummies
1037	Excerpts of Windows XP in a Nutshell (2nd Edition)

EXHIBIT	DESCRIPTION
1038	U.S. Pat. No. 5,559,670 ("Flint")

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES

Page(s)

<u>Cases</u>

Statutes

Other Authorities

I. INTRODUCTION

The 20 challenged claims are directed to a computer with multiple computer system configurations, related features, and a graphical user interface with various views of computer content, all of which were well-known before the priority date. This computer is configurable between these configurations, including a laptop mode where the keyboard is accessible to the user and easel and frame modes where it is not. But these computer system configurations, and computers configurable to transition between them, were well-known before the priority date. Related claimed features include detection of the computer system configuration based on sensor(s), corresponding changes in the view of computer content, and well-known standard computer components, such as a CPU and keyboard. Further related claimed features include variations in the displayed views of computer content, including a home view, channel view, screen saver, and ways in which to navigate and use the displayed content. But likewise, these and other claimed features were well-known before the priority date.

Three prior art references—Shimura, Tsuji, and Pogue—in various combinations render obvious all 20 challenged claims. This petition requests that the Board find unpatentable and cancel all challenged claims.

II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Parties-In-Interest (§42.8 (b)(1))

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner Lenovo (United States) Inc. is a real party-in-interest. Petitioner is an indirect wholly-owned subsidiary of Lenovo Group Limited. Because Lenovo (Beijing) Limited has been named as a defendant in the "related matter" identified pursuant to 37 C.F.R. § 42.8(b)(2) (i.e., *LiTL LLC v. Lenovo (United States) Inc. and Lenovo (Beijing) Limited*, Case No. 1:20-cv-00689 (D. Del.)), Lenovo (Beijing) Limited is also a real party-in-interest.

B. Related Matters (§42.8 (b)(2))

The patent at issue, U.S. Patent No. 9,880,715 ('715 Patent"), is the subject of the following district court proceeding: *LiTL LLC v. Lenovo (United States), Inc. and Lenovo (Beijing) Limited*, Case No. 1:20-cv-00689 (D. Del.).

C. Lead and Backup Counsel (§42.8 (b)(3))

Petitioner appoints Martin Bader (Reg. No. 54,736) of Sheppard, Mullin, Richter & Hampton LLP as Lead Counsel, and appoints Nam Kim (Reg. No 64,160), and Michael Hopkins (Reg. No. 75,019), of the same firm as Back-Up Counsel. An appropriate Power of Attorney is filed concurrently herewith.

D. Service Information (§42.8 (b)(4))

Service of any documents to Counsel can be made via hand delivery to Sheppard Mullin Richter & Hampton LLP, 12275 El Camino Real, Suite 200, San

Diego, California 92130. Petitioner consents to service by email at LegalTm-LNV-LTL@sheppardmullin.com.

III. FEE FOR *IPR* (37 C.F.R. §42.15(a) and §42.103)

Petitioner has paid the required fees. The Office is authorized to charge any fee deficiency, or credit any overpayment, to Deposit Account No. 50-4561.

IV. REQUIREMENTS FOR *IPR* UNDER 37 C.F.R. §42.104

A. Grounds for Standing (§42.104(a))

Petitioner certifies that the '715 Patent is available for IPR and that the Petitioner is not barred or estopped from challenging the claims thereof.

B. Identification of Challenged Claims (§42.104(b)(1))

This Petition challenges the validity of Claims 1-20 of the '715 Patent.

C. Grounds of Challenge (§42.104(b)(2))

The Grounds of unpatentability presented in this Petition are as follows.

Ground	Basis	References	Challenged Claim
1	§103	Obvious over Shimura in view of Tsuji	1, 20
2	§103	Obvious over Shimura in view of Tsuji and Pogue	2-19

The '715 Patent issued from U.S. Application No. 14/680,422, filed April 7, 2015, which is a continuation of Application No. 12/416,496 (U.S. Patent No. 9,003,315), which is a continuation-in-part of Application No. 12/170,939 (U.S. Patent No. 8,289,688) and Application No. 12/170,951 (U.S. Patent No.

8,624,844), and claims priority to U.S. Provisional Application No. 61/041,365, filed April 1, 2008. Without conceding valid priority entitlement, for purposes of this Petition only, it is assumed that April 1, 2008 marks the earliest effective priority date (the "Critical Date") of the '715 Patent.

V. PROPOSED GROUNDS SHOULD NOT BE DENIED INSTITUTION ON ANY DISCRETIONARY GROUND

The Board should decline to exercise its discretion to deny institution under 35 U.S.C. § 325(d). The Section 325(d) analysis follows a two-part framework. *Amazon.com, Inc. v. VB Assets, LLC*, IPR2020-01346, slip op. at 6-7 (P.T.A.B. Feb. 4, 2021) (Paper 7). The Board first determines "whether the art or arguments presented in the Petition are the same or substantially the same as those previously presented to the Office." *Id.* If the answer is no, the inquiry ends there. But if the answer is yes, the Board then determines "whether the petitioner has demonstrated a material error by the Office in its prior consideration of that art or arguments." *Id.*

A. The Three References Were Not "Presented to the Office"

Of the three references relied upon, two were neither cited during prosecution nor relied upon by the Examiner. The only remaining reference—Shimura—was merely cited in an information disclosure statement ("IDS") and not relied upon or substantively considered by the Examiner in any way. EX-1002, 402. Therefore, all three references fail to satisfy part one.

The PTAB has "consistently held that a reference that was neither applied against the claims nor discussed by the Examiner does not weigh in favor of exercising our discretion under § 325(d)." *Solvay USA Inc. v. WorldSource Enterprises,* LLC, PGR2019-00046, slip op. at 14 (P.T.A.B. Aug. 13, 2019) (Paper 7). This includes "[m]ere citation in an IDS." *Id.*; *Zip Top, LLC v. Stasher, Inc.*, IPR2018-01216, slip op. at 35 (P.T.A.B. Jan. 17, 2019) (Paper 14) ("mere citation to a reference by the Examiner does not establish that the Examiner substantively considered the merits of" the reference) (collecting cases). Further, Shimura is just one of nearly 200 references cited in nineteen pages of cited references. *Shenzhen Zhiyi Tech. Co. Ltd. v. iRobot Corp.*, IPR2017-02137, slip op. at 10 (P.T.A.B. Apr. 2, 2018) (Paper 9) (declining to exercise 325(d) discretion where reference "was merely included in the approximately fifteen pages of cited references").

Additionally, the Shimura-Tsuji Combination is not cumulative of the art relied upon by the Examiner. The Examiner relies on an "orientation sensing mechanism" in U.S. Pub. No. 2008/0059888 ("Dunko") as disclosure of the "detect a current computer system configuration" limitations of the '715 Patent'. EX-1002, 228-253. However, Dunko's "orientation sensing mechanism" merely senses whether the device is in portrait or landscape mode using an accelerometer or gyroscope. EX-1010, ¶¶ 10-11. This is not the same structure disclosed by, nor does it serve the same purpose as the Shimura-Tsuji Combination, which uses a gravity sensor ***and*** a hinge rotation sensor to "detect a current computer system configuration" such as the '715 Patent's laptop, easel, and frame modes. VIII.B.1. Indeed, following the Dunko rejection, the patentee amended the claims to recite that the detected configuration include the operability/position of the keyboard. EX-1002, 207-211. Dunko's portrait/landscape detection could not accomplish this, but the Shimura-Tsuji combination does. VIII.B.1-VIII.B.2. Therefore, for at least this reason, the Shimura-Tsuji combination is not cumulative of Dunko because "it is solving a problem that is close to that of the '[715] Patent" using "different structures that serve different purposes." *Oticon Medical AB v. Cochlear Limited*, IPR2019-00975, slip op. at 15-16 (P.T.A.B. Oct. 16, 2019) (Precedential) (Paper 15).

B. Even If a Reference Was "Presented to the Office," the Office Made a Material Error by Overlooking Its Impact

Even if the Board finds that Shimura was previously "presented to the Office," to the extent the Examiner considered Shimura, it "misapprehend[ed] or overlook[ed] specific teachings of the relevant prior art [i.e., Shimura] where those teachings impact patentability of the challenged claims." *Cellco P'ship v. Huawei Device Co., Ltd.*, IPR2020-01117, slip op. at 12 (PTAB Feb. 3, 2021) (Paper 10).

Here, the Examiner did not rely upon or substantively considered Shimura. Thus, the Examiner overlooked specific teachings of Shimura that impact the patentability of the claims challenged in this Petition. *Id.* Similarly, the "fact that [the references in the Petition were] not the basis of rejection weighs strongly against exercising [the Board's] discretion to deny institution under 35 U.S.C. § 325(d)." *Id.*

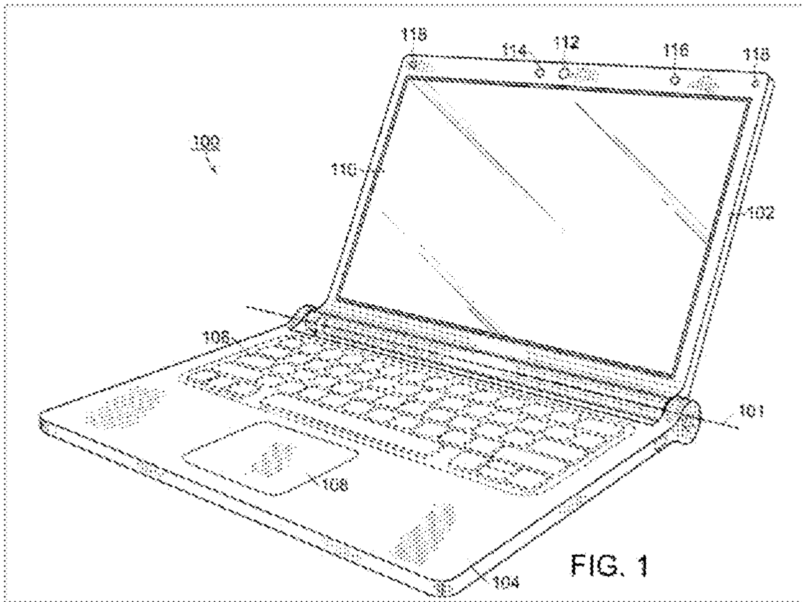
Moreover, the Examiner did not consider Shimura in combination with either Tsuji or Pogue. *Id.* at 14 (declining to exercise Section 325(d) discretion where "[reference] [is] cited and discussed during prosecution" but "the combination of [that reference and another reference] as asserted in the Petition has not been substantively evaluated by the Office"); *Amazon.com*, at 9 (Paper 7).

Therefore, the Board should decline to deny institution under Section 325(d).

VI. RELEVANT INFORMATION CONCERNING THE '715 PATENT

A. Overview of the '715 Patent

The '715 Patent is directed to a computer that "permit[s] the user to transition the device from one configuration to another during its use" and includes "a graphical user interface that organizes interface elements into views of computer content for presentation to [the] user." EX-1001, Abstract. The plurality of computer system configurations include a laptop mode (e.g., FIG 1 below) where a display component 102 is pivotably coupled to a base 104 that includes a keyboard 106. EX-1001, 19:12-31.



In laptop mode, the keyboard is accessible to the user. EX-1007, ¶¶48-49.

Other computer system configurations include an easel mode (FIG. 4 below) and a frame mode (FIG. 26 below). EX-1001, 19:51-52, 24:37-41.

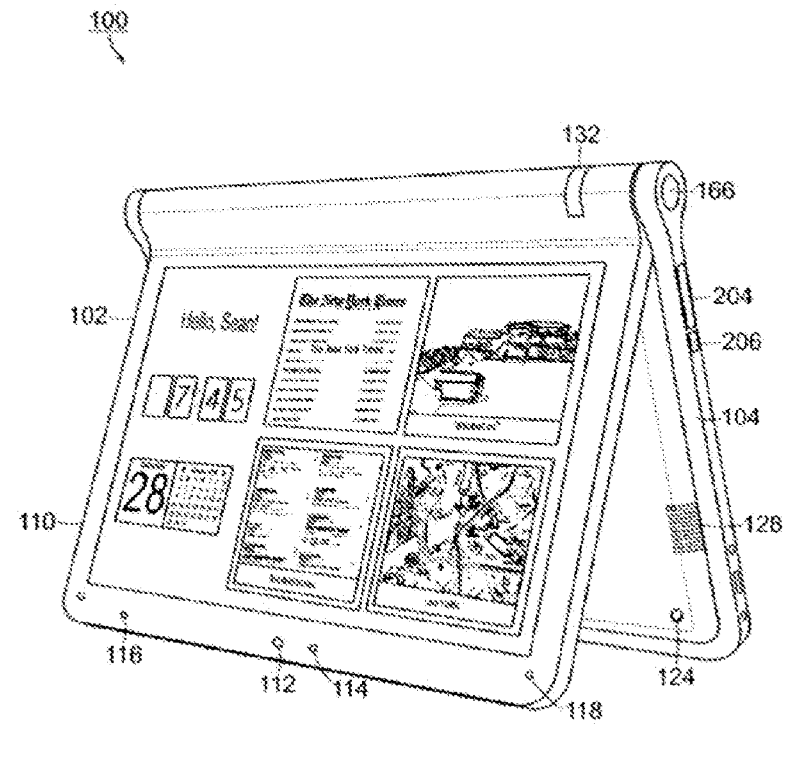

100
132
166
102
Hello, Sam!
204
206
104
110
28
126
116
112
114
118
124

FIG. 4

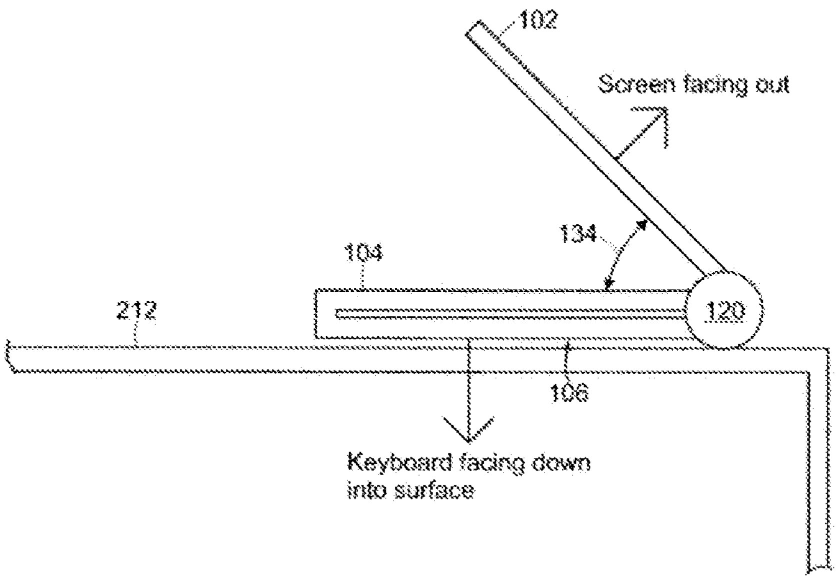

102
Screen facing out
134
104
212
120
106
Keyboard facing down
into surface

FIG. 26

In the easel and frame modes, the keyboard is "concealed and not easily accessible" to the user. EX-1001, 24:61-62. E.g., in the easel mode, the keyboard is "on the other side" of the portable computer from the "display screen" and in the frame mode, "the keyboard [is] 'face down' on the surface." EX-1001, 19:61-64, 24:37-41. Where it is undesirable for keys to be pressed, "software and/or hardware protection may be provided" to prevent the recognition or pressing of keys." EX-1001, 24:49-53. At the Critical Date, portable computers configurable into a plurality of display modes, including the laptop, easel, and frame modes, that were also capable of preventing recognition of keyboard input, were known in the art. EX-1007, ¶¶65-81.

The displayed content of the portable computer of the '715 Patent can be automatically or manually rotated by 90° or 180° so that the displayed content is oriented properly for an intended user. EX-1001, 20:10-15, 24:63-25:20. E.g., where the rotation is automated, the portable computer uses an orientation (or mode) sensor that detects whether the portable computer is in a laptop mode or an easel mode and adjusts the display accordingly. EX-1001, 20:20-24. The orientation (or mode) sensor may be located in a hinge assembly and "may be used to determine a precise relative orientation[, such as an angle,] of the base component 104 with respect to the display component 102 … to determine [a given display mode.]" EX-1001, 20:30-35, 70:2-6, 25-30. In some embodiments, the orientation sensor may be located in a display component 102 or base 104 and may include an accelerometer "whose output is fed to the computer operating system (or to dedicated logic circuitry) which then triggers a display inversion as appropriate." EX-1001, 20:24-26, 35-38.

The computer of the '715 Patent may further include a processor, which "usually executes an operating system which may be, for example, the Windows-based operating systems," such as "Windows XP." EX-1001, 68:14-15, 69:13-17. Together, these " define a computer platform for which application programs … are written." EX-1001, 69:26-28.

Moreover, the '715 Patent discloses a "graphical user interface [GUI] that … provides a clear overview of the entire computing environment and searching capability within the environment." EX-1001, 20:62-66. The '715 Patent describes various views, including a "home view," (or "home screen"), an example architecture of which is depicted in FIG. 11 (below). EX-1001, 31:8-20, FIG. 11.

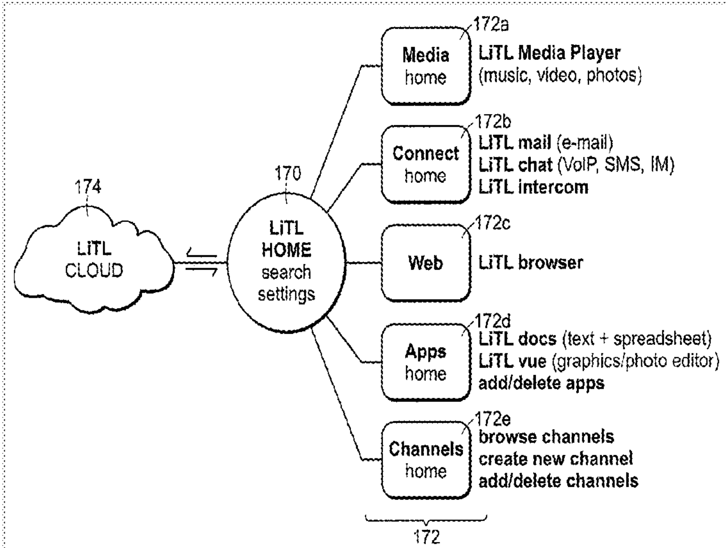


FIG. 11

The home view "displays a plurality of modes of content 172," such as "web," "applications," and "channels," which may be displayed in any configuration recognized by those skilled in the art, including "a 'desktop' and icon configuration." EX-1001, 22:14-23.

As mentioned above, one mode of content disclosed by the '715 Patent is a "channel" mode that includes "channel views" and "channel page views."[1] EX-1001, 21:20-23. An "example of a channel may include a 'photo frame' channel in which the portable computer may be configured to display a pre-selected image or

---

[1] The '715 Patent refers to both "channel views" and "channel page views" interchangeably and can therefore be the same view. EX-1001, 51:62-65, 52:62-65.

set of images," an example of which is shown in FIG. 24. EX-1001, 21:48-51, 54:20-28.

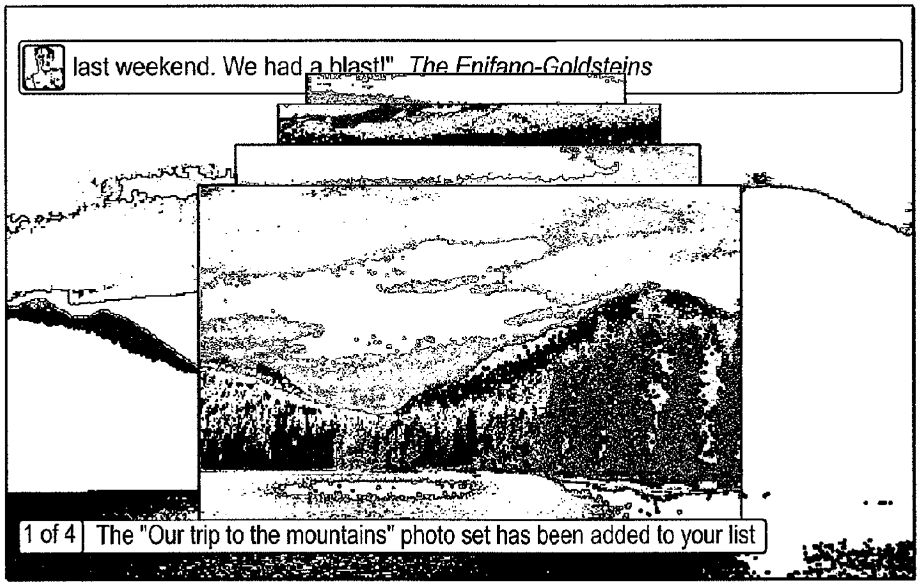


FIG. 24

The '715 Patent also describes a "screen saver view," which "may be activated by the computer system remaining idle for a period of time" and can display pictures and videos. EX-1001, 32:7-15.

Challenged Claims 1 and 2 are representative.

B. Prosecution History of the '715 Patent

The '715 Patent was allowed after one Office Action and claim amendments. EX-1002, *passim*. In the April 19, 2017 Office Action the Examiner rejected pending independent Claim 1 as obvious over "Creating a Digital Home Entertainment System with Windows Media Center" by Miller, 2006 ("Miller") in view of U.S. Pat. Pub. No. 2008/0059888 ("Dunko") and pending independent

Claim 21 (which issued as Claim 17) as obvious over Miller in view of Dunko and further in view of U.S. Pat. Pub. No. 2005/0221865 ("Nishiyama"). EX-1002, 228-253. Applicant amended independent Claims 1 and 21 and added a similarly-worded new independent Claim 24. EX-1002, 206-211. Subsequently, all pending claims were allowed. EX-1002, 161-174. However, as demonstrated below, these claims were squarely within the prior art, including the prior art relied upon in this Petition.

C. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (hereafter "POSITA") would have had at least a Bachelor's degree in Electrical Engineering, Computer Engineering, or Computer Science, plus two to three years of work experience in designing hardware and/or software aspects of user interfaces for computing devices and be familiar with designs of the user interface employed and displayed by the operating system and its organization of content and functionality. EX-1007, ¶¶24-28. Alternatively, the POSITA would also have received a graduate degree such as Master's or PhD degree in the same field with at least one year of the same work experience. *Id.*

D. Claim Listing

EX-1009 is a claim listing that enumerates each claim element.

VII. CLAIM CONSTRUCTION—37 C.F.R. §42.104 (b)(3)

The claim construction standard defined in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) applies to this proceeding. 83 Fed. Reg. No. 197, 51340 (Oct. 11, 2018); 37 C.F.R. 42.100. Words in a claim are given their plain meaning, which is the meaning understood by a POSITA after reading the entire patent. *Phillips*, 415 F.3d at 1312–13.

Petitioner proposes that only the terms below in the Challenged Claims require express construction for purposes of the current validity challenges. Petitioner reserves the right to respond to any constructions that LiTL may offer or that the Board may adopt. Petitioner is not waiving any arguments concerning indefiniteness or claim scope that may be raised in other proceedings.

A. "execution component"

Claim limitations construed below directly or indirectly include "an execution component" configured to perform recited functions.

For purposes of this Petition only, "execution component" is assumed to be a means-plus-function limitation under 35 U.S.C. §112, ¶6. *Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1348-50 (Fed. Cir. 2015); M.P.E.P. § 2181.I.A (identifying "component for" as a non-structural generic placeholder).

1. [1e], [17d], and [20e]

The functions of limitations [1e], [17d], and [20e] are listed in the table below:

[1e]	[17d]	[20e]
detect[ing] a current computer system configuration from at least a first computer system configuration where the keyboard is operable to receive input from an operator of the computer system to control the computer system and a second computer system configuration where the keyboard is inoperable to receive input from the operator of the computer system to control the computer system;	identify[ing] at least a first computer system configuration where the keyboard is operable to receive input from an operator of the computer system to control the computer system and a second computer system configuration where the keyboard is inoperable to receive input from the operator of the computer system to control the computer system based on sensor input indicating a position of the display component;	detect[ing] a current computer system configuration from at least a first computer system configuration where the keyboard is positioned to receive input from an operator of the computer system and a second computer system configuration where the keyboard is not positioned to receive input from the operator of the computer system;

The '715 Patent discloses a computer that includes a keyboard and can be configured in various computer system configurations, including laptop, easel, and frame modes. *See* VI.A. In the easel and frame modes "the keyboard may be concealed and not easily accessible." EX-1001, 24:61-63. In these modes, the keyboard is inoperable to receive input from (and not positioned to receive input from) an operator of the computer system to control the computer system. In the laptop mode, the "user may interact with" the keyboard. EX-1001, 57:9-18. In this mode, the keyboard is operable to receive input from (and positioned to receive input from) an operator of the computer system to control the computer system.

The '715 Patent also discloses that the computer includes an "orientation sensor" that may be used "to determine whether the device is in the laptop mode, easel mode, or some point in between." EX-1001, 20:20-38; 70:19-35. The orientation sensor can "include electronic or mechanical components, or a combination thereof," such as an accelerometer or a mechanism to "detect a relative orientation of the display component 102 and the base component 104 [that includes the keyboard 106] (for example, a size of the angle 134)" as shown in the frame mode depicted in FIG. 26. *Id.*

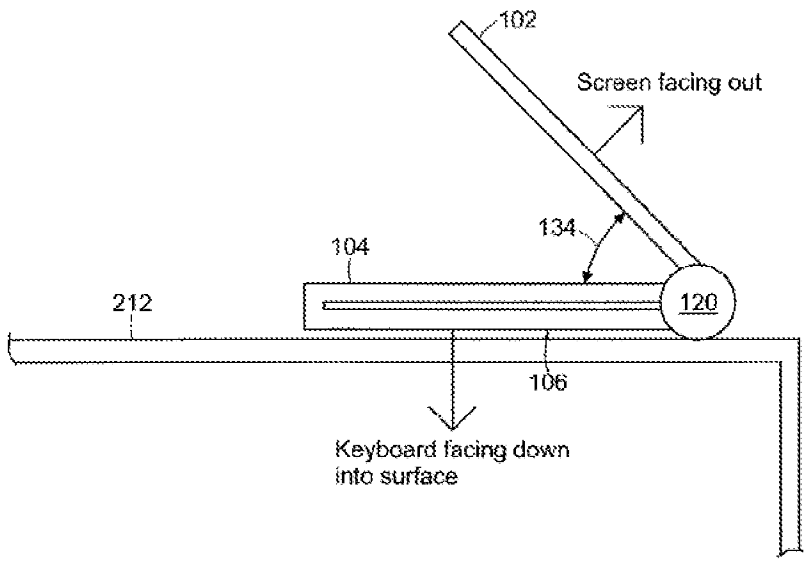


FIG. 26

The orientation sensor information can be output to "the computer operating system (or to dedicated logic circuitry)." *Id.*

The '715 Patent also discloses an "interconnection mechanism [that] enables communications (e.g., data, instructions) to be exchanged between system components." EX-1001, 68:9-69:36, FIG. 51. E.g., a POSITA would have known that data can be transferred from the orientation sensor to the processor, which "executes an operating system" and/or defined programs. *Id.*; EX-1007, ¶126. The POSITA would have also understood that the processor can then run a program that uses the data received from the orientation sensor to detect (or identify based on sensor input indicating a position of the display component) a current computer system configuration, using, e.g., "dedicated logic circuitry." EX-1001, 20:35-38; EX-1007, ¶126.

Thus, based on this disclosure, a POSITA would have understood the corresponding structure for each of the means-plus-function limitations of [1e], [17d], and [20e] to include at least (i) a program (or programs) executing on a processor, whereby the program(s) can (ii) receive data from orientation sensors, and (iii) use that received data to determine the current computer system configuration, and its equivalents. EX-1007, ¶127.

2. [1f], [17e], [20f]

The functions of limitations [1f], [17e], and [20f] are listed in the table below:

[1f]/[20f]	[17e]
select[ing] one of the plurality of views for display on the computer system in response to the detected current computer system configuration; and	select[ing], responsive to the sensor input, a first content view from the plurality of views for the first computer system configuration;
transition[ing] the display component to the selected one of the plurality of views.	transition[ing], automatically in response to the sensor input, the display component between at least the first content view of the plurality of views and a second content view of the plurality of views;

The '715 Patent discloses detecting (or identifying based on sensor input indicating a position of the display component) a current computer system configuration using data output from orientation sensors. *See* VII.A.1.

The '715 Patent also discloses that the output of the orientation sensors can be used by the computer to alter the content displayed on the display screen. EX-1001, 20:10-38, 24:63-25:20. E.g., when in easel mode, "the visual display on the display screen is automatically rotated 180 degrees such that the information appears 'right-way-up.'" *Id.* A POSITA would have understood that the normal, non-rotated display of content in the laptop (or frame) mode and the inverted, 180° rotated display of content in the easel mode are at least two of the plurality of views for display on the computer system (or at least the first and second content view of the plurality of views). EX-1007, ¶130.

The 180° rotation is accomplished by feeding the output of the orientation sensors "to the computer operating system (or to dedicated logic circuitry) which then triggers a display inversion as appropriate" based on the detected computer system configuration. EX-1001, 20:35-38. The initial data communication from orientation sensor to operating system/logic circuitry is accomplished via an "interconnection mechanism," where a program running on the processor then determines the computer system configuration. *See* VII.A.1. A POSITA would have understood that the processor could then run the same program or another program to select the normal or inverted view accordingly, which constitutes selecting one of the plurality of views in response to the detected current computer system configuration (or selecting, responsive to the sensor input, a first content view from the plurality of views). EX-1007, ¶131.

Because the "interconnection mechanism" also provides a connection between the processor and the display component (output device), a POSITA would have also understood that the processor could run the same program or another program that would transition the content displayed to the normal or inverted view. EX-1001, 68:9-34, FIG. 51; EX-1007, ¶132. The POSITA would have understood that this constitutes transitioning the display component to the selected one of the plurality of views (or transitioning, automatically in response to the sensor input, the display component between at least the first and second content views of the plurality of views). EX-1007, ¶132.

Thus, based on this disclosure, a POSITA would have understood the corresponding structure for each of the means-plus-function limitations of [1f], [17e], and [20f] to include at least (i) a program (or programs) executing on a processor, whereby the program(s) can (ii) select a view of displayed content appropriate for the detected computer system configuration (e.g., normal view for laptop/frame modes and inverted view for frame modes) and (iii) transition the display to the selected view, and its equivalents. EX-1007, ¶133.

3. [8]

The function is "caus[ing] the computer system to transition to a previous view in response to execution of a navigation element by a user."

The '715 Patent discloses that the navigation element can be "provided in visual representation of computer content" (i.e., an icon on the display) and, when executed, "operates as a toggle between present view and home view, returning a user to the home view when the present view is elsewhere, and returning the user to the previous view when the present view is the home view." EX-1001, 46:9-18. The '715 Patent also discloses that the display can be navigated using a mouse, touch pad, trackball, arrow keys, or other input devices, as known to those skilled in the art. EX-1001, 20:56-61, 21:8-11, 68:29-34. A POSITA would have understood that the navigation element displayed on the screen could be executed with one of these input devices. EX-1007, ¶135.

The '715 Patent's "interconnection mechanism" enables communication between these input devices, the processor, and the display. EX-1001, 68:9-34, FIG. 51; VII.A.1-VII.A.2. A POSITA would have understood that selection of the navigation element with an input device (such as a mouse) would send information to the processor indicating the navigation element was executed, which in turn would control the display to transition to a home view when the present view is elsewhere or to the previous view when the present view is the home view. EX-1007, ¶136.

Thus, based on this disclosure, a POSITA would have understood the corresponding structure for claim 8 to include at least (i) a program (or programs) executing on a processor, whereby the program(s) can (ii) detect execution of a navigation element and (iii) transition the display to the home view or previous view accordingly, and its equivalents. EX-1007, ¶137.

4. [13]

The function is:

[13a]: "execut[ing] a process for creating a visual representation in response to execution of a nascent card;"

[13b]: "transitioning to a quick access view;"

[13c]: "generating a mapping to online digital content;

executing the mapping; and

displaying a first view of the mapped digital content."

a. Limitation [13a]

The '715 Patent discloses that nascent cards are a type of system card that "provide[s] and display[s] computer system functionality that [may be] frequently accessed during ordinary computer use[]," that, when executed, maps to "functionality necessary to operation" of the device, such as a "Browse the Web" nascent card, which "reveals the creation of a new visual representation for accessing web content." EX-1001, 30:2-4, 35:6-21, 38:62-39:1, 68:9-69:36. Like the "navigation element" discussed in VII.A.3, a POSITA would have understood that a nascent card displayed on the screen could be executed with an input device that communicates with a processor that in turn communicates with the display, thus initiating the process for creating a visual representation. EX-1007, ¶139.

b. Limitation [13b]

The '715 Patent discloses that the "quick access view" may include "displaying content options in order to generate a mapping" or to allow "a user to select computer content to associate with the new visual representation," such as, a web page that "present[s] a display of frequently accessed web content (e.g. web pages) to the user" or is "configured to permit entry of a uniform resource locator (e.g. a url), and further configured to allow a user to request display of bookmarked locations." EX-1001, 30:15-17, 40:55-65, 68:9-69:36. A POSITA would have understood that a program executing on the processor could instruct the display to transition to such a "quick access view" by communicating through the "interconnection mechanism." EX-1007, ¶140; VII.A.2-VII.A.3.

c. Limitation [13c]

The '715 Patent discloses that "[i]n response to a request to display a web page in a new window"—e.g., by selecting any of the frequently accessed web content, entering a url, or selecting a bookmarked location in the quick access view—"a new visual representation is generated and associated with a mapping to the web page." EX-1001, 41:10-13. A POSITA would have understood this to disclose that in response to a request to display a web page from the quick access view, the computer system generates a mapping to the website (i.e., online digital content), executes the mapping, and displays a first view of the mapped digital content (i.e., displays the website.) EX-1007, ¶141. APOSITA would have further understood that this could be accomplished by a program executing on the processor that is communicating with the display through the "interconnection mechanism." EX-1007, ¶141; VII.A.2-VII.A.3.

Thus, based on this disclosure, a POSITA would have understood the corresponding structure for Claim 13 to include at least (i) a program (or programs) executing on a processor, whereby the program(s) can (ii) detect execution of a nascent card, (iii) transition the display to the quick access view in response, and (iv) map to, and display, online content in response to a request to display that content from the quick access view, and its equivalents. EX-1007, ¶142.

5. [16], [17f], and [17g]

The functions of Claim 16 and limitations [17f] and [17g] ("[17f]+[17g]") are listed in the table below:

16	[17f]+[17g]
transition[ing] the computer system to the channel view in response to receiving user input via at least one input device integral to or operatively connected with the computer system.	receiv[ing] user input via at least one input device integral to or operatively connected with the computer system; and transition[ing], automatically in response to receiving the user input, the display component from one of the first content view and the second content view to a channel view including a channel selector that displays a sequence of visual representations.

The '715 Patent discloses a computer system configured to allow a user to navigate to various views of the user interface "using conventional tools, such as a trackball, touchpad, mouse or arrow keys." EX-1001, 20:62-21:29, 31:49-32:56, 68:9-69:36, FIGs. 9, 50. A POSITA would have understood this to constitute receiving user input via at least one input device integral to or operatively connected with the computer system. EX-1007, ¶144.

Specifically, a user can navigate to a channel view that may optionally include a channel selector that displays a sequence of visual representations. EX-1001, 20:62-21:29, 31:49-32:56, 68:9-69:36, FIGs. 9, 50. A POSITA would have understood this to disclose transitioning, automatically in response to receiving the user input, the display component from one of the first content view and the second content view to a channel view (or transitioning the computer system to the channel view in response to receiving user input). EX-1007, ¶145.

Thus, based on this disclosure, a POSITA would have understood the corresponding structure for [17f]+[17g] and Claim 16 to include at least (i) a program (or programs) executing on a processor, whereby the program(s) can (ii) receive user input via an input device, and (iii) transition the display to the channel view in response. EX-1007, ¶146.

B. "content mode" in [2] and [3]

The '715 Patent describes "high level navigation options [that] provide a summarized view of the available content" that may be "grouped based on a mode of content" and, when selected, the computer "navigate[s] to more detailed operations" in that content mode. EX-1001, 27:38-47. In the mode of content, the user may "select particular functions, features or applications within that mode." EX-1001, 22:37-40. E.g., Fig. 11 (below) depicts a block diagram of a "'home' screen 170 that displays a plurality of modes of content 172" that, when selected, allow "the user [to] access the content organized within that mode." EX-1001, 21:14-29.

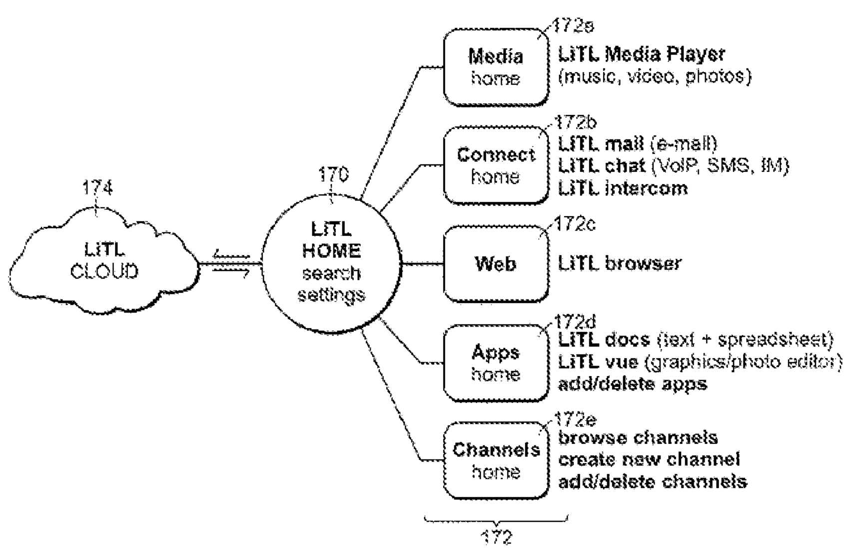


FIG. 11

These modes of content "may be displayed as a series of bars across the display screen" (FIG. 12, below), "a 'desktop' and icon configuration" (not shown), "a 'dashboard' type display" (FIG. 13, below), "or another configuration, as would be recognized by those skilled in the art. EX-1001, 22:10-21.

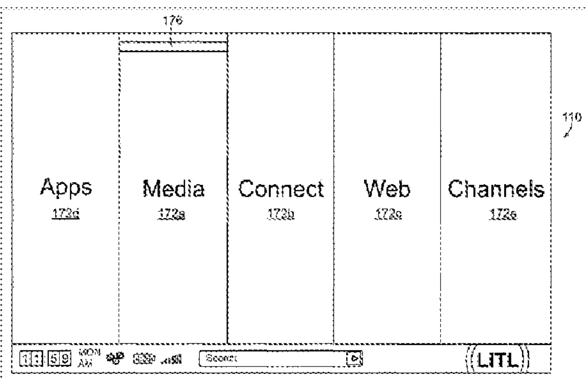


FIG. 12

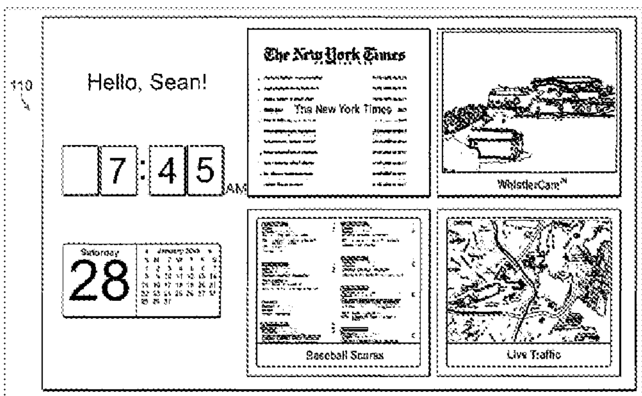


FIG. 13

For purposes of this Petition only, "content mode(s)," "single content mode," and "two content modes" each is construed as "user selectable element(s) displayed on a user interface that, when selected, allows the user to access the content organized therein."

VIII. PRECISE REASONS FOR RELIEF REQUESTED

A. Summary of the Prior Art Applied in This Petition

1. Overview of Shimura

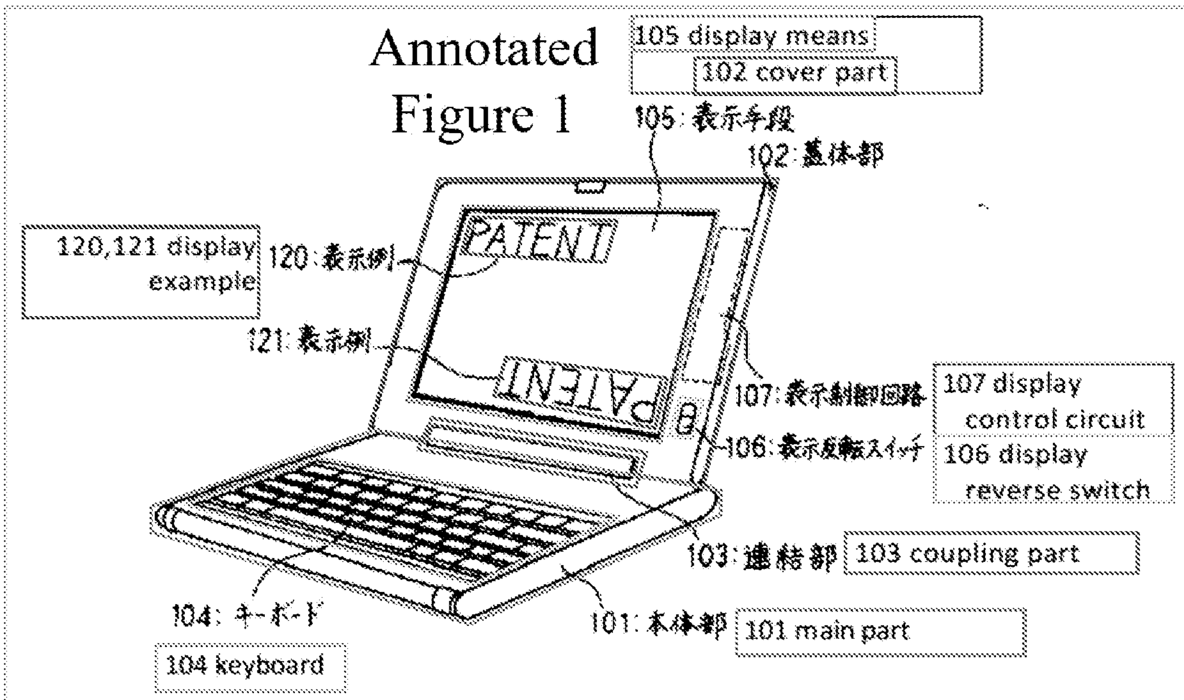
Shimura published as Japanese Patent No. 1994-242853 on September 2, 1994, from an application filed on February 15, 1993. Shimura therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). The Shimura reference was published in Japanese, and a certified English translation is provided herein (EX-1004). Reference will be made to the certified English translation for simplicity.

Shimura is directed to a portable "computer which can adopt a mode suitable for a user environment." EX-1004, Abstract. The portable computer includes:

- main part 101 (dark green below in Annotated Figure 1 of Shimura) with keyboard 104 (light green);
- cover part 102 (dark blue) with display means 105 (light blue);
- coupling part 103 (red) fastening main part 101 to cover part 102;

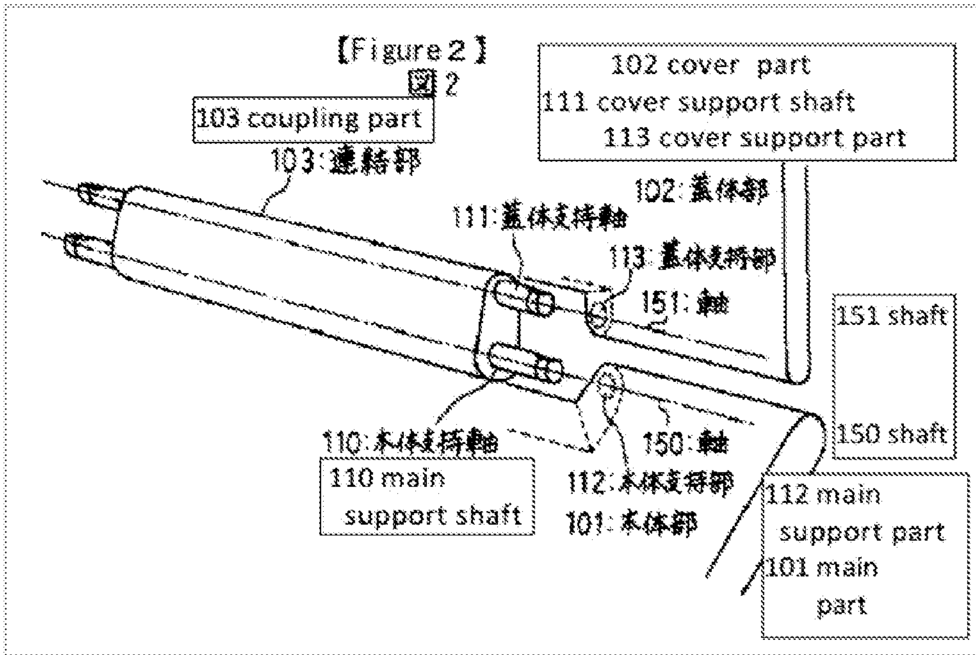
- display reverse switch 106 (orange) to set the display to a normal view or an inverted view (i.e., the displayed content is turned upside down); and
- display elements 120, 121 (dark red).

EX-1004, Abstract, ¶¶10-17.

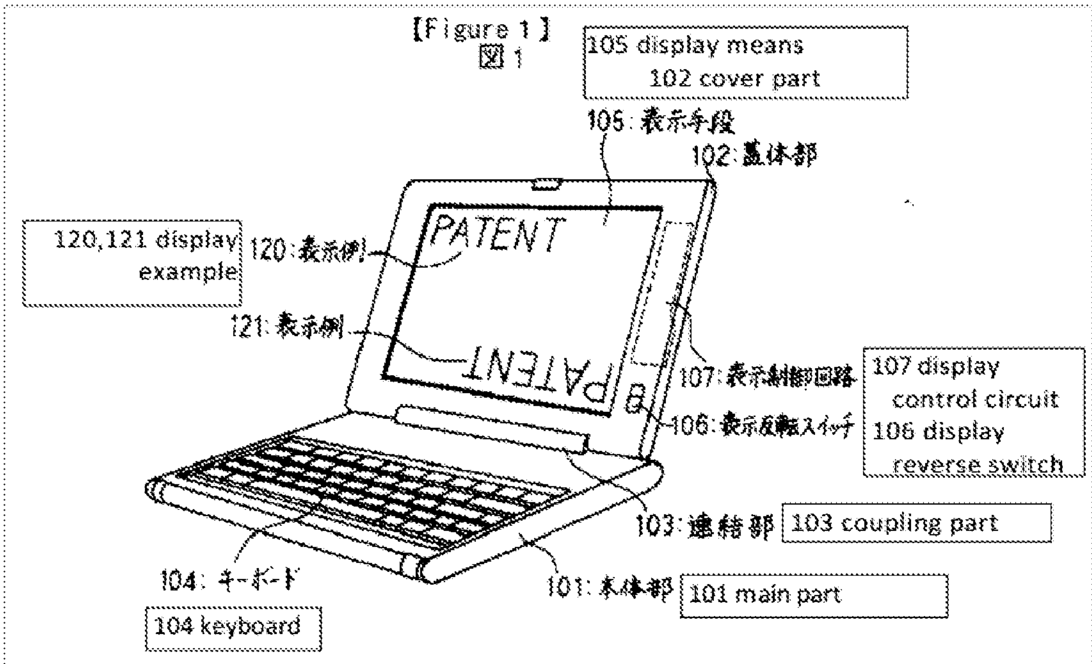


Annotated Figure 1

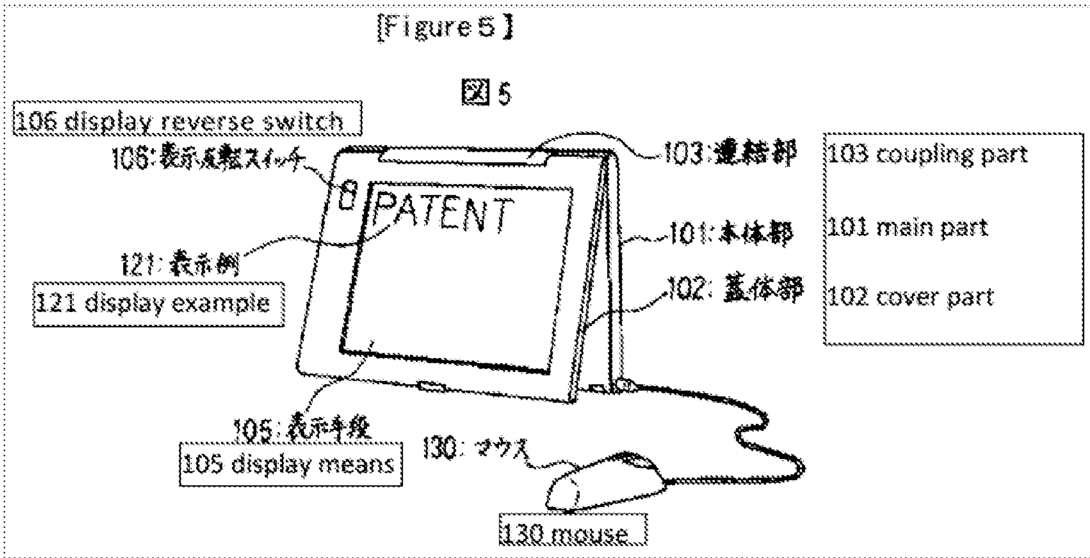
The coupling part 103 allows the cover part 102 to be rotated up to 360° about the main part 101 into various computer system configurations. EX-1004, ¶¶11-17. The coupling part 103 may include two shafts 150, 151, which facilitate rotation of the cover part 102 about the main part 101, as illustrated in Figure 2 (below). EX-1004, ¶¶13-14. The coupling part 103 includes a main support part 112 of the main part 101 and a cover support part 113 of the cover part 102. EX-1004, ¶13.



In a first computer system configuration, which corresponds to the laptop mode of the '715 patent, the keyboard 104 is facing upward and is operable to the user and the display means 105 is facing the user, as illustrated in Figure 1 (below). EX-1004, ¶¶11, 14 ("The user can operate the computer while facing keyboard 104 and display means 105 in a natural mode.").



In a second computer system configuration, which corresponds to the easel mode of the '715 patent, the cover part is rotated 340° about the main part 101 such that the display means 105 is facing the user and the keyboard 104 is facing away from the user, and the user may be limited to interacting with the operating environment using a mouse 130, as illustrated in Figure 5 (below). EX-1004, ¶¶14-16.

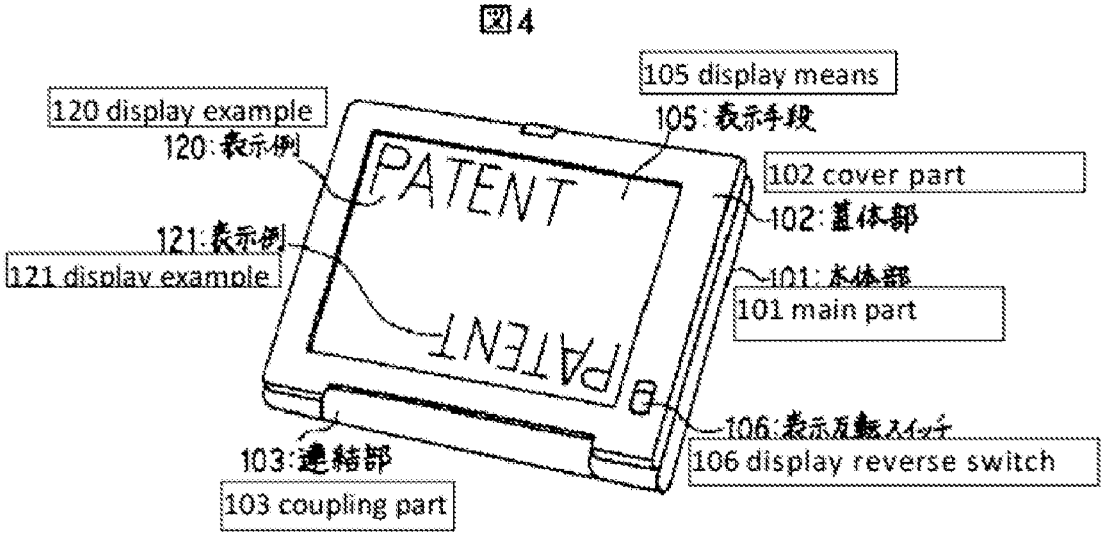


In a third computer system configuration, which corresponds to the frame mode of the '715 patent, the keyboard 104 and the display means 105 are facing away from each other, and the user may need to use a pen (not shown) to interact with the computer, as illustrated in Figure 4 (below). EX-1004, ¶17.[2]

---

[2] The '715 Patent describes that "the portable computer 100 may be configured into a 'frame' mode, … in which the portable computer is placed on a surface 212 with [1] the keyboard 106 'face down' on the surface 212 and [2] the display 110 facing upward." EX-1001, 24:37-41. FIG. 4 of Shimura discloses the frame mode because (1) the keyboard face down on a surface and (2) the display is facing upward. EX-1004, ¶¶16, 18, FIG. 4. Shimura further discloses that the portable computer can be configured from any angle between 0° to 360°, such as, for example, 340° as shown in Figure 5. *Id.*, ¶¶8, 10, 17.

[Figure 4]



Shimura also discloses a "second switching means" that can be set to invalidate input from the keyboard in a frame mode (Figure 4 above), where data can be mistakenly inputted from the keyboard. EX-1004, ¶8, 18. Shimura discloses that the input invalidation functionality operates automatically based on an angle of the cover part 102 compared to a main part 101. EX-1004, ¶¶18, 19.

2. <u>Overview of Tsuji</u>

Tsuji issued as a U.S. patent on August 12, 2008, which was first published on March 24, 2005 and claims priority to a Japanese application filed on September 19, 2003. Tsuji therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Referring to FIGS. 1 and 5 (below), Tsuji discloses a portable computer 1 including a computer main body 11 with a CPU (central processing unit). EX-

1005, ¶30. The display unit 12 of Tsuji is "implemented as a touch screen device that is capable of recognizing a position indicated by a stylus (pen) or a user's finger." EX-1005, ¶31; FIGS 1 and 5 (below). The portable computer 1 can be configured into a PC style, as illustrated in FIG. 1 (below), and a PDA style, as illustrated in FIG. 5 (below). EX-1005, ¶34.

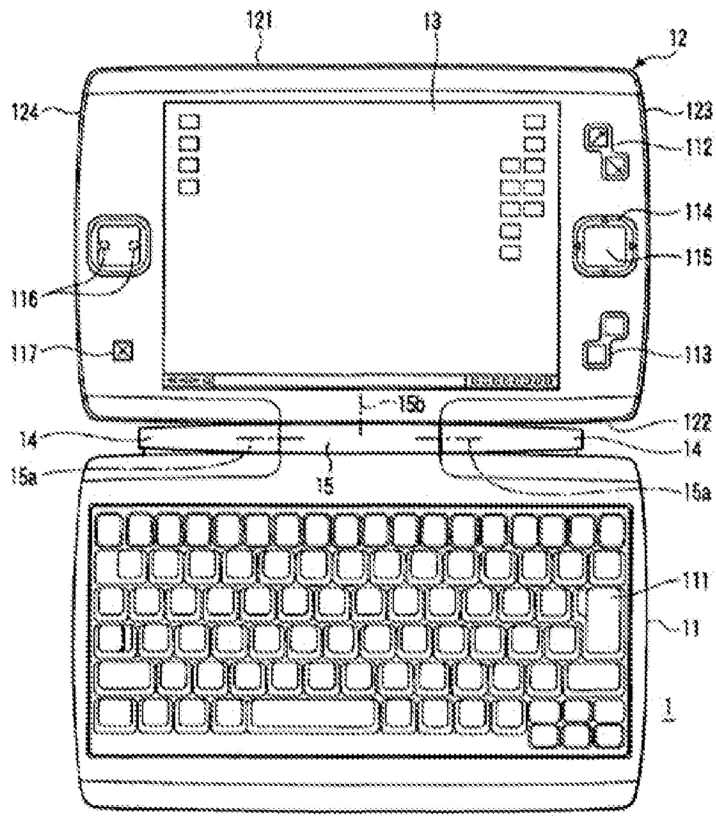


FIG. 1

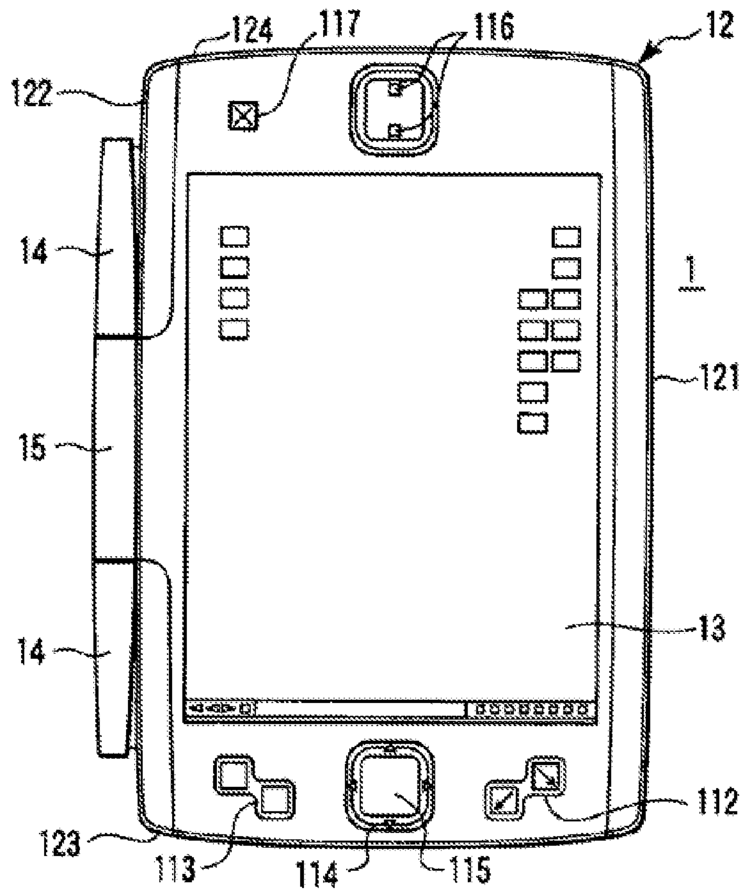


FIG.5

A display driver 303 in the portable computer 1 "performs an operation for rotating a screen image displayed on the LCD 13 and a scaling operation for varying the aspect ratio in response to an instruction from the BIOS 301." EX-1005, ¶70. The BIOS 301 relies on a gravity sensor 203 and/or a rotation angle sensor 202, illustrated in FIG. 10 (below), to orient the display unit 12 (i.e., rotate the screen image). EX-1005, ¶¶48-52, 58, 74-77.

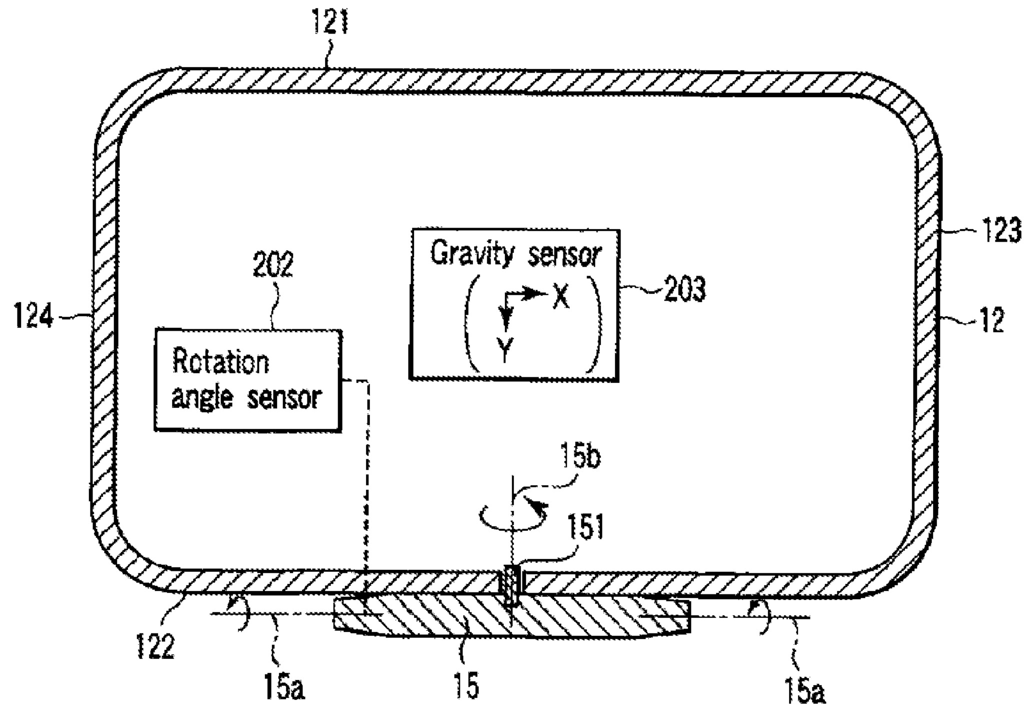


FIG.10

3. Overview of Pogue[3]

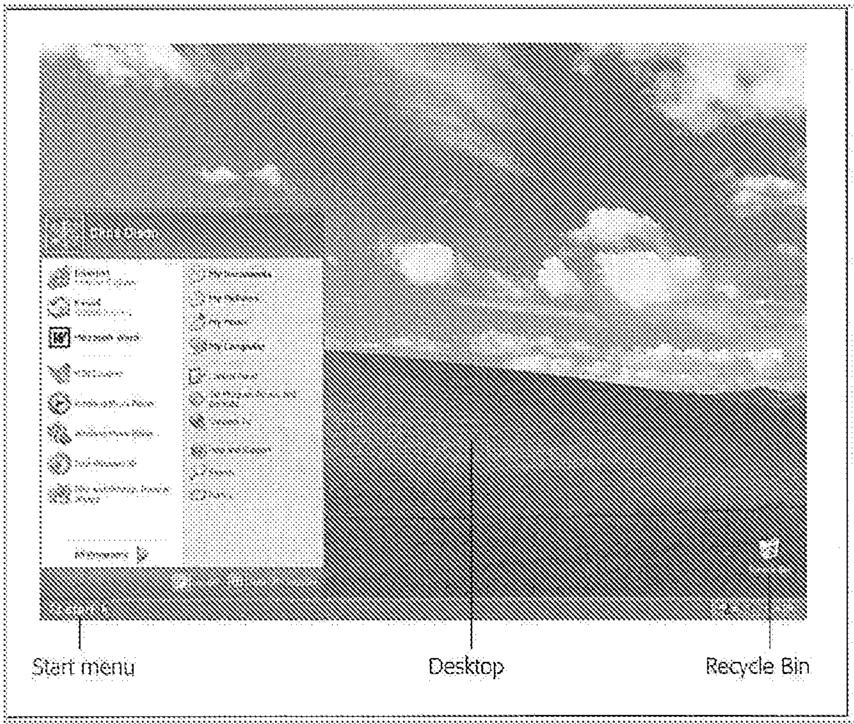
Pogue is a printed publication and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). Pogue bears a marking "Copyright © 2004 Pogue Press, LLC," has an ISBN Number, and a statement that it was "Published by O'Reilly Media, Inc." in the United States. EX-1006, 5; *FLIR Sys., Inc. v. Leak Surveys, Inc.*, IPR2014-00411, slip op. at 18-19 (PTAB Sept. 5, 2014) (Paper 9). Pogue's

---

[3] All citations to Pogue (EX-1006) are to the pages of the reference itself, not the stamped EX-1006 page numbers.

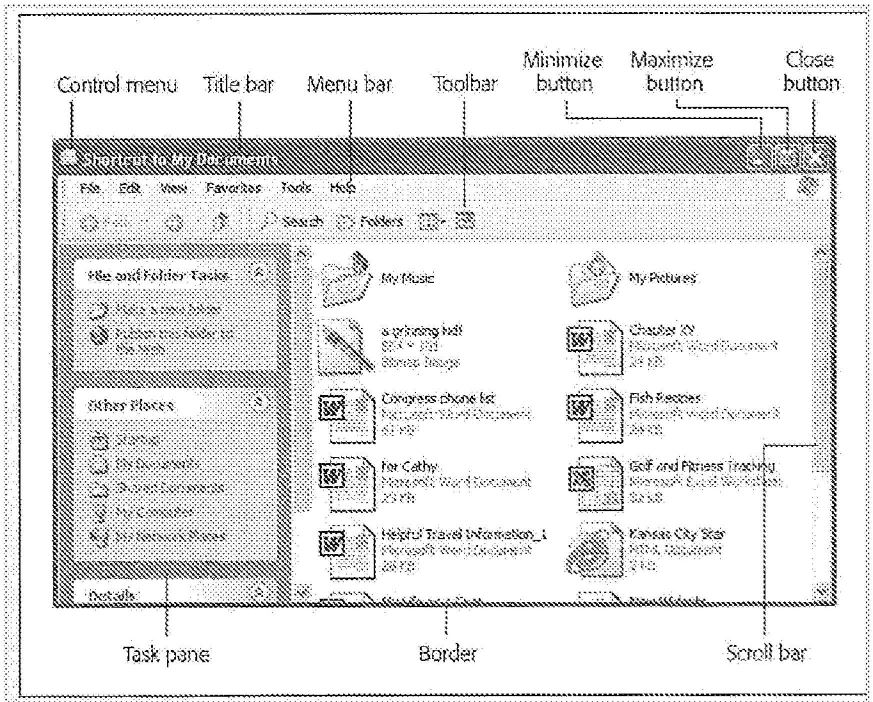
listing on amazon.com contains user reviews from as early as January 2005, and archived webpages indicate Pogue was available to purchase on various websites prior to the Critical Date. EX-1033, ¶¶2-4; *CIM Maintenance Inc. v. P&RO Solutions Group, Inc.*, IPR2017-00516, slip op. at 18-20 (PTAB June 22, 2017) (Paper 8); *Workspot, Inc. v. Citrix Systems, Inc.*, IPR2019-01002, slip op. at 17-21 (PTAB Nov. 20, 2019) (Paper 12). Pogue was cataloged by at least one library as early as October 2005. EX-1034, ¶2. As confirmed by the publisher, Pogue was available online to "subscribers, individuals, and libraries" as early as January 11, 2005. EX-1033, ¶5.

Pogue is meant "to serve as the manual that should have accompanied Windows XP" and includes "step-by-step instructions for using almost every Windows feature." EX-1006, 2. "Windows is an *operating system*, the software that controls your computer," and Windows XP is one version of the Windows operating system. EX-1006, 1, 5. "At its heart, Windows is a home base, a remote-control clicker that lets you call up the various software programs (applications) you use." EX-1006, 5. "Every application on your machine, as well as every document you create, is represented on the screen by an *icon*." EX-1006, 5. E.g., the "[d]esktop[] covers everything you see on the screen when you turn on a Windows XP computer: icons, windows, menus, scroll bars, the Recycle Bin, shortcuts, the Start menu, shortcut menus, and so on":



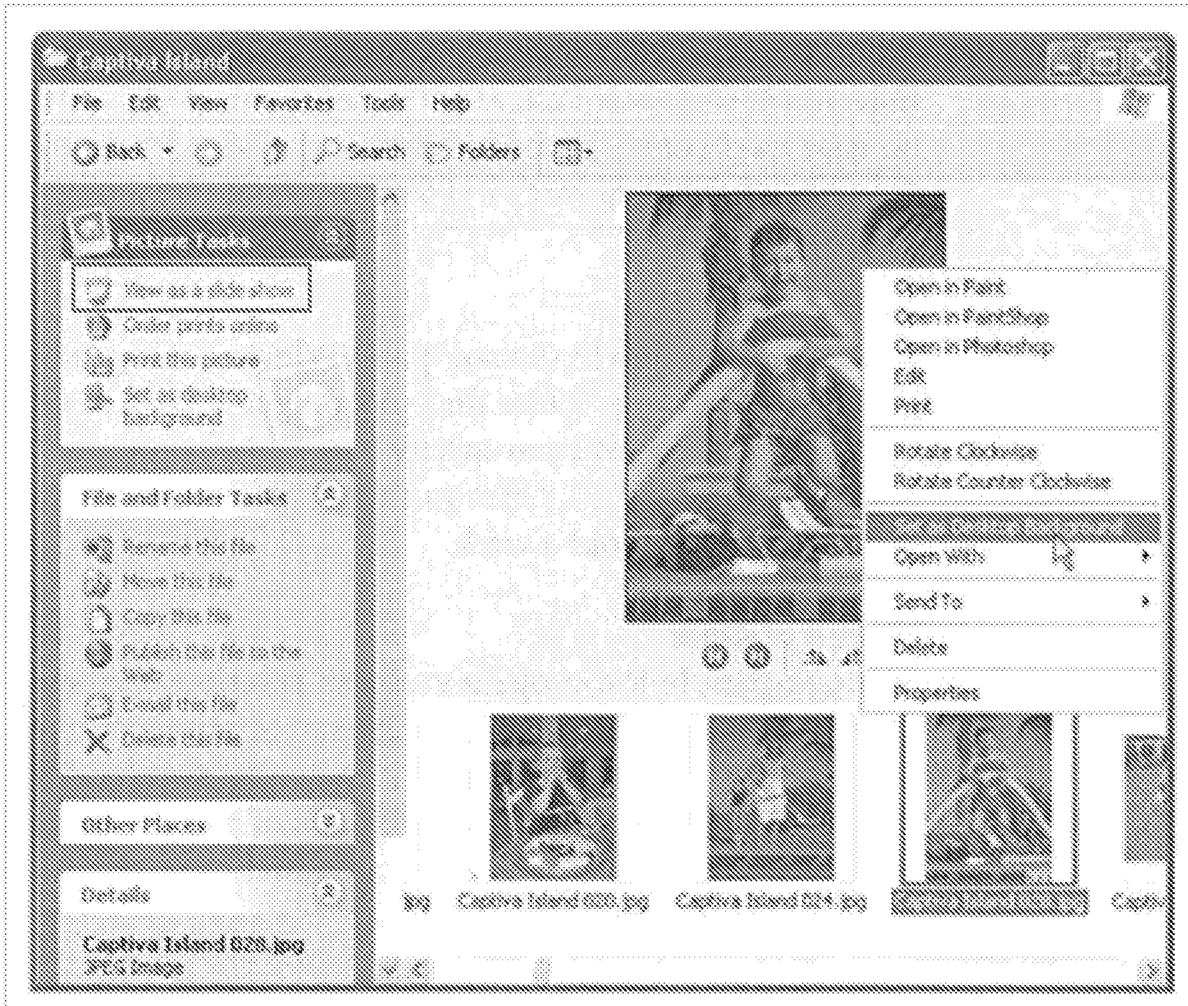
EX-1006, 3, 23. In order to keep the desktop organized, Windows is able to "organize[] icons into folders, put[] those folders into *other* folders, and so on." EX-1006, 101.

"Windows got its name from the rectangles on the screen—the windows—where every computer activity takes place." EX-1006, 65. Windows XP has different categories of windows, including "[d]esktop windows," which "organize your files and programs," and "[a]pplication windows … where you do work—in Word or Internet Explorer, for example." EX-1006, 65. An example window is shown in Figure 2-1:



EX-1006, 66.

One particular use of folders in Windows XP relates to the ability to manage and display digital photographs. EX-1006, 205 *et seq*. When photographs are saved to a computer running Windows XP, they are "usually in a folder in your MyPictures folder." EX-1006, 209. "Windows XP comes with two folder window views especially designed for digital photos: Thumbnail and Filmstrip [Figure 7-2 below]." EX-1006, 209. While in this folder, if "you click 'View as a slide show' [boxed in red] in the task pane, your screen goes dark … and your entire monitor fills with a gorgeous, self-advancing slide show of the pictures in the folder." EX-1006, 210.



Pogue also discloses screen savers, where a "few minutes after you leave your computer, whatever work you were doing is hidden behind the screen saver," which can be "composed of photos," turning "your favorite pictures into an automatic slide show whenever your computer isn't in use." EX-1006, 214, 263.

Windows XP also acts as your "equipment headquarters," providing the "behind-the-scenes plumbing that controls the various functions of your computer—its modem, screen, keyboard, printer, and so on." EX-1006, 6.

B. Ground 1: Shimura in view of Tsuji renders Claims 1 and 20 obvious.

1. Combination of Shimura and Tsuji (hereafter "Shimura-Tsuji combination")

A POSITA would have been motivated to combine Shimura with Tsuji for several reasons. EX-1007, ¶¶165-180

First, they are both contemporaneous patents directed toward complementary solutions to highly analogous problems in the same field of endeavor. They are both directed toward a portable computer that can be used in various computer system configurations and displayed content orientations. EX-1004, ¶¶10–17, Figures 1, 3, 4, 5; EX-1005, ¶¶34, 51, FIGs. 1, 5-8. They both discuss computer system configurations where the keyboard is inoperable and/or inaccessible. EX-1004, ¶¶8, 18, 19; EX-1005, ¶¶36, 45. While Shimura discloses a portable computer capable of receiving pen input, EX-1004, Abstract, ¶¶4, 5, 9, 11, 16, 20, Tsuji discloses that the touchscreen can also receive input from a stylus and finger. EX-1005, ¶36.

a. Incorporating Tsuji's Touch Screen Display into the Shimura Computer

A POSITA would have been motivated to incorporate the touch screen display of Tsuji, capable of both finger and stylus inputs, into the Shimura Computer because such a display was well-known at the Critical Date and such a display would provide an input device (e.g., a finger) that would not require an external peripheral device (e.g., a mouse, or stylus). EX-1007, ¶167. A POSITA would have had additional motivation to incorporate the touch-sensitive display of Tsuji because the keyboard is not always accessible or operable in all of the display modes of the Shimura Computer'. EX-1007, ¶167. Thus, a display that would be able to receive input from a finger would improve a user's interaction with the Shimura Computer. *Id.*

A POSITA would have understood that the Shimura Computer incorporating Tsuji's touch screen display includes other well-known portable computer components. EX-1007, ¶168. E.g., Tsuji discloses that the computer main body 11 includes a CPU (central processing unit). EX-1005, ¶30. While such a CPU is not explicitly disclosed in Shimura, a POSITA would have known that the Shimura Computer must include such a well-known standard component of a portable computer. EX-1007, ¶168.

b. Further Incorporating Tsuji's Rotation Angle and Gravity Sensors into the Shimura Computer

A POSITA would have been motivated to further incorporate the rotation angle and gravity sensors of Tsuji, illustrated in FIG. 10 (below), into the Shimura Computer to improve operability and/or usability by providing the option of automatically controlling the orientation of the displayed content based on one or more sensors. EX-1005, ¶33; EX-1007, ¶169.

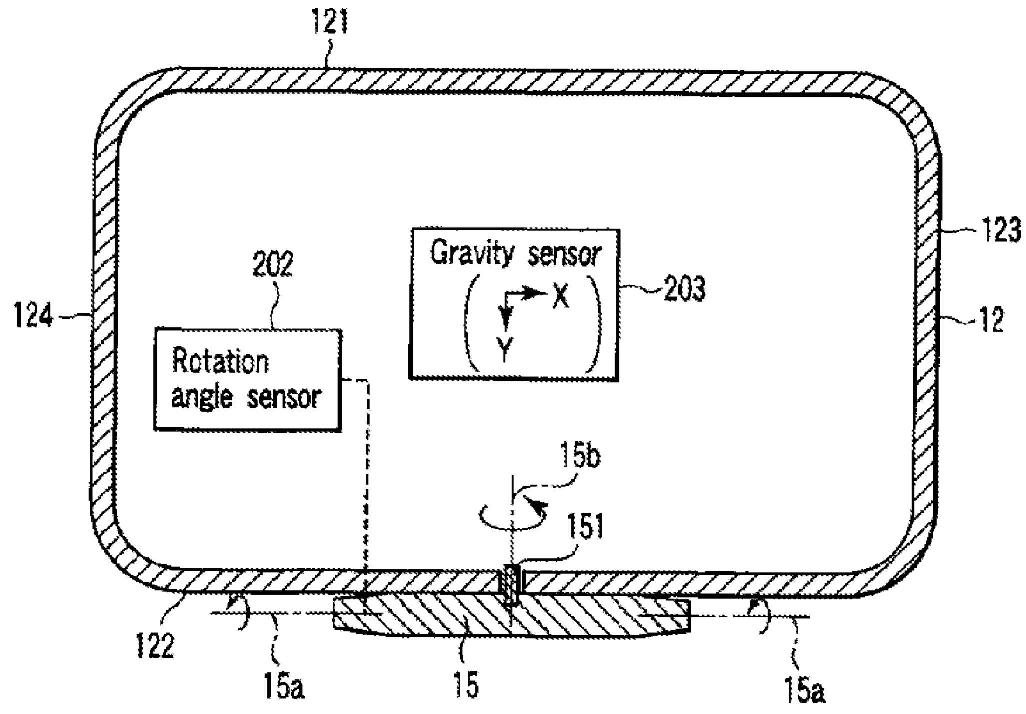


FIG.10

Specifically, Tsuji discloses the rotation angle sensor 202 sensing whether a rotation angle is greater than a specific rotation angle, and the gravity sensor 203 "sensing which orientation the display unit main body is located in relative to the orientation of the force of gravity." EX-1005, ¶¶58-59. Based on this disclosure, a POSITA would have been motivated to implement the combination of the rotation angle sensor 202 and the gravity sensor 203 in the Shimura Computer to enable it to distinguish between various computer system configurations (e.g., the laptop mode, the easel mode, and the frame mode). EX-1007, ¶170. E.g., as detailed below, even when the easel mode and the frame mode have the same rotation angle such that the output of the rotation angle sensor 202 would be the same, the output of the gravity sensor 203 would be different in those two modes and this difference can be used to distinguish between them. EX-1007, ¶170.

Also based on the above disclosure of Tsuji, a POSITA would have been motivated to implement the rotation angle sensor of Tsuji in the hinge of the Shimura Computer and the gravity sensor of Tsuji in the cover part 102 of the Shimura Computer, as illustrated in First-Modified Figure 1 of Shimura (below). EX-1007, ¶171. The output of the rotation angle sensor indicates the amount of rotation of the display component (102) relative to the base (101). *Id.* The output of the gravity sensor indicates the X-component and the Y-component of gravity in the plane of the display component (102). *Id.* As illustrated in FIG. 14 of Tsuji (below), the outputs of the rotation angle sensor 202 (outlined in red) and gravity sensor 203 (outlined in blue) are received by a BIOS program 301 (outlined in green) running on a processor that uses those outputs to determine the computer system configuration and instruct the display driver 303 (outlined in orange) to adjust the display screen in accordance with the logic diagram in Table 1 below. EX-1005, ¶¶63-71.

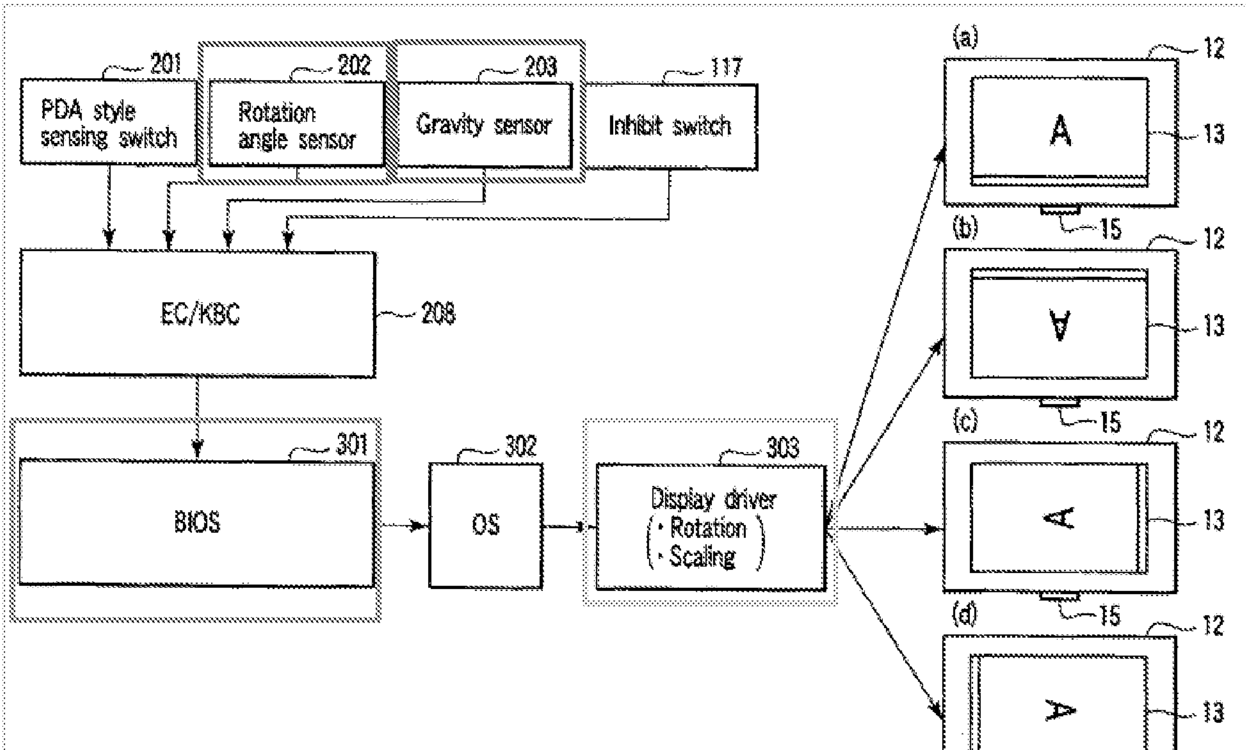
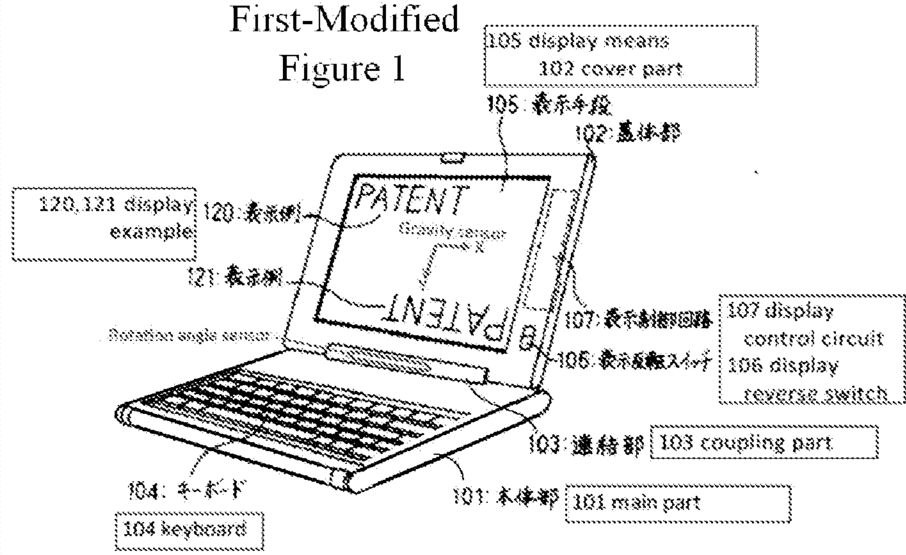


FIG. 14

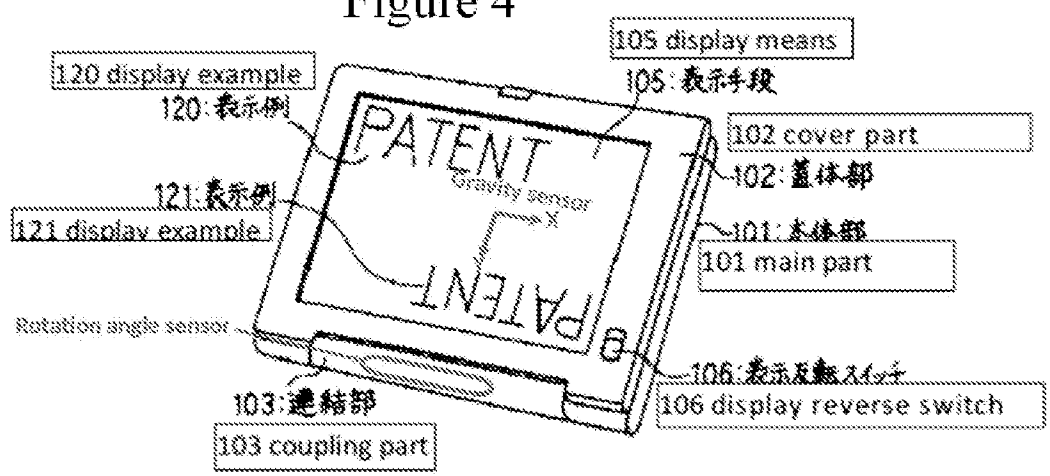
In the illustrated laptop mode example below, the output of the gravity sensor would indicate the Y-component of gravity in the plane of the display component (102) pointing towards the hinge (103). EX-1007, ¶172.

First-Modified
Figure 1

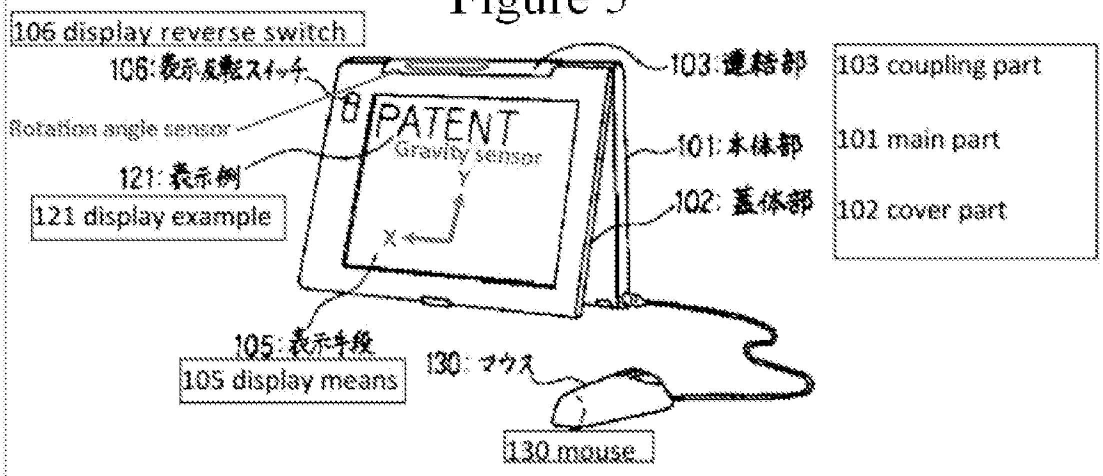


By monitoring the Y-component of gravity in the plane of the display component, illustrated in First-Modified Figures 4 and 5 of Shimura (below), the easel mode and the frame mode can be distinguished. EX-1007, ¶173.

First-Modified
Figure 4



First-Modified
Figure 5



Exemplary logic for determining the computer system configuration based on outputs of the rotation angle sensor and the gravity sensor is summarized in Table 1 below (*id.*):

Table 1		
Rotating Angle Output of Hinge-Rotation Sensor	**Gravity Direction Output of Gravity Sensor**	**Display Mode**
> 0° and < 180°	Not used	Laptop mode
>180°	Away from the hinge assembly	Easel mode
>270°[4]	Towards the hinge assembly, or none	Frame mode[5]

---

[4] The '715 Patent describes that in frame mode, "the keyboard 106 [is] 'face down' on the surface 212 and the display 110 [is] facing upward." EX-1001, 24:37-41. Therefore, the hinge-rotation angle must be greater than 270°.

[5] This assumes that the surface (e.g., a desktop) on which the base rests is

Additionally, accelerometers configured to detect the direction of gravity were well-known and commercially available at the Critical Date. EX-1007, ¶175. E.g., an application note by Freescale Semiconductor, Inc. indicates that the company manufactured MMA6200Q and MMA7260Q series accelerometers that can measure the tilt of an object. EX-1019. As the figures below from the application note demonstrates, the tilt is "a static measurement where gravity is the acceleration being measured." *Id.*

In fact, the application note identifies image rotation in a portable device as one of applications of the accelerometers. *Id.* So a POSITA would have known to use such a commercially available accelerometer and to use it as a gravity sensor. EX-1007, ¶176.

A POSITA would have known that Shimura's modified display control circuit 107 and modified electronic circuit receiving the outputs of Tsuji's hinge-rotation sensor 202 and gravity sensor 203 orient the displayed content between at least a normal view and an inverted view. EX-1007, ¶177. E.g., a POSITA would have understood that the displayed content would be oriented in a normal view in

---

horizontal/flat with respect to the Earth.

the laptop mode and frame mode and an inverted view in the easel mode. *Id.* Automatically transitioning between the normal and inverted view in different computer system configurations based on a rotation angle sensor and/or an accelerometer (e.g., a gravity sensor) was well-known at the Critical Date. *Id.*

c. Combining Tsuji with Shimura to Arrive at the Shimura-Tsuji Computer

It would have been obvious to incorporate Tsuji's:

- touch-sensitive display into Shimura's display component; and
- automatic display-orientation control feature used to process the sensor(s)'s outputs into Shimura's modified display control circuit 107 and modified electronic circuit.

The resulting system will be hereafter referred to as the "Shimura-Tsuji Computer." EX-1007, ¶178.

There would have been motivation to combine, and a reasonable expectation of success in combining, Tsuji with Shimura because the combination is merely a combination of well-known prior art elements according to known methods to yield predictable results. *KSR*, 550 U.S. at 415–21; EX-1007, ¶179. That is, Tsuji taught the well-known prior art concept of:

- a touch-sensitive display that can receive input from a finger; and

- automatically controlling the orientation of the displayed content in different display modes based on the hinge-rotation and gravity sensors.

EX-1007, ¶179. Application of these teachings to Shimura would have yielded a predictable portable computer with the above well-known prior art concepts. *Id.*

For all the reasons identified in VIII.B.1, the POSITA would have been motivated to arrive at the Shimura-Tsuji Computer by adding or otherwise integrating into the Shimura Computer:

- Tsuji's sensor(s) to improve operability and/or usability by automatically controlling the orientation of the displayed content in different computer system configurations; and
- an improved touch-sensitive display that is not limited to pens, but can also receive input from a finger, as in Tsuji.

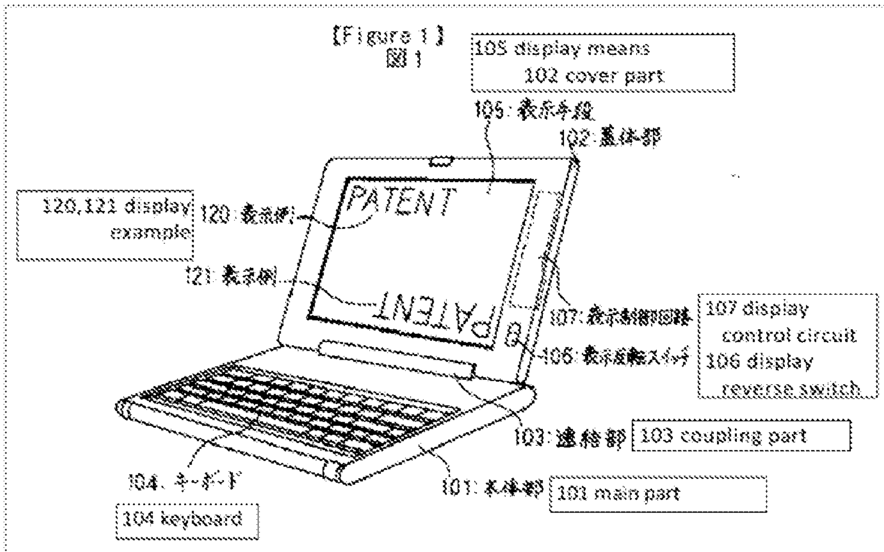
EX-1007, ¶180.

2. Claim 1

a. Limitation [1pre]

Shimura discloses [1pre]. *See* VIII.A.1; EX-1007, ¶¶181-184.

As shown in Figure 1 (below), Shimura discloses a portable personal computer that includes a cover part 102 with a display means 105 and a main part 101 with a keyboard 104. EX-1004, ¶11.



The display means 105 of Shimura is the "display part of the computer" and also "an input means when used in a pen input environment." EX-1004, ¶11. A POSITA would have understood that:

- the laptop disclosed by Shimura discloses the "computer system" of the '715 Patent;
- the cover part 102 of Shimura discloses the "display component" of the '715 Patent; and
- the keyboard 104 of Shimura discloses the "keyboard" of the '715 Patent.

EX-1007, ¶182.

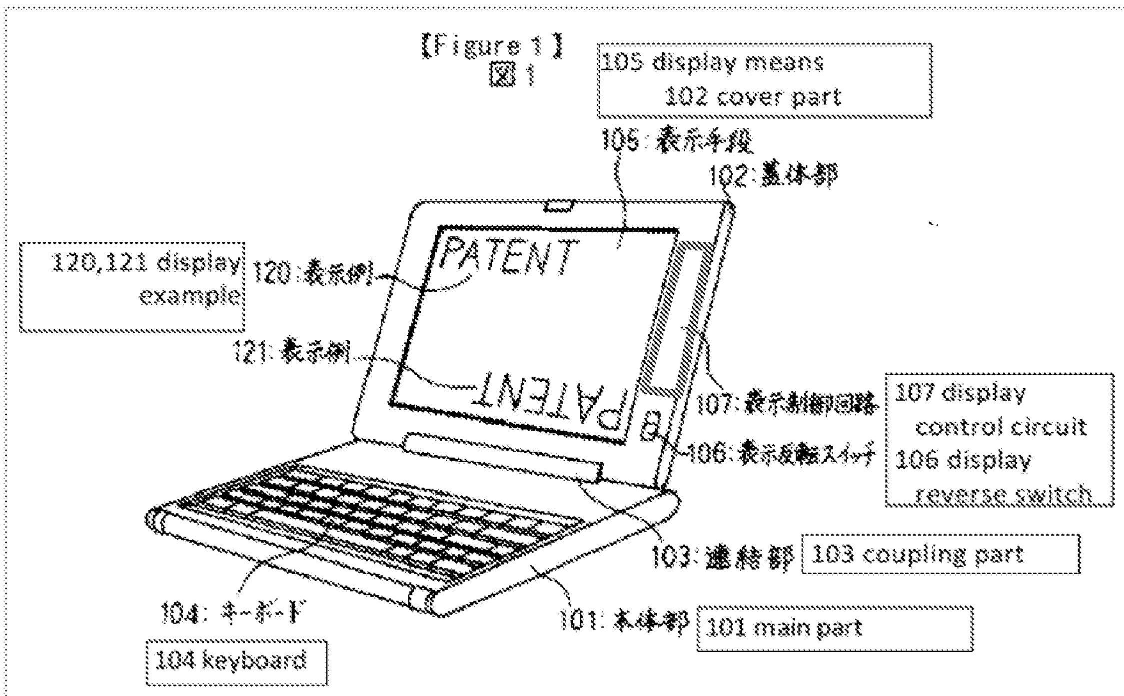
Further, Shimura discloses a user interface that displays computer content, thereby disclosing the "customized user interface to display computer content" of the '715 Patent. EX-1007, ¶183; VIII.B.2.c.

Therefore, Shimura discloses [1pre]. EX-1007, ¶¶181-184.

b. Limitation [1a]

Shimura discloses [1a]. *See* VIII.A.1; EX-1007, ¶¶185-187.

Shimura discloses a computer system that includes, among other things, a "display control circuit 107" (outlined in red) that controls output to the display means 105 by controlling the computer circuit stored in the main part 101. EX-1004, ¶11-12.

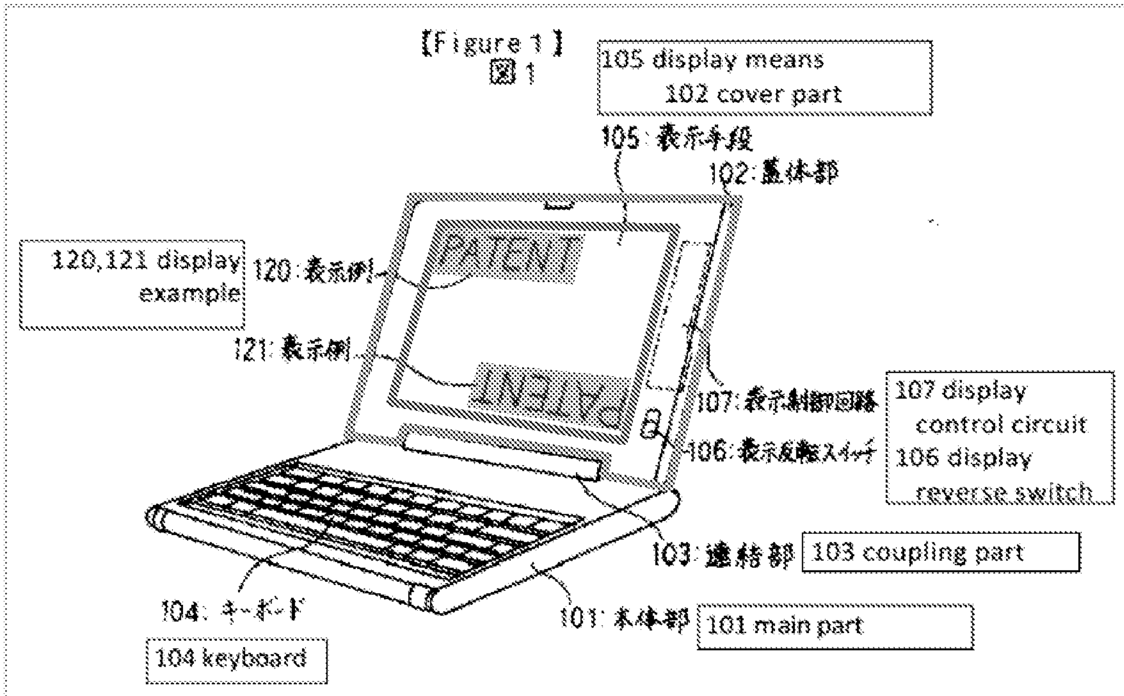


A POSITA would have understood that the display control circuit 107 and the computer circuit include "at least one processor operatively connected to a memory of the computer system" as claimed in the '715 Patent. EX-1007, ¶187.

c. Limitation [1b]

Shimura discloses [1b]. *See* VIII.A.1; EX-1007, ¶¶188-189.

Figure 1 of Shimura (below) shows a graphical user interface ("display means 105" outlined in red) configured to display the computer content ("display example 120/121" highlighted in blue) on the display component ("cover part 102" outlined in green).

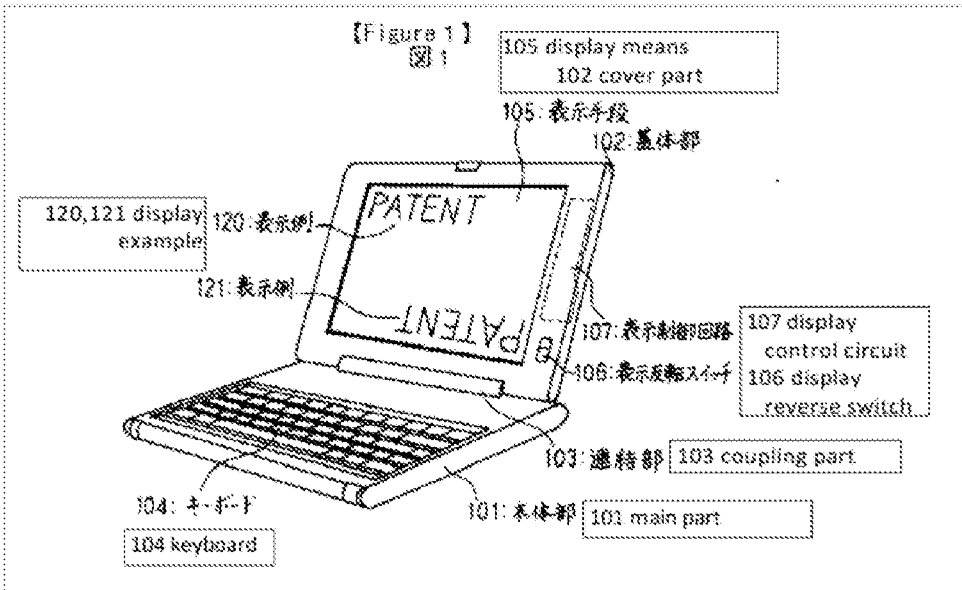


Further, the Shimura computer includes the at least one processor that controls the display means 105. *See* VIII.B.2.b; EX-1007, ¶¶185-189.

d. Limitation [1c]

The Shimura-Tsuji combination discloses [1c] and renders it obvious. *See* VIII.A.1, VIII.B.1; EX-1007, ¶¶190-194.

The display means 105 of the Shimura-Tsuji Computer displays content in either a normal or inverted view (i.e., rotated 180°).[6] EX-1004, ¶12, Figure 1; EX-1007, ¶191-192.



The view depends on the state of display reversal switch 106 inputted to display control circuit 107 inside the cover part 102. *Id.* If the display reverse switch 106 is set to normal view, the display control circuit 107 causes the display screen 105 to display the content in normal view. *Id.* Similarly, if the display reverse switch 106 is set to reverse mode the content is displayed in an inverted view. *Id.*

---

[6] The word "PATENT" in Shimura is at least passive digital content or selectable digital content.

A POSITA would have considered the Shimura-Tsuji Computer's ability to display content in either a normal or inverted view to disclose [1c]. EX-1007, ¶¶190-194.

e. Limitation [1d]

As explained in [1a], the Shimura computer includes at least one processor. Further, as explained in [1e], [1f], and [1g] below, the Shimura-Tsuji combination discloses each limitation which the "execution component" is "configured to" accomplish by executing on the processor. Therefore, the Shimura-Tsuji combination discloses [1d] and renders it obvious. EX-1007, ¶195; VIII.A.1, VIII.B.1.

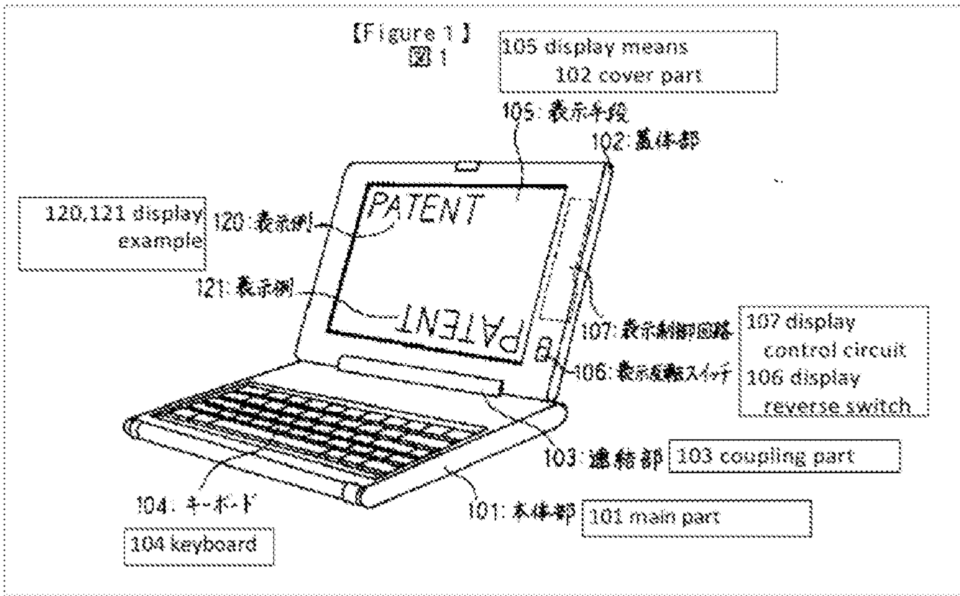
f. Limitation [1e]

The Shimura-Tsuji combination discloses [1e] and renders it obvious, including the recited function and corresponding structure. VIII.B.1; EX-1007, ¶¶196-202.

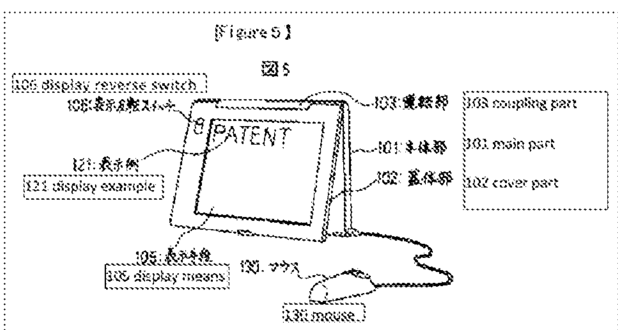
First, the Shimura-Tsuji combination discloses the function of [1e] identified in VII.A.1.

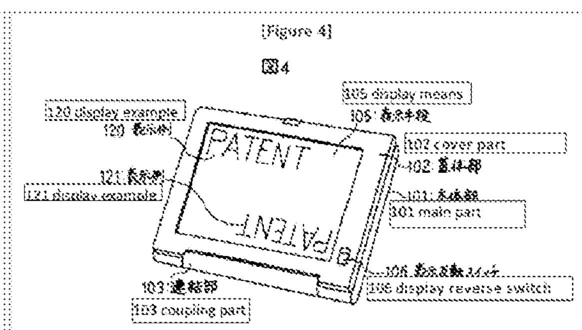
As discussed in VIII.A.1 Shimura discloses:

- a first computer system configuration (laptop mode, Figure 1) where the keyboard is operable to receive input from an operator of the computer system to control the computer system; and



- a second and third computer system configuration (easel mode, Figure 5, and frame mode, Figure 4, respectively) where the keyboard is inoperable to receive input from the operator of the computer system to control the computer system.





A POSITA would have been motivated to arrive at the Shimura-Tsuji Computer, which can determine the above computer system configurations from the orientation sensors' output. EX-1007, ¶¶198-199; VIII.B.1. E.g., the "BIOS" executing on the processor controls the computer hardware, such as "controlling an automatic image rotating function" based on output from the orientation sensors and logic explained in VIII.B.1.b. EX-1005, ¶¶64-72.

Second, the Shimura-Tsuji combination discloses the corresponding structure for [1e]. The Shimura-Tsuji Computer includes (i) a BIOS program 301 (outlined in red) executing on a processor (not shown) (ii) that receives data from a hinge-rotation sensor 202 (outlined in blue) and gravity sensor 203 (outlined in green), as depicted in FIG. 14 of Tsuji. EX-1005, ¶¶68-72; EX-1007, ¶201.

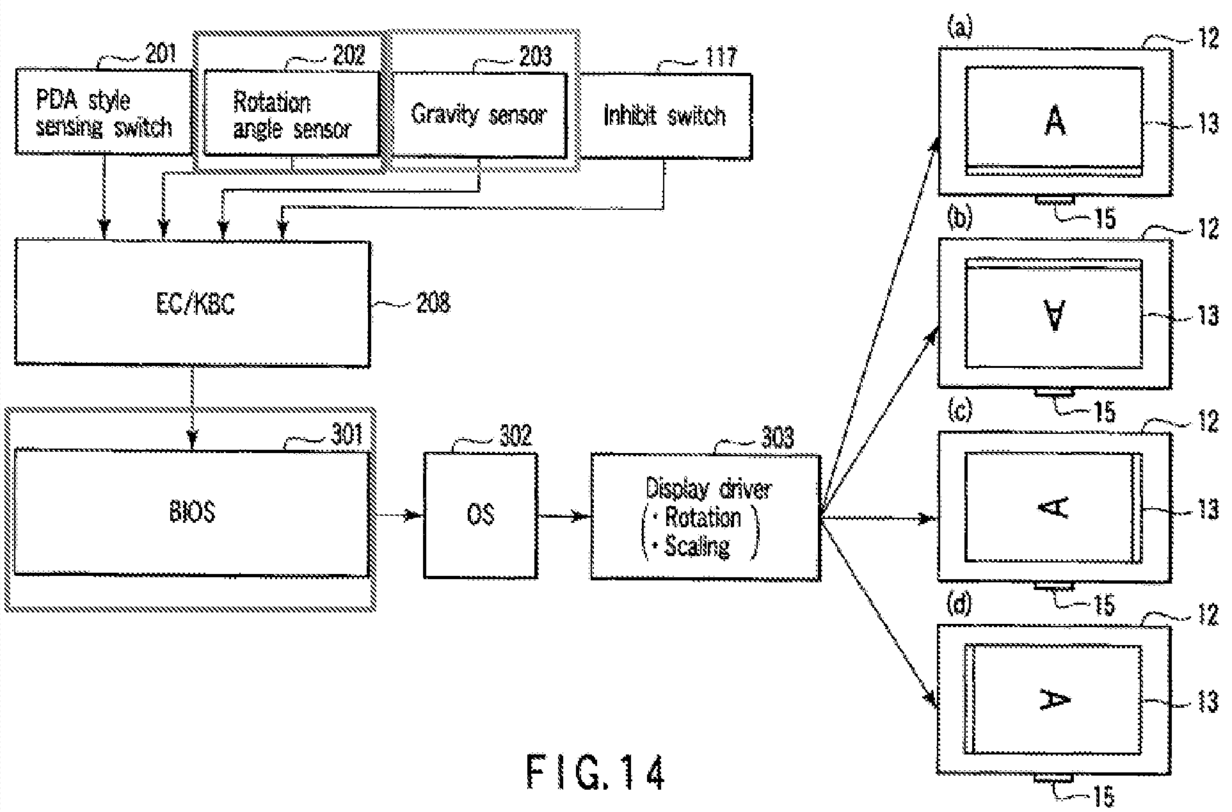


FIG.14

The Shimura-Tsuji Computer also discloses (iii) the BIOS program using the data received from the orientation sensors to determine a computer system configuration. EX-1005, ¶¶68-73; VIII.B.1.b; EX-1007, ¶201.

Accordingly, the Shimura-Tsuji combination discloses [1e] and renders it obvious. EX-1007, ¶¶196-202.

g. Limitation [1f]

The Shimura-Tsuji combination discloses [1f] and renders it obvious, including the recited function and corresponding structure. VIII.B.1; EX-1007, ¶¶203-206.

First, the Shimura-Tsuji combination discloses the function of [1f]. *See* VII.A.2. The Shimura-Tsuji Computer can determine the computer system configurations and "select[s] one of the plurality of views [e.g., normal and inverted views] for display on the computer system in response to the detected current computer system configuration" and transitions the display to that view. EX-1007, ¶204; VIII.B.1 & VIII.B.2.f.

Second, the Shimura-Tsuji combination discloses the corresponding structure for [1f]. As noted in [1e], the Shimura-Tsuji Computer includes (i) a BIOS program 301 (outlined in red) executing on a processor (not shown) (ii) that informs a display driver 303 (outlined in blue) of the orientation of the image to be displayed based on the detected computer system configuration, and (iii) the display driver 303, which is controlled by the BIOS program 301, performs the operation for rotating the image displayed on the LCD accordingly ((a)-(d) outlined in green), as depicted in FIG. 14 of Tsuji. EX-1005, ¶¶68-74; EX-1007, ¶205.

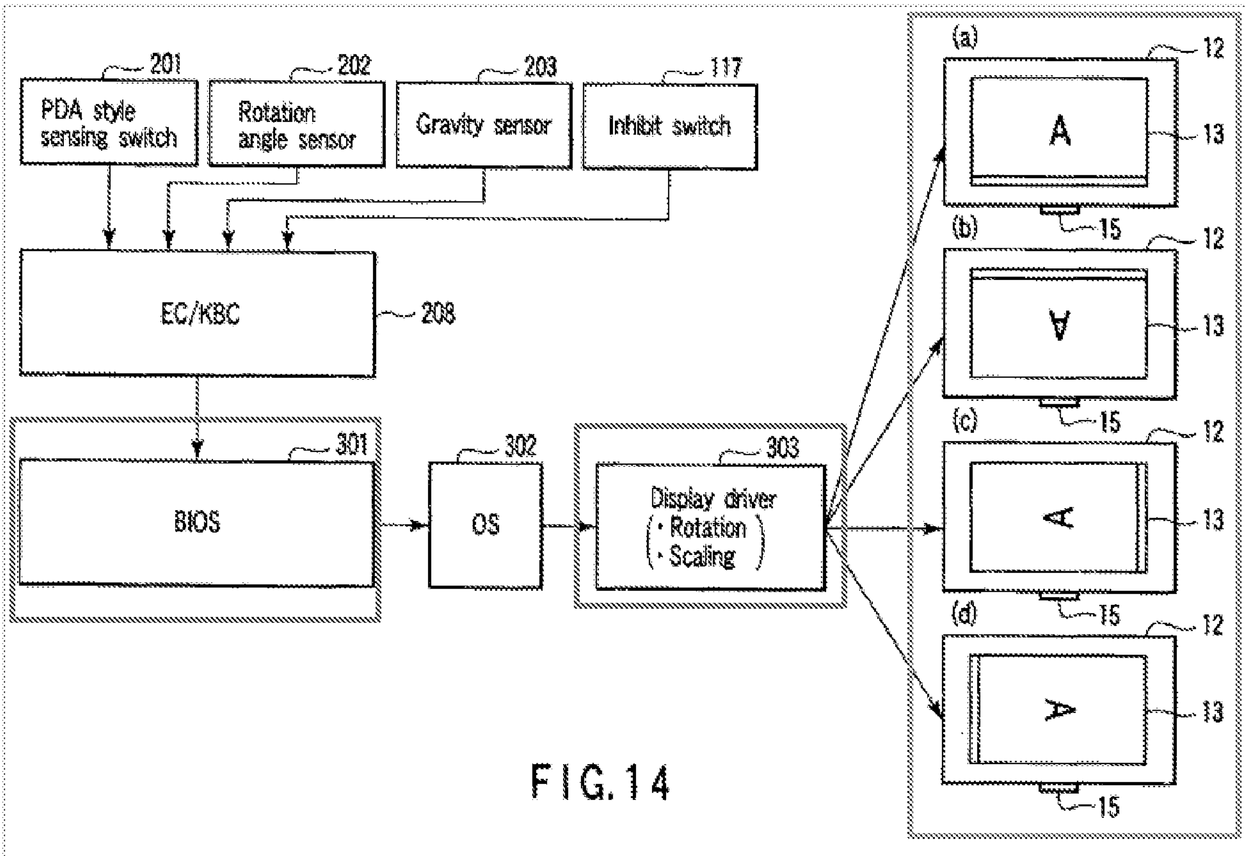


FIG.14

Accordingly, the Shimura-Tsuji combination renders obvious Claim 1. EX-1007, ¶¶181-206.

3. <u>Claim 20</u>

a. Limitation [20pre]

Shimura discloses [20pre]. *See* VIII.B.2.a. [20pre] and [1pre] are verbatim identical.

b. Limitation [20a]

Shimura discloses [20a]. *See* VIII.B.2.b. [20a] and [1a] are verbatim identical.

c. Limitation [20b]

Shimura discloses [20b]. *See* VIII.B.2.c. [20b] and [1b] are verbatim identical.

d. Limitation [20c]

Shimura-Tsuji discloses [20c]. *See* VIII.B.2.d. [20c] and [1c] are verbatim identical.

e. Limitation [20d]

Shimura-Tsuji discloses [20d]. *See* VIII.B.2.e. [20d] and [1d] are verbatim identical.

f. Limitation [20e]

The Shimura-Tsuji combination discloses [20e] and renders it obvious, including the recited function and corresponding structure. *See* VII.A.1, VIII.B.1, [1e]. E.g., the function performed by [20e], which includes "detect[ing] … [whether] the keyboard is positioned to receive input," will be substantially similar to that of [1e], which includes "detect[ing] … [whether] the keyboard is operable to receive input." *See* VII.A.1. Further, the corresponding structures are the same.

g. Limitation [20f]

Shimura discloses [20f]. *See* VIII.B.2.g. [20f] and [1f] are verbatim identical.

Accordingly, the Shimura-Tsuji combination renders obvious Claim 20. EX-1007, ¶¶207-214.

C. Ground 2: Shimura in view of Tsuji and Pogue renders Claims 2-19 obvious.

1. Combination of Shimura, Tsuji, and Pogue (hereafter "Shimura-Tsuji-Pogue combination")

For all the reasons set forth in VIII.B.1 above, a POSITA would have been motivated to combine Tsuji with Shimura.

Further, a POSITA would have been motivated to combine Shimura and Tsuji with Pogue for several reasons. EX-1007, ¶¶215-220.

First, Shimura and Tsuji are directed toward personal computer systems. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶28-29, FIG. 1; EX-1007, ¶217. Pogue discloses an operating system, which is "the software that controls [the] computer." EX-1006, 5-6. A POSITA would have understood that the personal computer systems disclosed in Shimura and Tsuji would have an operating system installed and would have looked to Pogue for explicit disclosure of an operating system capable of running on these systems. EX-1007, ¶217.

Pogue identifies the hardware requirements to run Windows XP. EX-1006, 558. A POSITA would have known that a computer at the Critical Date would have met at least these requirements, as various computers from before the Critical Date met these hardware requirements and were able to run Windows XP. EX-1007, ¶¶95-117. While Shimura and Tsuji disclose hardware components and related circuitry, they do not expressly disclose an operating system. Pogue expressly discloses Windows XP, one example of a well-known operating system at the Critical Date.

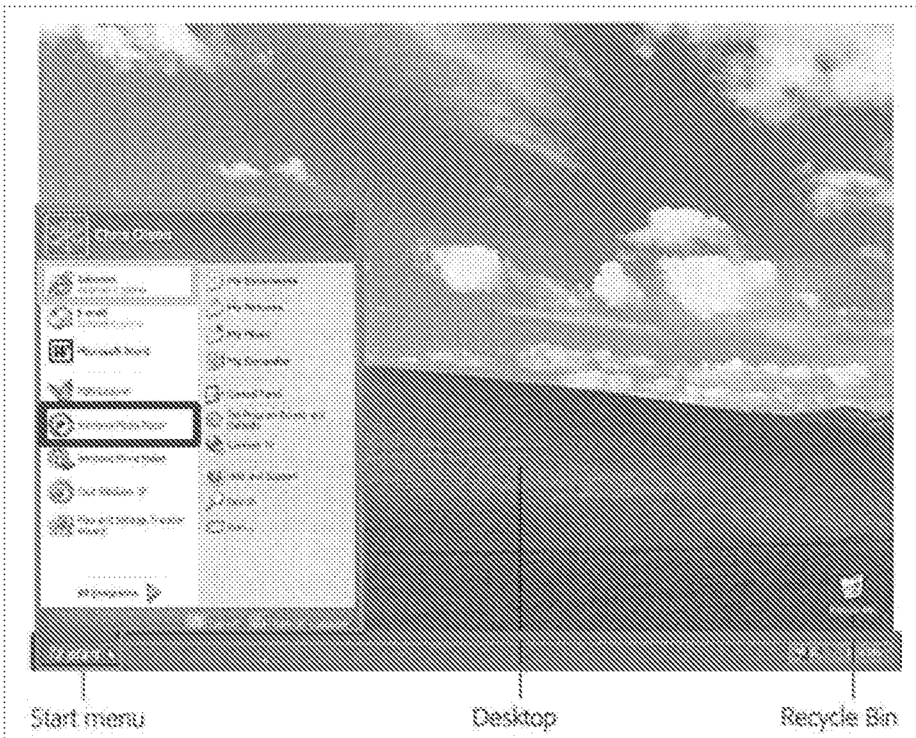
There would have been motivation to combine, and a reasonable expectation of success in combining, Pogue (an operating system) with Shimura and Tsuji because prior art elements are merely combined according to known methods to yield predictable results (a computer running an operating system). *See KSR*, 550 U.S. at 415–21; EX-1007, ¶219.

Therefore, the POSITA would have been motivated to combine the teachings of Shimura and Tsuji with the teachings of Pogue to arrive at the Shimura-Tsuji-Pogue Computer. EX-1007, ¶¶215-220.

2. <u>Claim 2</u>

a. "home view"

The '715 Patent discloses "a 'desktop' and icon configuration" as an example home view configured to organize a plurality of content modes. EX-1001, 21:14-15, 22:10-21; VI.A. Figure 2-2 of Pogue (below) discloses the Windows XP desktop, including the taskbar (outlined in red), icons (Recycle Bin icon, circled in blue), and Start Menu (outlined in green). EX-1006, 23, 88.



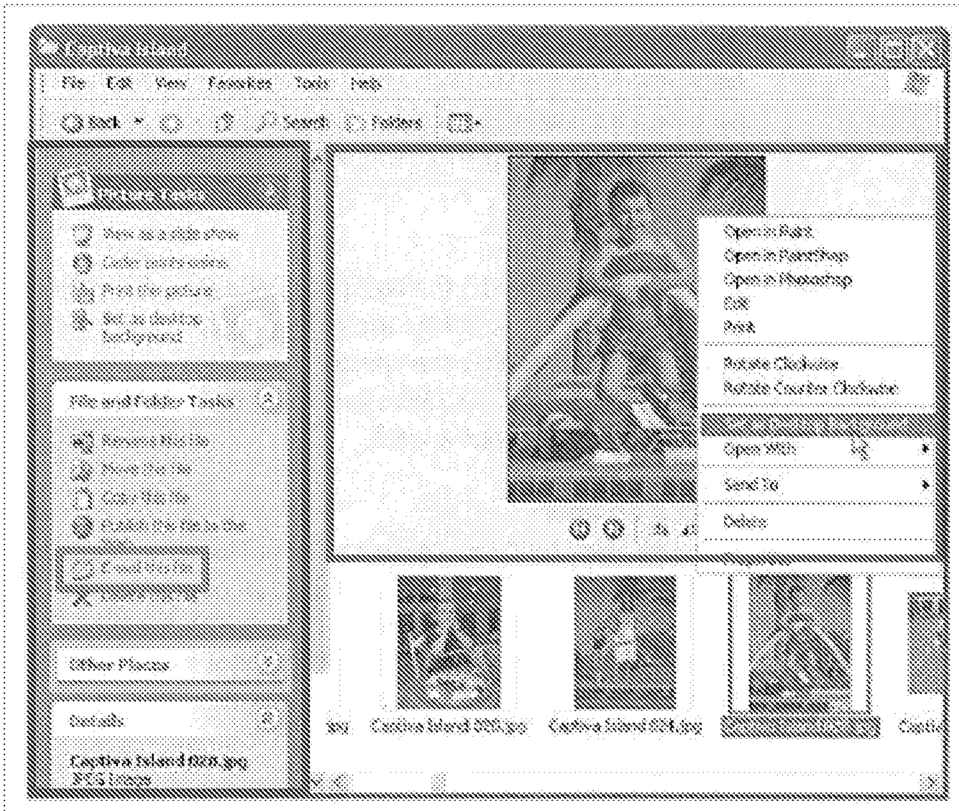
The "content modes" limitation is construed in VII.B. The '715 Patent discloses "media mode" that "provide[s] access to a media[] player" and "web mode" that "provide[s] access to internet browsing" as example content modes. EX-1001, 21:20-35. Pogue discloses that the Start menu includes elements that, when selected, "open programs" such as "Windows Media Player" (outlined in purple) and "Internet Explorer" (outlined in orange). EX-1006, 23-24; EX-1007,

¶223. Windows Media Player plays media content. EX-1006, 216. Internet Explorer provides access to internet content through its internet browsing capabilities. *See* VIII.C.12. Further, shortcut icons for each of these that provide the same access can be placed on the desktop. EX-1006, 125-126. Thus, Pogue discloses the "media" and "web" content mode examples disclosed in the '715 Patent.

Accordingly, Pogue discloses a home view (desktop) configured to organize a plurality of content modes (selectable Windows Media Player and Internet Explorer icons). EX-1007, ¶¶221-224.

b. "channel view"

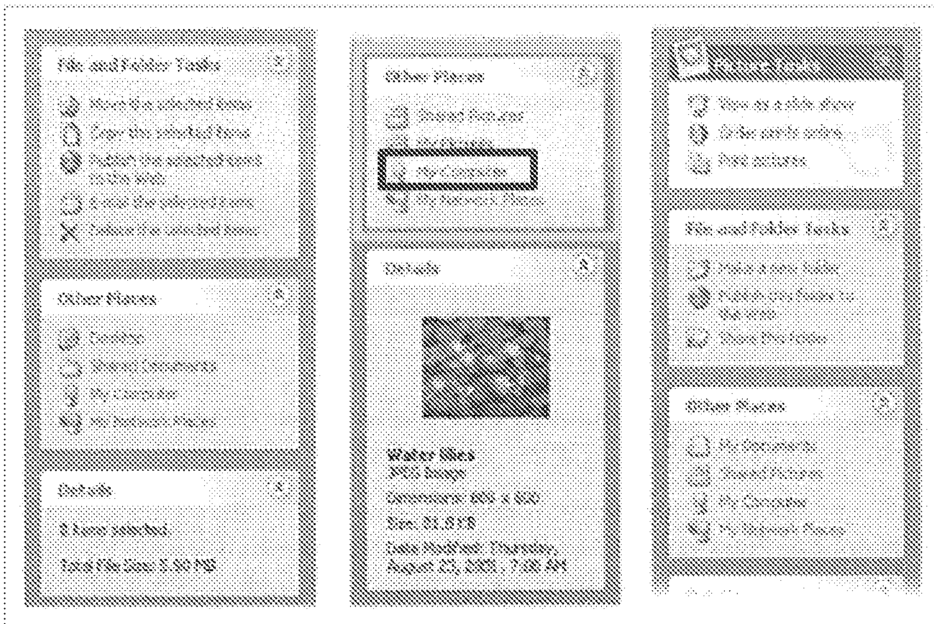
The '715 Patent discloses "a 'photo frame' channel" as an example channel view configured to organize at least one of a single content mode and two content modes. EX-1001, 21:48-51, 54:20-25; VI.A; EX-1007, ¶225. Pogue discloses that "[y]ou can view files and folders in a desktop window in any of several ways." EX-1006, 74. "Filmstrip view … turns the folder window into a slide show machine." EX-1006, 74, 591. E.g., when viewing a folder with picture files in Filmstrip view, the "enlarged image" or "slide show" portion (red below in Figure 7-2) "shows the currently selected photo." EX-1006, 209; EX-1007, ¶225.



Thus, Pogue's filmstrip view (of a folder with image files) discloses an example channel view as recited in the '715 Patent. EX-1007, ¶¶225-226.

As another example of content modes, the '715 Patent discloses a "connect mode" that "provide[s] access to features such as" email and an "application mode" that provides access to "computer applications or programs." EX-1001, 21:20-38. Pogue discloses a task pane on the left of the folder (outlined in blue) that provides selectable elements (one-click links) to locations, functions, or tasks. EX-1006, 67-69; EX-1007, ¶227. E.g., when selected, the "E-mail this file" (outlined in green above) link "automatically launches your email program" (i.e., connect mode) and the "My Computer" (outlined in purple below) link in the "Other

Places" portion (outlined in orange above and below) opens that location, which is "the doorway to every single shred of software on your machine" (i.e., application mode), each of which allows the user to access the content therein. EX-1006, 51, 67-69, 213; EX-1007, ¶227.



Thus, Pogue's "E-mail this file" and "My Computer" links in the task pane of a filmstrip folder view disclose the example connect and application content modes that are organized in a channel view as recited in the '715 Patent. EX-1007, ¶¶227-228

Accordingly, Pogue discloses the additional limitation of Claim 2 and the Shimura-Tsuji-Pogue combination renders it obvious. *See* VIII.A.1, VIII.A.2, VIII.C.1; EX-1007, ¶¶225-229.

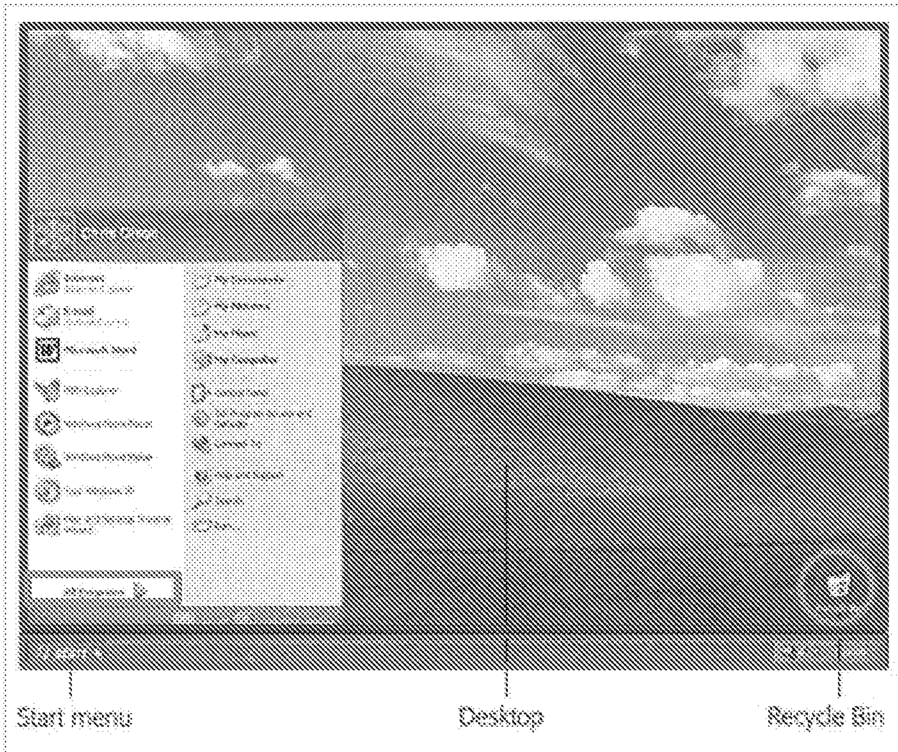
3. Claim 3

The '715 Patent discloses a "photo frame" channel in the channel content mode that can "display a pre-selected image or set of images." EX-1001, 21:41-57. Pogue discloses a screen saver view that can be composed of photographs (the photo frame channel is the content organized in the selected channel content mode) that turn into an automatic slide show (passive viewing) whenever your computer is not in use. EX-1006, 214, 263; EX-1007, ¶230; VIII.A.3.

Therefore, Pogue discloses the additional limitation of Claim 3 and the Shimura-Tsuji-Pogue combination renders it obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶230-231.

4. Claim 4

Pogue discloses a home view that includes a "taskbar," "[t]he permanent blue stripe across the bottom of your screen" (red box below in Figure 2-2). EX-1006, 88; VIII.C.2. A POSITA would understand this to correspond to the claimed "header display [that] comprises a lateral frame extending from the left of the display component to the right of the display component."

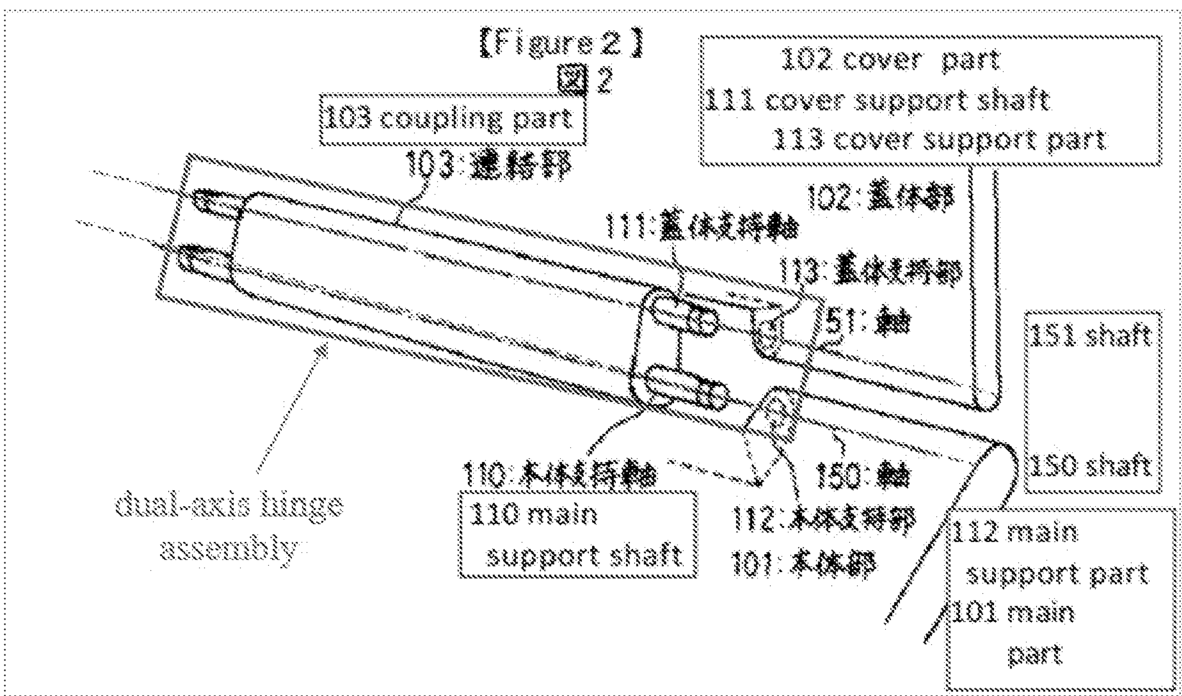


Further, while not shown in Figure 2-2, the taskbar can be moved to the top of the display screen, i.e., above the portion outlined in blue. *Id.*, 92-93. A POSITA would have understood this to correspond to the claimed "body display [being] rendered below the header display in the display component of the computer system." Additionally, this home view is capable of "organizing a plurality of visual representations of digital content" as claimed, including the "icons" (like the "Recycle Bin") or the items and menus in the "Start menu (like the "All Programs" menu). EX-1006, 23, 30, Figure 2-2 (green outlines); EX-1007, ¶233.

Therefore, Pogue discloses the additional limitation of Claim 4 and the Shimura-Tsuji-Pogue combination renders it obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶232-234.

5. Claim 5

The Shimura-Tsuji Computer can be used in various configurations based on the physical position of the display component rotated around a base component that includes a keyboard about a longitudinal axis, such as Shimura's two axes (red dashed lines) of the dual-axis hinge assembly (blue box) in Figure 2 below or Tsuji's single axis (red dashed line) of a single-axis hinge assembly (blue box) in FIG. 1 below. EX-1007, ¶235-236; VIII.B.1.



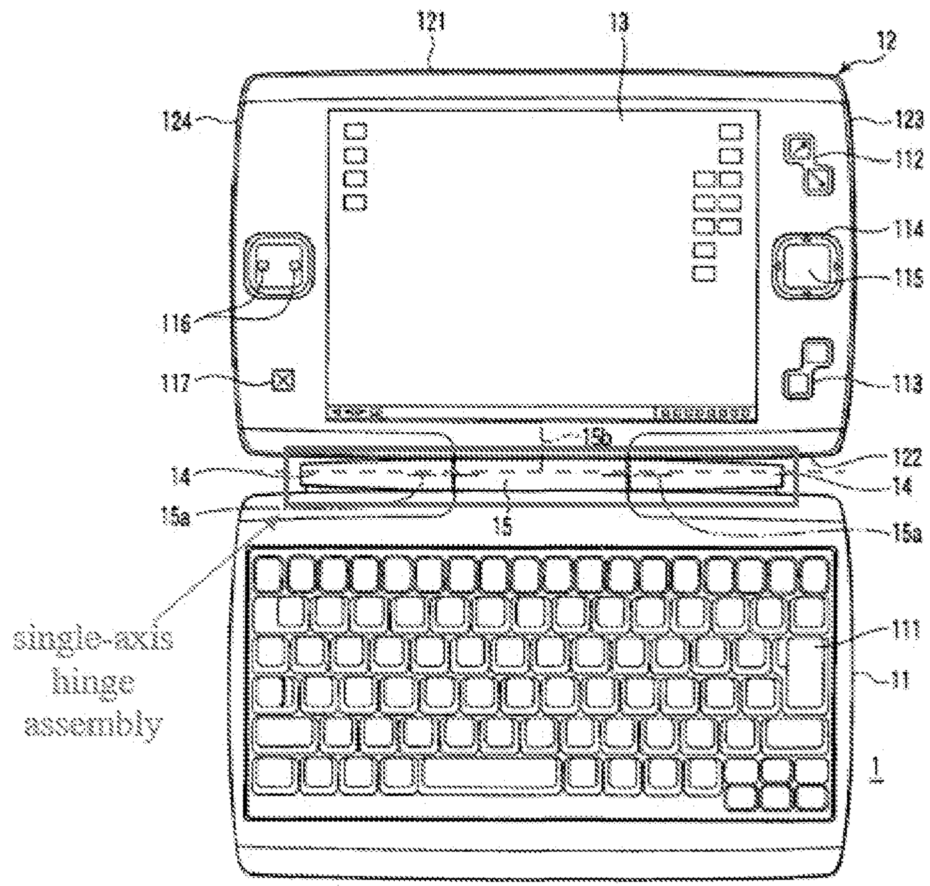


FIG. 1

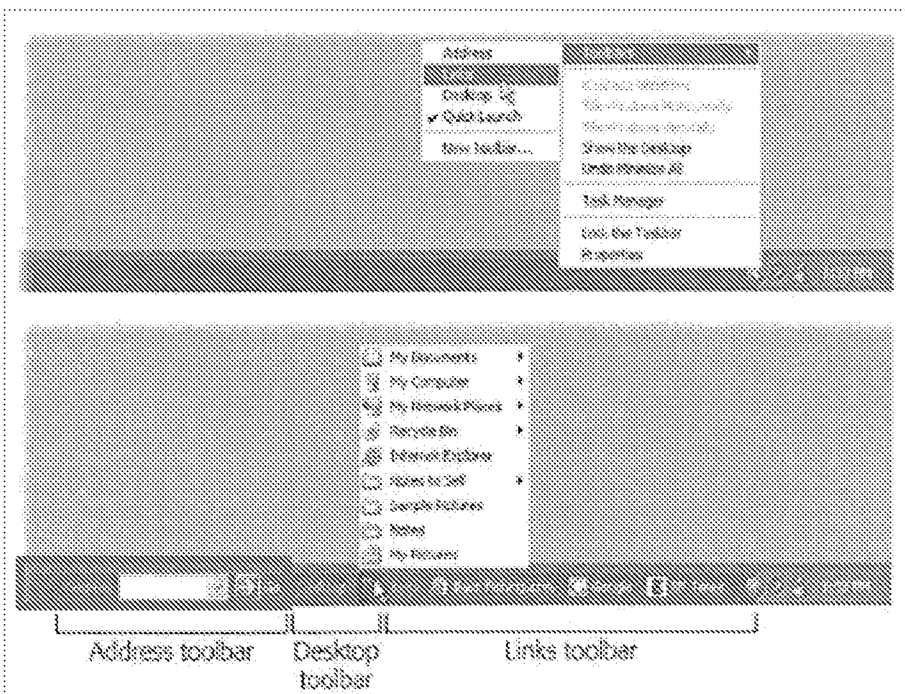
Both of these hinge assemblies were well-known in the art at the Critical Date. EX-1007, ¶¶235-237.

Therefore, Shimura-Tsuji combination discloses the additional limitation of Claim 5 and the Shimura-Tsuji-Pogue combination renders it obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶235-238.

6. Claim 6

a. Limitation [6a]

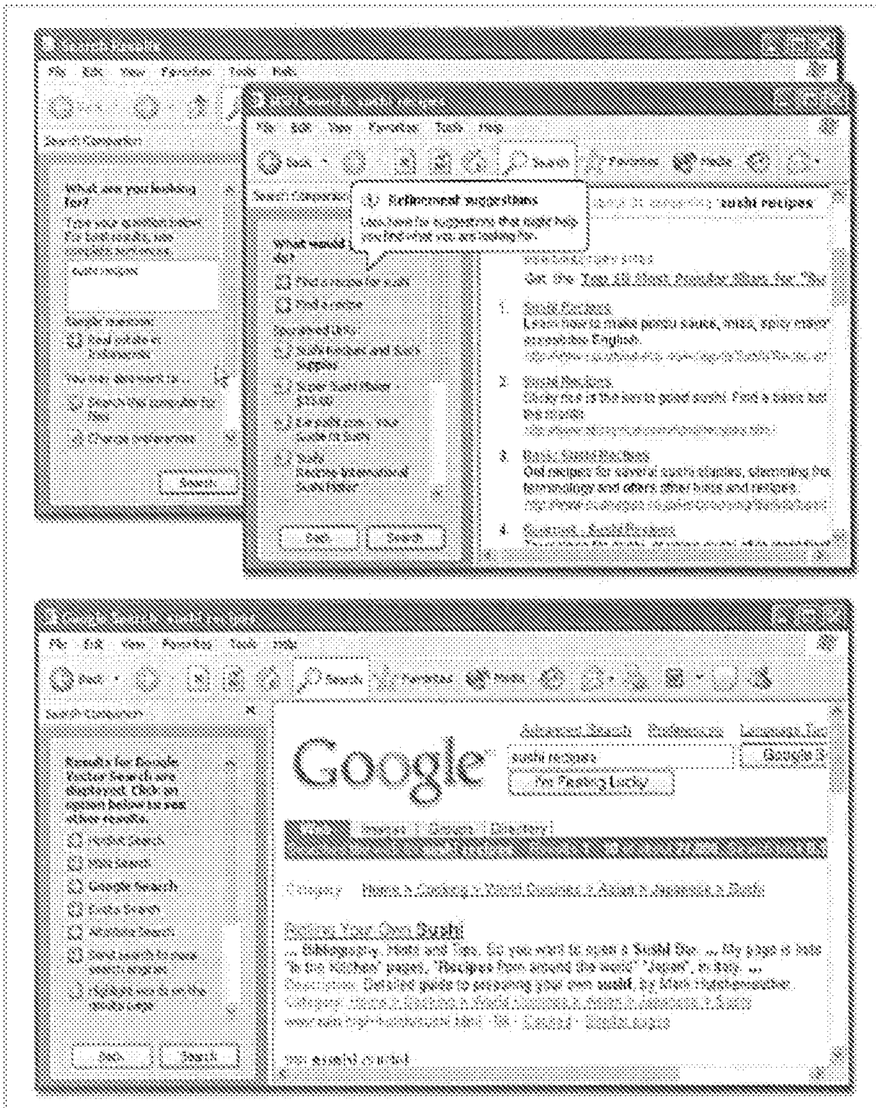
As explained in Claim 4, Pogue's taskbar discloses the "header display." Further, Pogue's address bar (in the taskbar) discloses the claimed "search tool displayed in the header display" that is "configured to accept search terms entered by a user. EX-1006, 86-87, 96. Pogue explains that certain taskbar toolbars, including the address bar, operate the same as the window toolbars "except that they appear in the taskbar at all times." EX-1006, 96. The address bar (outlined in red in Figure 2-15 below) is where you can type all kinds of search commands, such as a web address, a search phrase, a folder name, or a program or path name. EX-1006, 86-87, 95.



Therefore, Pogue discloses [6a]. EX-1007, ¶¶239-240.

b. Limitation [6b]

Pogue discloses that when a "search phrase" is typed into the address bar, "Windows assumes that you're telling it, 'Go online and search for this phrase.' From here, it works exactly as though you've used the Internet search feature." EX-1006, 86. As illustrated in Figure 2-16 of Pogue below, once you enter your search phrase and hit the search button, the computer system "goes online and submits that request to" the selected search page, such as MSN Search, Google, or Yahoo. EX-1006, 46-47. Then the selected search page "shows you the results of its search: a list of Web pages containing the text you typed." *Id.*



Thus, Pogue discloses that entering the claimed "search terms" (Pogue's search phrase) into the search tool (Pogue's "address bar") "causes the computer system to navigate to a view of a first visual representation of digital content, wherein the digital content includes a search engine" (i.e., the search page in Pogue's "Internet search feature"). EX-1006, 46-47, 86; EX-1007, ¶241.

Therefore, Pogue discloses the additional limitations of Claim 6 and the Shimura-Tsuji-Pogue combination renders it obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶239-242.

7. <u>Claim 7</u>

The '715 Patent discloses that when a "navigation element" is executed, the computer system "transitions the … display to a previous view," which can include: (1) the "home view" if the "present view" is not the "home view"; or (2) the "previous view" if the "present view is the home view." EX-1001, 8:10-15, 46:12-20. As discussed in Claim 2, Pogue's desktop discloses a "home view," which can act as "a placemat." EX-1006, 258; EX-1007, ¶¶221-224, 243. A POSITA would have understood this to mean that if items are placed on the desktop in a certain location, that specific arrangement (i.e., view) is retained such that when a user returns to the desktop, that specific arrangement (i.e., view) is displayed. EX-1007, ¶243. Additionally, as explained in VIII.C.8, Pogue discloses that a display of windows discloses a "previous view." Therefore, Pogue's desktop and display of windows discloses at least two examples of a "retain[ed] previous view state." *Id.*

Further, the Shimura-Tsuji-Pogue combination discloses a "storage component" (i.e., hard disc drive or RAM) configured to retain the "previous view state" because it would have at least long term (hard drive) and short term storage (RAM) to store the "previous view state." EX-1007, ¶244.

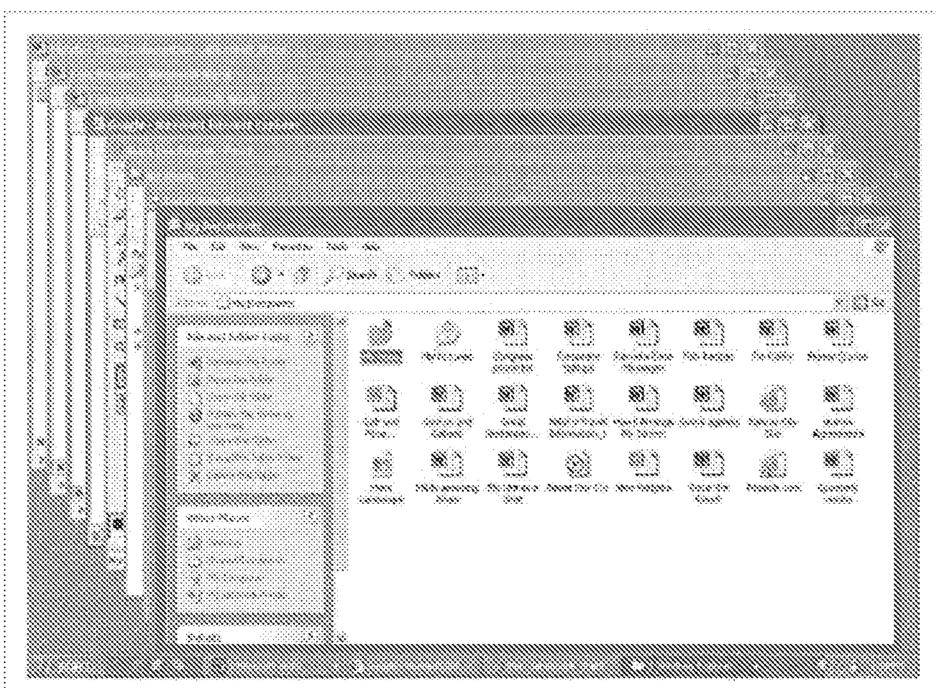
Therefore, the Shimura-Tsuji-Pogue combination discloses the additional limitation of Claim 7 and renders it obvious. *See* VIII.A.1, VIII.A.2, VIII.C.1; EX-1007, ¶243-245.

8. <u>Claim 8</u>

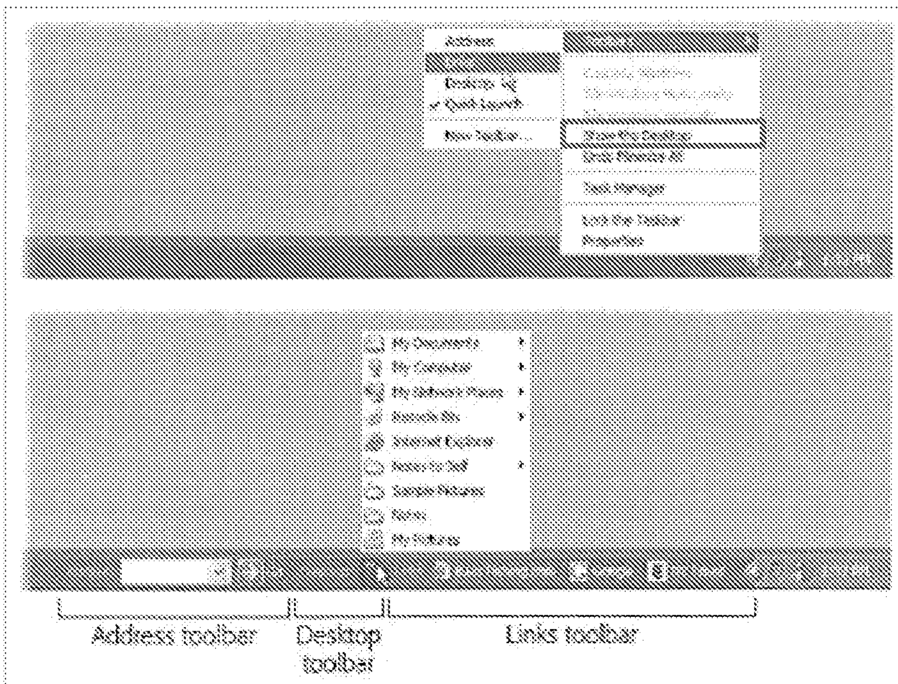
Pogue discloses at least two examples of the function recited in Claim 8. *See* VII.A.3.

a. First Example Disclosure

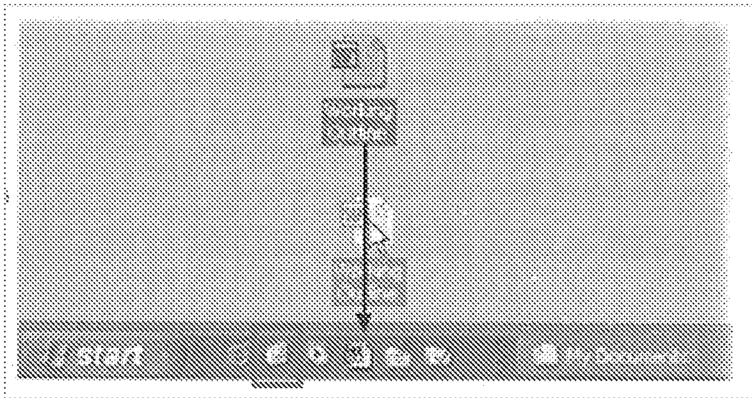
Pogue discloses a "present view" (a view of windows), shown in Figure 2-14 of Pogue below (one example window outlined in red), that is not the "home view" (the desktop). EX-1006, 65; EX-1007, ¶247.



EX-1006, 91. Pogue also discloses transitioning from this "present view" to a "previous view," which is the "home view" (desktop). E.g., Pogue discloses that "[t]o minimize all the windows in one fell swoop, right-click a blank spot on the taskbar and choose Show the Desktop [outlined in red] from the shortcut menu." EX-1006, 92 & Figure 2-15 (below).



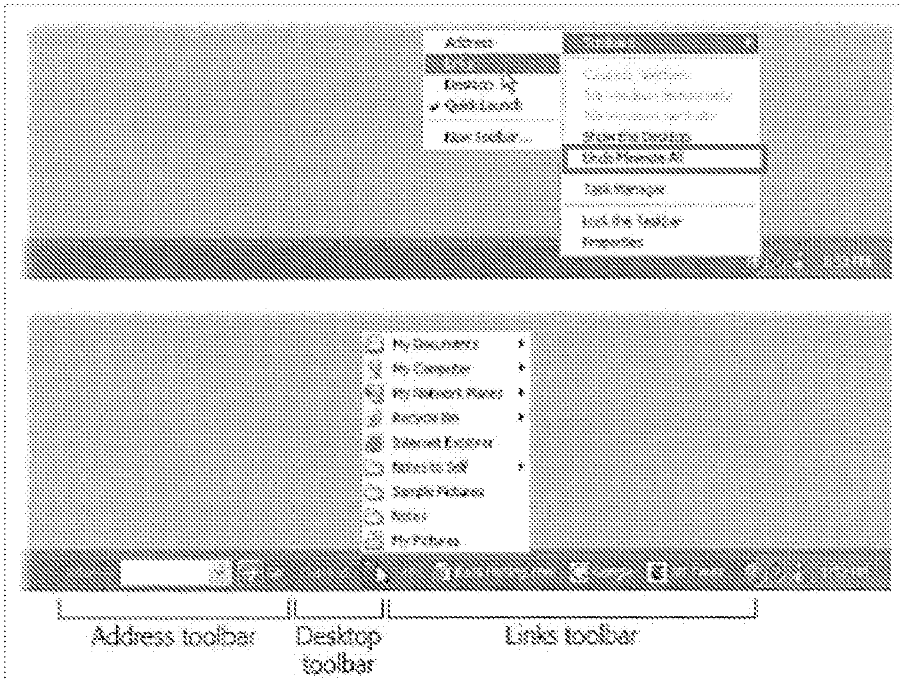
Additionally, Pogue discloses that a "Show Desktop" button (outlined in red) with the same functionality can be added to the "Quick Launch Toolbar" in the Taskbar. EX-1006, 94-96 & Figure 2-16 (below); EX-1007, ¶¶248-249.



Therefore, "Show the Desktop" and "Show Desktop" are each "navigation element[s]" that transition from a "present view" (display of windows) to a "previous view" that is the "home view" (desktop) upon execution. EX-1007, ¶¶247-250.

b. Second Example Disclosure

When the display transitions from the display of windows to the desktop, the display of windows becomes the "previous view." EX-1007, ¶251. Pogue discloses that at that point, "the taskbar shortcut menu always includes an Undo command for the last taskbar command you invoked … 'Undo Minimize All,' [outlined in red] for example." EX-1006, 92 & Figure 2-15 (below).



If "Undo Minimize All" is selected, the display will transition to the display of windows that was previously displayed. EX-1007, ¶¶251-252. Accordingly, Pogue discloses a "navigation element" (Undo Minimize All) that transitions from a "present view" that is the "home view" (desktop) to a "previous view" that is not the "home view" (display of windows) upon execution. *Id.*

Second, the Shimura-Tsuji-Pogue combination discloses the corresponding structure for Claim 8, including (i) an I/O controller 214 (outlined in red) operating on a processor that communicates with devices connected thereto, such as an EC/KBC 118 (outlined in blue) connected to various input devices (outlined in green) or a BIOS-ROM 217 (outlined in orange) running a BIOS program 301 (outlined in purple), as depicted in FIGs. 13-14 of Tsuji. EX-1005, ¶¶63-70.

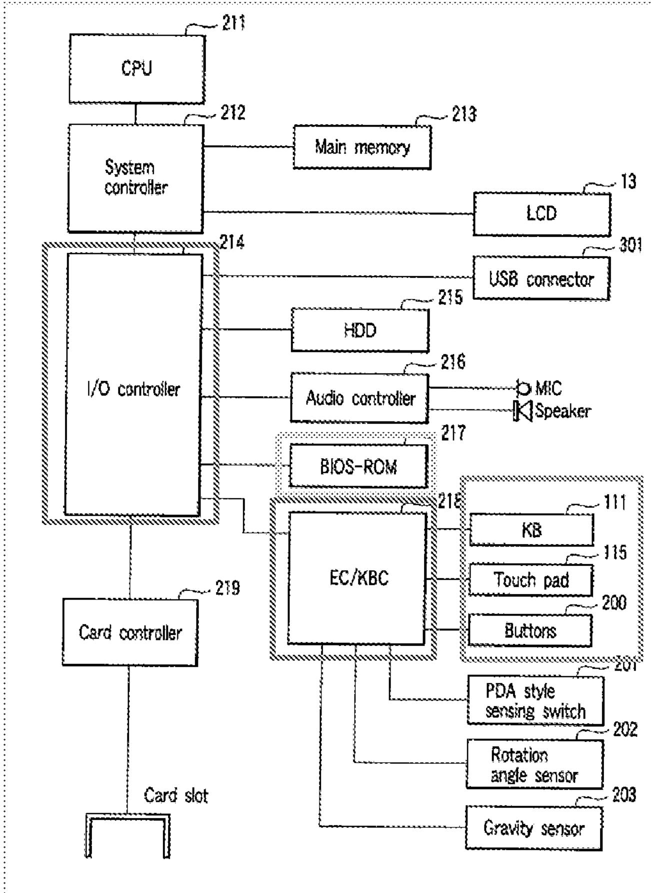

CPU
211
System controller
212
Main memory
213
LCD
13
USB connector
301
214
I/O controller
HDD
215
Audio controller
216
MIC
Speaker
BIOS-ROM
217
218
EC/KBC
KB
111
Touch pad
115
Buttons
200
Card controller
219
PDA style sensing switch
201
Rotation angle sensor
202
Gravity sensor
203
Card slot

FIG. 13

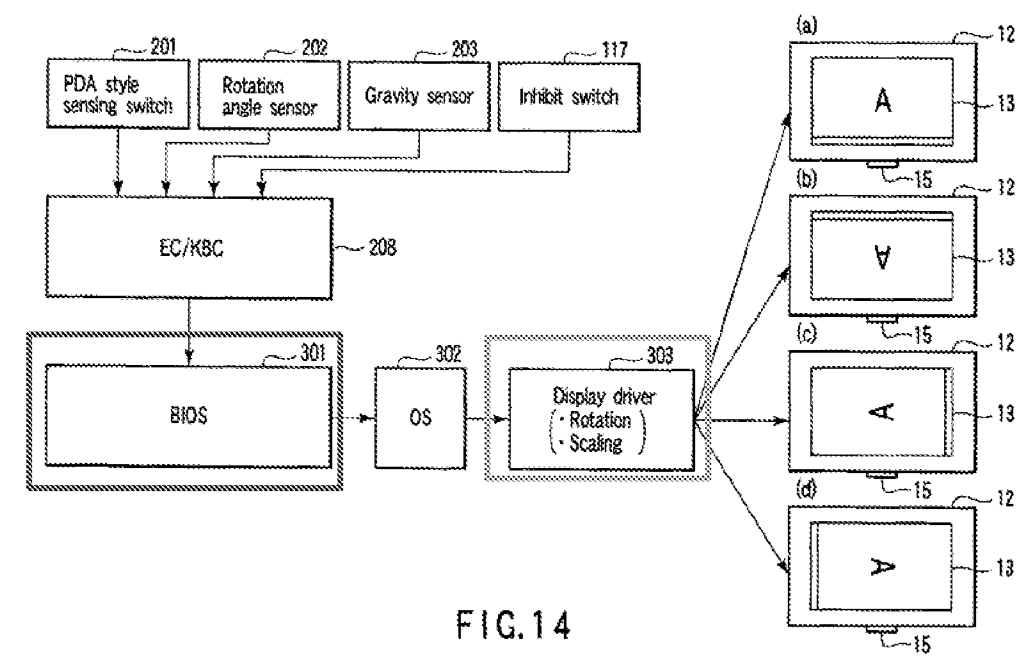

PDA style sensing switch
201
Rotation angle sensor
202
Gravity sensor
203
Inhibit switch
117
EC/KBC
208
BIOS
301
OS
302
Display driver
(・Rotation
・Scaling)
303
(a)
(b)
(c)
(d)
12
13
15
A

FIG. 14

A POSITA would have understood that the I/O controller of Tsuji contains program(s) sufficient to (ii) determine whether input received from the input devices indicates that a navigation element (of Pogue) was executed and (iii) transition the display accordingly (i.e., to Pogue's home view or previous view) through the BIOS program and display driver 303 (outlined in light blue), similar to the display inversion discussed in VIII.B.2.g. EX-1007, ¶253.

Accordingly, the Shimura-Tsuji combination renders Claim 8 obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶251-254.

9. Claim 9

The "Show Desktop" icon in the "Quick Launch Toolbar" of the taskbar is a "navigation element." EX-1006, 94-96; VIII.C.8. Further, Pogue discloses a "header display" in the form of the taskbar. VIII.C.4. Therefore, a POSITA would have understood that the Show Desktop icon ("navigation element") is in the taskbar that is part of the "header display." EX-1007, ¶255.

Therefore, Pogue discloses the additional limitation of Claim 9 and the Shimura-Tsuji-Pogue combination renders it obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶255-256.

10. Claim 10

a. Limitation [10a]

Pogue discloses a "body display" that can "organiz[e] the plurality of visual representations" of computer content, such as items in the Start Menu.[7] VIII.C.4.

b. Limitation [10b]

The '715 Patent discloses that "[t]he maximal display threshold governs the number of GUI elements displayed per home view page.... The device generates a new page display" when the maximal display threshold is exceeded." EX-1001, 33:36-44. That is, a "display page" is a new display of content created when the current display cannot display any more GUI elements. EX-1007, ¶¶257-258.

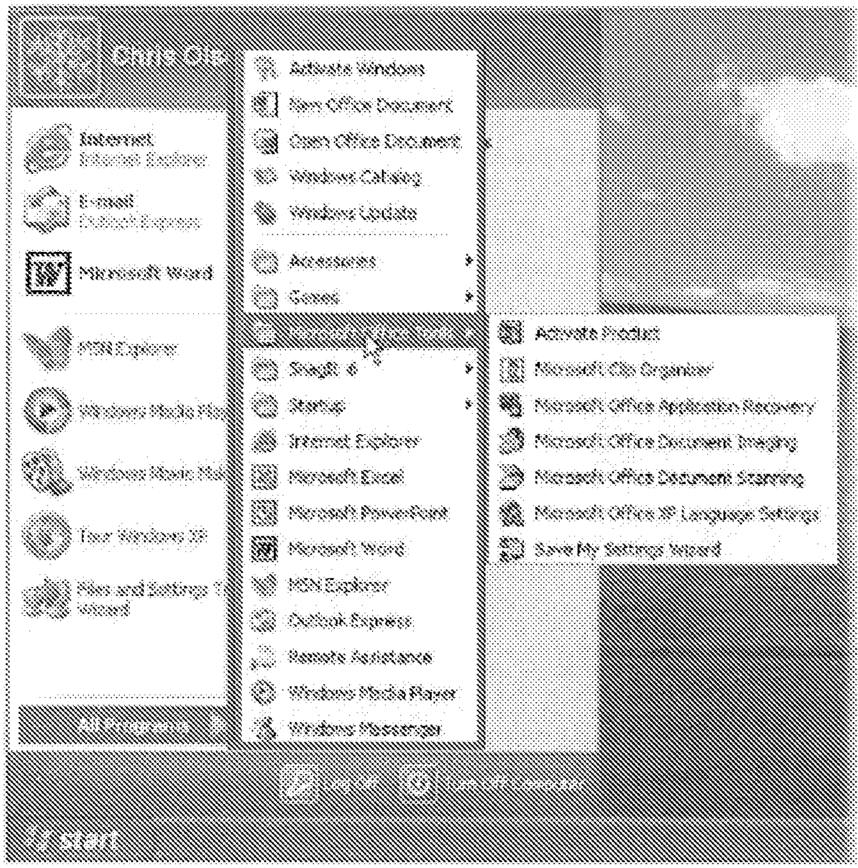
Pogue discloses two examples of these "display pages."

a. First Example Disclosure

Figure 2-6 of Pogue (below) discloses how the "All Programs menu" appears (outlined below in red). EX-1006, 29-30.

---

[7] Petitioner assumes, for purposes of this Petition only, that "the plurality of visual representation of computer content" limitation in claim 10 is intended to refer to "a plurality of visual representations of digital content" in claim 4 as its antecedent basis.



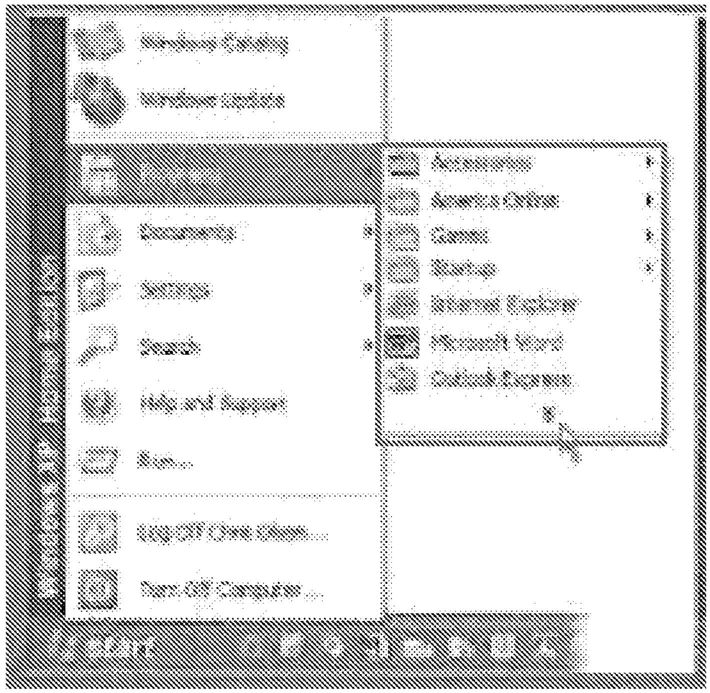
Although not shown, when "there are too many programs listed to fit on the screen … a second All Programs menu appears to the right of the first one, continuing the list." EX-1006, 58. Because this second All Programs menu appears when too many programs are listed to fit on the screen (i.e., "display threshold establishing a maximal number of visual representations"), the first All Programs menu and the second All Programs menu (not shown) are two separate display pages. EX-1007, ¶259. (The menu displayed to the right of the "All Programs menu" is a Microsoft Office Tools submenu, not the "second All Programs menu.")

b. Second Example Disclosure

Pogue discloses that "scroll bar[s] signal[] to you that the window isn't big enough to reveal all of its contents … [p]ress the Page Up or Page Down keys to scroll the window by one 'windowful.'" EX-1006, 67. Each windowful in the scrolled content constitutes a "display page" because these scrollable pages are created when the "display threshold establishing a maximal number of visual representations displayed per page" is reached. EX-1007, ¶260. These scrollable pages appear in the All Programs menu as an alternative to the "second All Programs menu" from the first example. EX-1006, 58. E.g., when "there are too many programs listed to fit on the screen," the user can turn on the "Scroll Programs" option and then "all your programs appear [] on one massive, scrolling programs list" (outlined in red) indicated by a "tiny black triangle arrow (at the top or bottom of the menu)," as shown on page 58 (below). EX-1006, 30, 58.[8]

---

[8] The picture on page 58 of Pogue is a depiction of the "Classic (single-column) Start menu" that a user can change to from the default (depicted in Figure 2-6 above). EX-1006, 55, 58. Pogue discloses that the "Scroll Programs" feature of the default Start menu, which includes the "tiny black triangle arrow (at the top or bottom of the menu)" is based on the "programs menu of Windows gone by." EX-1006, 30. Therefore, a POSITA would have understood that the "Classic" programs menu and black triangle arrows depicted on page 58 of Pogue is similar



Therefore, Pogue discloses the additional limitation of Claim 10 and the Shimura-Tsuji-Pogue combination renders obvious the claim. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶257-261.

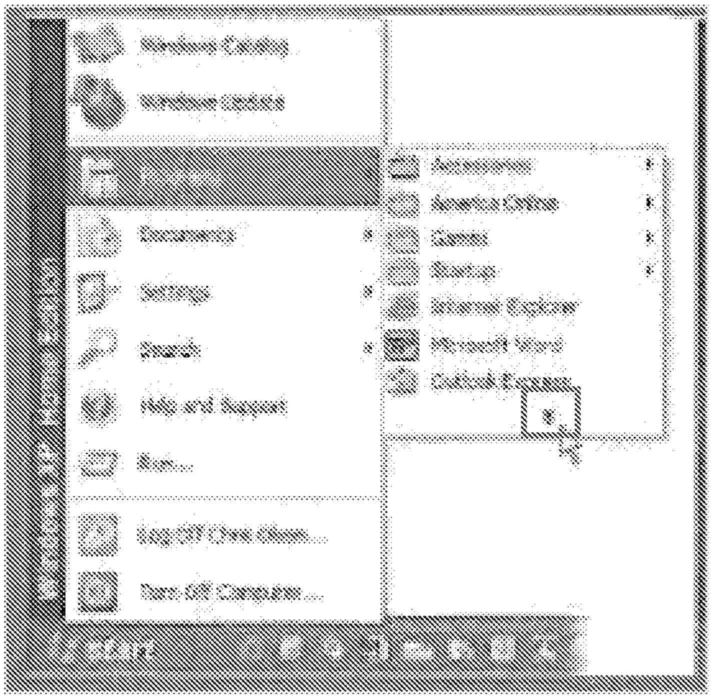
11. Claim 11

The All Programs menu can be separated into multiple, scrollable display pages when there are too many programs to list. *See* VIII.C.10. When this "Scroll Programs" feature is turned on, "you can scroll the list by pointing to the tiny black

---

to how the default Windows XP All Programs menu would look with the "Scroll Programs" feature turned on. EX-1007, ¶260.

triangle arrow." EX-1006, 30. Page 58 of Pogue depicts an example of how this "tiny black triangle arrow" (outlined in red) may look:



EX-1006, 58.[9] A POSITA would have understood that the "tiny black triangle arrow" is an "indication of visual representations displayed on adjacent display pages of the home view." EX-1007, ¶262.

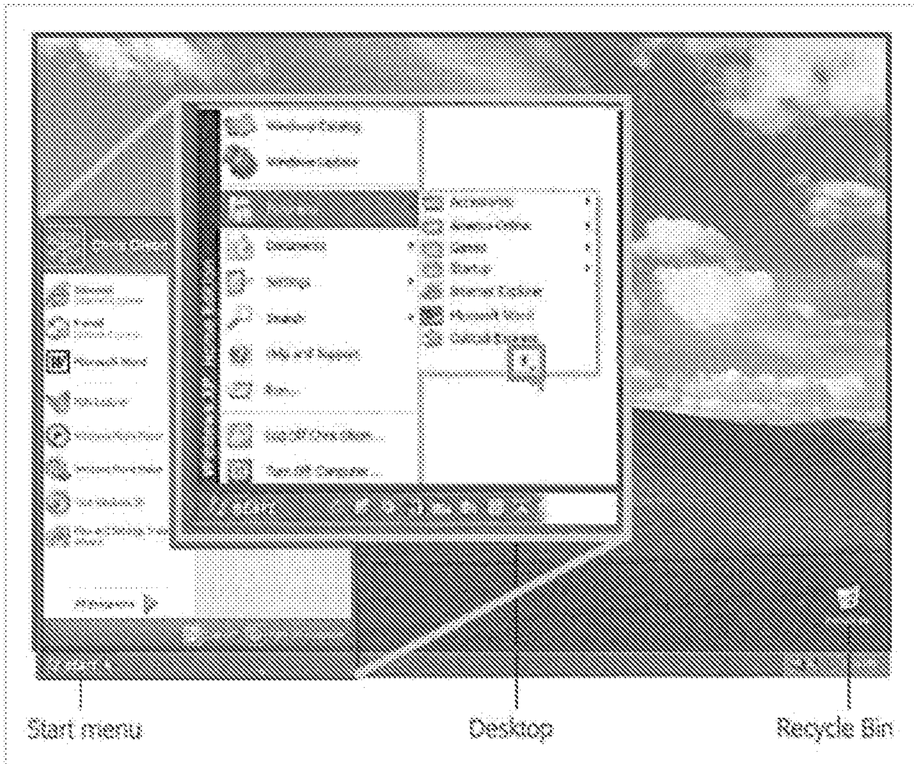
When the taskbar is at the top of the display screen, the body display extends to the bottom of the display screen. EX-1006, 30, Figure 2-2 below; EX-1007, ¶263; Claim 4. As such, the tiny black triangle arrow will be "displayed within the

[9] *See* note 8.

body of the home view" as claimed. E.g., below is an Annotated Figure 2-2 of Pogue that shows the "Scroll Programs" version of the All Programs menu (outlined in orange) superimposed over the All Programs menu originally depicted (outlined in red). The body of the home view is outlined in blue and, although not shown in Annotated Figure 2-2, the taskbar can be moved to the top of the display screen, i.e., above the portion outlined in blue. EX-1006, 92-93; Claim 4.[10] In Annotated Figure 2-2, the tiny black arrow (outlined below in green) which discloses the "indication of visual representations displayed on adjacent display pages" is displayed within the body (outlined in blue) of the home view.

---

[10] The solid blue outlines in the superimposed Scroll Programs menu (outlined in orange) depict the bounds of the "body of the home view" were the original All Programs menu in Figure 2-2 replaced with the Scroll Programs menu.



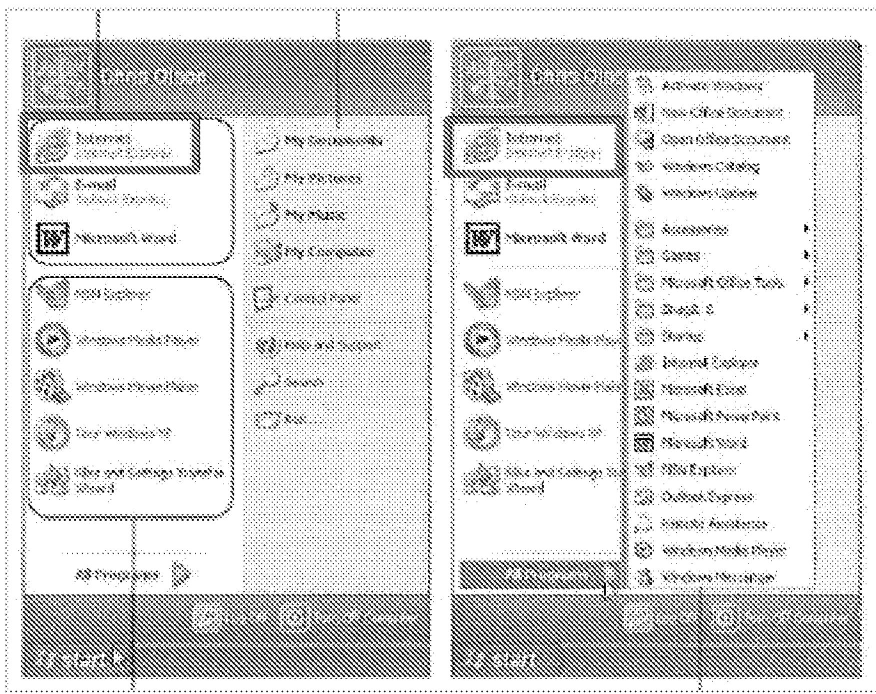
Therefore, Pogue discloses the additional limitations of Claim 11 and the Shimura-Tsuji-Pogue combination renders obvious the claim. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶262-264

12. Claim 12

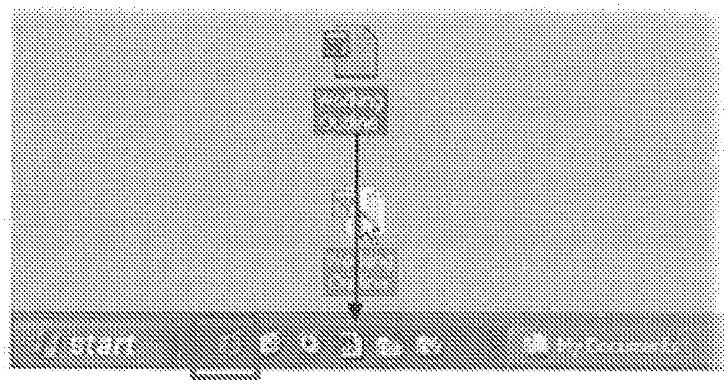
a. Limitation [12a]

The '715 Patent discloses "system cards [that] provide and display computer system functionality that maybe [sic] frequently accessed during ordinary computer use[]," which "include nascent cards" such as "'Browse the Web' card." EX-1001, 35:19-21; 38:62-64. A POSITA would have understood that the "nascent card" recited in Claim 12 includes a system functionality that allows a user to "browse the web." EX-1007, ¶265.

Pogue discloses that "Internet Explorer," "the most famous Web browser" is "built right into the operating system." EX-1006, 337. A POSITA would have understood that "Internet Explorer" is system functionality that allows a user to browse the web. EX-1007, ¶266. Pogue further discloses that a user can access Internet Explorer by "[c]hoosing its name from the Start menu," shown below in Figure 2-3 (outlined in red). EX-1006, 338, 24.



Pogue also discloses that users can access Internet Explorer by "[c]licking its shortcut on the Quick Launch toolbar," as shown below in Figure 2-16 (outlined below in blue). EX-1006, 338, 96.



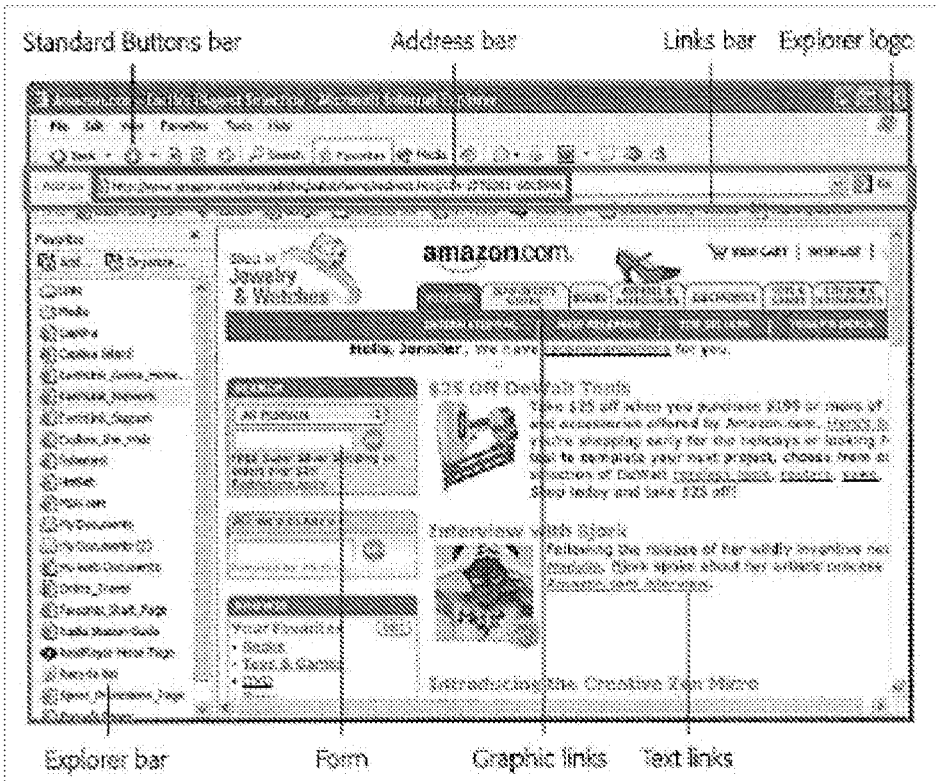
The "Start menu" and Quick Launch toolbar are part of the desktop which is a "home view." *See* VIII.C.2, VIII.C.6.

Therefore, a POSITA would have understood that these options for accessing Internet Explorer disclose [12a]. EX-1007, ¶¶265-268.

b. Limitation [12b]

The '715 Patent discloses that in "one alternative, new visual representation may be generated" by "a hyperlink directing a computer system to display [a] linked web page in a new window." EX-1001, 41:4-8. A POSITA would have understood that a "web page" is an example of a "visual representation of digital content." EX-1007, ¶269.

Internet Explorer icons on the desktop disclose the nascent card. *See* VIII.C.12.a. Pogue further discloses that once Internet Explorer is accessed, "the Internet Explorer window is filled with tools that are designed to facilitate a smooth trip around the World Wide Web." EX-1006, 338. An example is disclosed in Figure 11-1 (below) where "the Address bar [red below], [] displays the address (URL) of the Web page [blue below] you're currently seeing." EX-1006, 338.



A POSITA would have understood this to disclose a "nascent card" (Internet Explorer icon) "configured to permit generation of additional visual representations of digital content" (ability to browse web pages on Internet Explorer). EX-1007, ¶¶269-271.

Therefore, Pogue discloses the additional limitations of Claim 12 and the Shimura-Tsuji-Pogue combination renders obvious the claim. EX-1007, ¶¶265-272.

13. Claim 13

a. Function

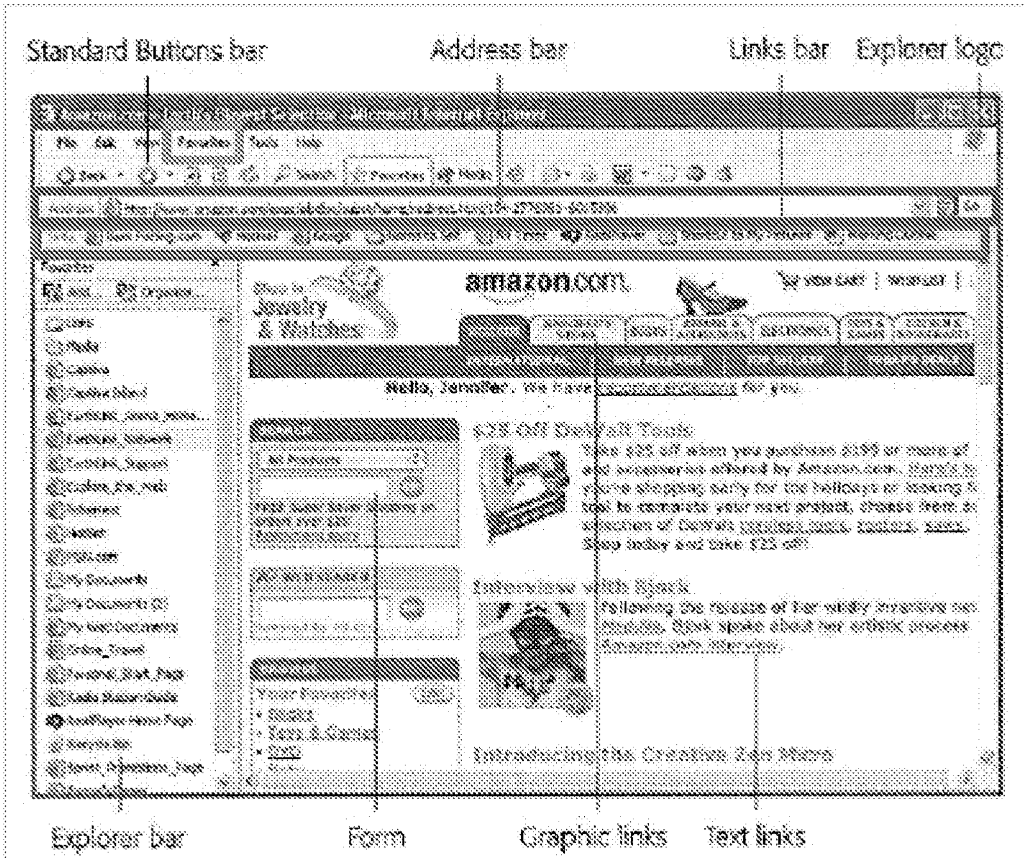
The Shimura-Tsuji-Pogue combination discloses the function of Claim 13 identified in VII.A.4.

(1) Limitation [13a]

Pogue discloses a process for creating a "visual representation" (a web page that allows a user to access web content) "in response to execution of the nascent card" (an Internet Explorer icon on the desktop). EX-1006, 337-338; EX-1007, ¶¶265-274; VIII.C.12.

(2) Limitation [13b]

Pogue discloses that the Internet Explorer window (a quick access view), depicted below in Figure 11-1, includes the "links bar" (outlined below in red), the Address bar (outlined below in blue), and the favorites menu (outlined below in green). EX-1006, 338.



The "links toolbar" is "one way to maintain a list of Web sites you visit frequently." EX-1006, 342. The "address bar" discloses that "[w]hen you type a new Web page address (URL) into this strip and press Enter, the corresponding Web site appears." EX-1006, 340. The favorites menu "shows the list of Web pages you've 'bookmarked' when using Internet Explorer." EX-1006, 582. Accordingly, a POSITA would have understood that the links toolbar corresponds to "frequently accessed web content," the address bar to a section that "permit[s] entry of a uniform resource locator," and the favorites menu to a "display of bookmarked locations," all of which are disclosed by the '715 Patent as being part of the "quick access view." EX-1001, 40:55-65; EX-1007, ¶¶275-277.

A POSITA would have understood that the Internet Explorer window in Pogue discloses a quick access view.

(3) Limitation [13c]

Pogue discloses numerous ways in which a user can request to display a web page from the Internet Explorer window. This includes the Address bar as well as the "Links toolbar," both of which "let[] you summon … Web pages with only *one* click." EX-1006, 340-342; VIII.C.13.a(2). A POSITA would have understood that such summoning of a web page with a click generates a mapping to online digital content that, when executed, displays a first view of the mapped digital content (i.e., the summoned web page).

Therefore, the Shimura-Tsuji-Pogue combination discloses the function of Claim 13. EX-1007, ¶¶273-279.

b. Structure

Second, the Shimura-Tsuji-Pogue combination discloses the corresponding structure for Claim 13. The Shimura-Tsuji-Pogue Computer includes (i) an I/O controller operating on a processor that communicates with devices connected thereto, including receiving input from various input devices and a BIOS program that operates a display driver. *See* VIII.C.8. A POSITA would have further understood that the in order to communicate with the input devices, I/O controller would contain program(s) sufficient to (ii) determine whether input received from the input devices indicates that a nascent card (an Internet Explorer icon) on the display was selected, and, through the BIOS program and display driver (iii) transition the display to the quick access view (the Internet Explorer window) and (iv) map to, and display a first view of, online digital content (a web page) requested in the quick access view. EX-1007, ¶¶280-281.

Accordingly, the Shimura-Tsuji-Pogue combination discloses Claim 13 and renders it obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶273-281.

14. <u>Claim 14</u>

Pogue discloses a "quick access view" (the Internet Explorer window) that is "configured to permit a user generation of a mapping between digital content" (the Address bar or Links toolbar) and a "visual representation" (a web page). VIII.C.13.

Therefore, Pogue discloses the additional limitations of Claim 14 and the Shimura-Tsuji-Pogue combination renders obvious the claim. *See* VIII.A.1-VIII.A.2, VIII.C.1; Claim 13; EX-1007, ¶¶282-283.

15. <u>Claim 15</u>

The '715 Patent discloses that "[t]he channel selector is a selectable display" that, e.g., can be "configured to display a rolodex of available channel[s]."

EX-1001, 32:22-23. "In response to selection from the channel selector view, the system displays a channel page view." EX-1001, 54:20-21. Example channel selector logic is depicted in FIG. 25B:

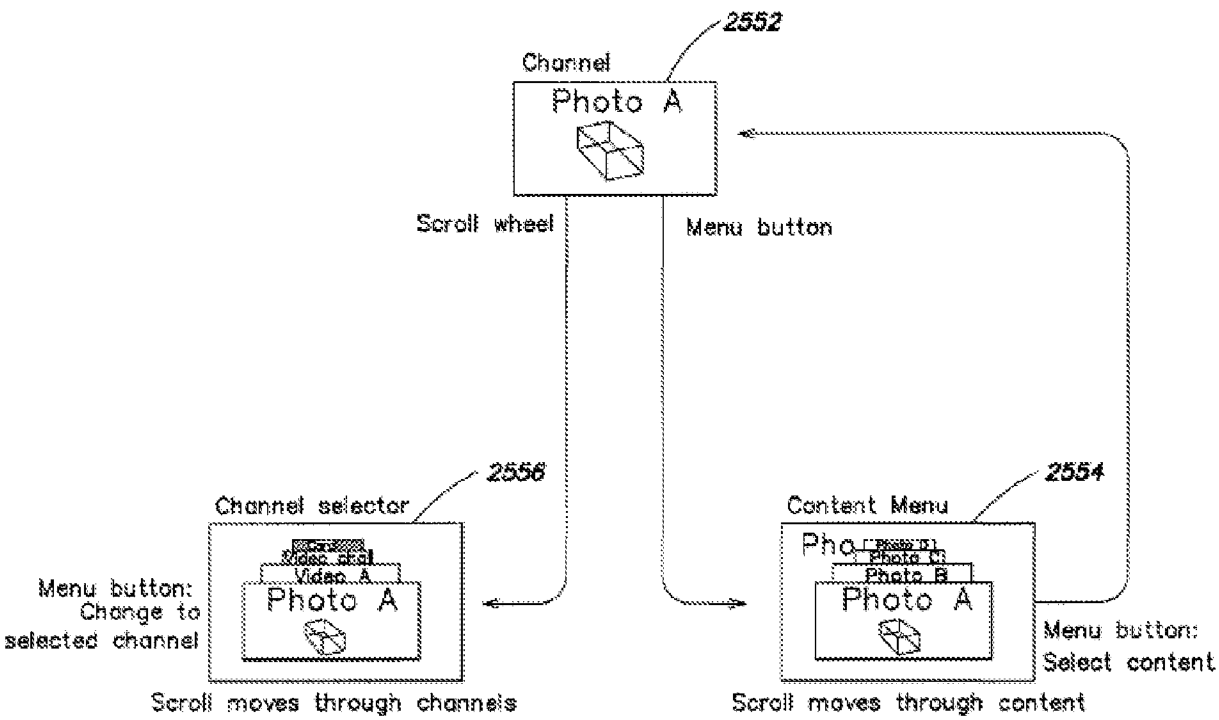


FIG. 25B

EX-1001, 54:38-41; FIG. 25B. An "example of a channel [view] may include a 'photo frame' channel." EX-1001, 21:48-51, 54:20-25; VI.A.

As discussed in Claim 2, Pogue's filmstrip view of a folder with multiple image files discloses the "channel view." In this view the user can select a different image to be "enlarged" for the "slide show" portion (outlined below in red) "by clicking another image icon (bottom row)" from the sequence of image icons in that bottom row (outlined below in blue). EX-1006, 209; EX-1007, ¶¶284-285.

The POSITA would have understood this "channel view" (filmstrip folder view) to include a "channel selector that displays a sequence of visual representations," (the sequence of image icons at the bottom outlined in blue) that, when selected, causes a different image to be displayed in the slide show portion (outlined in red). EX-1007, ¶286.

Therefore, the Shimura-Tsuji-Pogue combination renders obvious Claim 15. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶284-287.

16. Claim 16

The Shimura-Tsuji-Pogue combination discloses the function of Claim 16. Pogue discloses the channel view (a filmstrip view of a folder with multiple image files). *See* VIII.C.15. Pogue also discloses that you can access "every disk, folder, and file on your computer" from the "My Computer window." EX-1006, 102. To open My Computer, "choose Start→My Computer, or double-click its icon on the desktop." *Id.* "From there, you double-click one folder after another, burrowing ever deeper into the folders-within-folders." EX-1006, 107. A POSITA would have understood that a user could use this method to reach the folder with multiple image files. EX-1007, ¶288.

Pogue also discloses that "[t]o change the view of a particular open window" to Filmstrip view, choose that "command[] from its View menu." EX-1006, 74. A POSITA would have understood that a user could use this method to obtain Filmstrip view if necessary. EX-1007, ¶289.

A POSITA would have understood that the above process, which requires "double-click[s]" (EX-1006, 102), could be accomplished with a mouse connected to the computer system (an "input device integral to or operatively connected"). EX-1007, ¶290. Shimura discloses a mouse connected to a computer and the Shimura-Tsuji computer discloses a touchscreen display. EX-1004, ¶17, Figure 5; VIII.B.1; EX-1007, ¶290. Therefore, a POSITA would have understood that the

Shimura-Tsuji-Pogue combination could use the mouse or touchscreen display to access the Filmstrip view. EX-1007, ¶290.

Second, the Shimura-Tsuji-Pogue combination discloses the corresponding structure for Claim 16. The Shimura-Tsuji-Pogue Computer includes (i) an I/O controller operating on a processor that communicates with devices connected thereto, including various input devices and a BIOS program. *See* VIII.C.8. A POSITA would have further understood that the I/O controller contains program(s) sufficient to (ii) receive input from input devices (a mouse or touchscreen display), and (iii) transition the display to the channel view (the Filmstrip view of a folder with multiple image files) in response to the user navigating there using the input device. EX-1007, ¶291.

Accordingly, the Shimura-Tsuji-Pogue combination discloses Claim 16 and renders it obvious. *See* VIII.A.1-VIII.A.2, VIII.C.1; EX-1007, ¶¶288-292.

17. <u>Claim 17</u>

a. Limitation [17pre]

Shimura discloses [17pre]. *See* VIII.B.2.a. [17pre] and [1pre] are verbatim identical.

b. Limitation [17a]

Shimura discloses [17a]. *See* VIII.B.2.b.[11]

c. Limitation [17b]

Shimura discloses [17b]. *See* VIII.B.2.c-VIII.B.2.d. [17b] is a subset of [1b] and [1c]. The table below shows the differences in strikethrough between [17b] and [1b]/[1c] (with return carriages added into [17b] for visual comparison).

[17b]	[1b] & [1c]
a graphical user interface, executing on at least one processor, configured to	a graphical user interface, executing on the at least one processor, configured to ~~display the computer content on the display component of the computer system, the graphical user interface configured to:~~
display a plurality of views of a plurality of visual representations of the computer content;	display a plurality of views of a plurality of visual representations of computer content~~, wherein the computer content includes at least one of selectable digital content, selectable computer operations and passive digital content~~;

d. Limitation [17c]

Shimura-Tsuji-Pogue discloses [17c]. *See* VIII.B.2.e. [17c] and [1d] are verbatim identical.

[11] For purposes of this Petition only, Petitioner is treating "operatively connected" [1a] the same as "operatively coupled" [17a].

e. Limitation [17d]

The Shimura-Tsuji combination discloses [17d] and renders it obvious, including the recited function and corresponding structure. *See* VIII.B.2.f; EX-1007, ¶297. The function of [17d], which includes "identify[ing] … [whether] the keyboard is operable to receive input … based on sensor input indicating a position of the display component," will be substantially similar to that of [1e], which includes "detect[ing] … [whether] the keyboard is operable to receive input." *See* VII.A.1. Further, the corresponding structures are the same.

f. Limitation [17e]

The Shimura-Tsuji combination discloses [17e] and renders it obvious, including the recited function and corresponding structure. *See* VIII.B.2.g.

g. Limitation [17f]+[17g]

The Shimura-Tsuji-Pogue combination discloses and renders obvious [17f]+[17g], including the recited function and corresponding structure. *See* VIII.C.15-VIII.C.16.

The Shimura-Tsuji-Pogue combination automatically transitions to the channel view including a channel selector that displays a sequence of visual representations (filmstrip view of a folder with multiple image files) in response to receiving user input from the input device (e.g., a mouse). EX-1007, ¶299-300; VIII.C.15-VIII.C.16.

Accordingly, the Shimura-Tsuji-Pogue combination renders obvious Claim 17, including the corresponding structure for the means-plus-function limitation. EX-1007, ¶¶293-301.

18. Claim 18

The Shimura-Tsuji-Pogue combination discloses the limitation of Claim 18, rendering it obvious. *See* VIII.C.16; EX-1005, FIG. 13 ("touch pad 115"); EX-1007, ¶302.

19. Claim 19

The Shimura-Tsuji-Pogue combination discloses the limitation of Claim 19, rendering it obvious. *See* VIII.B.2.f; EX-1007, ¶303.

Dated: May 4, 2021

Respectfully submitted,

/Martin R. Bader/

Martin R. Bader (Reg. 54,736)
SHEPPARD MULLIN RICHTER & HAMPTON LLP
12275 El Camino Real
San Diego, CA 92130
Tel.: (858) 720-8900
Fax: (858) 509-3691

Counsel for Petitioner

CERTIFICATION UNDER 37 C.F.R. § 42.24(D)

I certify that the foregoing complies with the type-volume limitation of 37 C.F.R. § 42.24 and contains 13,976 words based on the word count indicated by the word-processing system used to prepare the paper, and excluding those portions exempted by § 42.24(a).

Date: May 4, 2021 /Martin R. Bader/
Martin R. Bader
Registration No.: 54,736

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e) and 42.105(a), the undersigned hereby certifies that the foregoing **PETITION FOR INTER PARTES REVIEW UNDER 35 U.S.C. §311 ET SEQ. AND 37 C.F.R. §42.100 ET SEQ. (CLAIMS 1-20 OF U.S. PATENT NO. 9,880,715)**, including all exhibits and supporting evidence, was served in its entirety on May 4, 2021, by electronic mail pursuant to written agreement, upon counsel for the Patent Owner, the WOLF GREENFIELD & SACKS, P.C. firm, to the following individuals and email addresses:

Michael Albert, Michael.Albert@WolfGreenfield.com
Gerald Hrycyszyn, Gerald.Hrycyszyn@WolfGreenfield.com
Marie A. McKiernan, Marie.McKiernan@wolfgreenfield.com
Eric Rutt, Eric.Rutt@WolfGreenfield.com
WGS-Litlv.Lenovo@WolfGreenfield.com
WOLF GREENFIELD & SACKS, P.C.
600 ATLANTIC AVENUE
BOSTON MA 02210-2206

Respectfully submitted,

Dated: May 4, 2021

/Martin R. Bader/
Martin R. Bader (Reg. No. 54,736)
SHEPPARD MULLIN RICHTER & HAMPTON LLP
12275 El Camino Real, Suite 100
San Diego, CA 92130
Tel.: (858) 720-8900
Fax: (858) 509-3691

Counsel for Petitioner

Trials@uspto.gov
571-272-7822

Paper: 6
Entered: October 21, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO (UNITED STATES) INC.,
Petitioner,

v.

LITL LLC,
Patent Owner.

IPR2021-00786
Patent 9,880,715 B2

Before MICHELLE N. ANKENBRAND, GARTH D. BAER, and BRIAN D. RANGE, *Administrative Patent Judges*.

RANGE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Lenovo (United States) Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting an *inter partes* review of claims 1–20 of U.S. Patent No. 9,880,715 B2 (Ex. 1001, "the '715 patent"). LiTL LLC ("Patent Owner") filed a Preliminary Response. Paper 5 ("Prelim. Resp.").

Petitioner identifies Lenovo (United States) Inc. and Lenovo (Beijing) Limited as the real parties in interest, and further notes that Lenovo (United States) Inc. is "an indirect wholly-owned subsidiary of Lenovo Group Limited." Pet. 2. Patent Owner identifies LiTL LLC as the real party in interest. Paper 4, 1.

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a) (2020). The standard for institution is set forth in 35 U.S.C. § 314(a), which provides that *inter partes* review may not be instituted unless "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." As discussed below, we determine that Petitioner does not show a reasonable likelihood of prevailing with respect to any of the challenged claims. Accordingly, we deny institution of an *inter partes* review.

II. BACKGROUND

A. Related Matters

The parties identify the following as a related matter: *LiTL LLC v. Lenovo (United States), Inc. and Lenovo (Beijing) Limited*, 1:20-cv-00689-RGA (D. Del.). Pet. 2; Paper 4, 1. Patent Owner also identifies the following as related matters: IPR2021-00681 (challenging U.S. Patent No. 8,289,688, which belongs to the patent family of the '715 patent); IPR2021-00800 (challenging U.S. Patent No. 10,289,154, which belongs to the patent family of the '715 patent); IPR2021-00821 (challenging U.S. Patent No. 8,612,888, which belongs to the patent family of the '715 patent); and IPR2021-00822 (challenging U.S. Patent No. 8,624,844, which belongs to the patent family of the '715 patent). Paper 4, 2.

B. The '715 Patent (Ex. 1001)

The '715 patent is titled "System and Method for Streamlining User Interaction with Electronic Content." Ex. 1001, code (54). The challenged claims relate to "a graphical user interface that organizes interface elements into views of computer content for presentation to a user" and "an interface that is responsive to configurations of the device and activities performed by the user." *Id.*, code (57). The '715 patent explains that increased computing power enables computers to provide more and more features, but the myriad options may frustrate some users. *Id.* at 1:40–2:14. The '715 patent emphasizes the problem of "the inflexibility of the devices being used and their accompanying interfaces," and a problem generated by "feature packing" whereby "[t]ypical computer users simply can't take advantage of all the functionality offered. . . . [as t]he complexity of the interface (both hardware and software) hampers adoption [of, e.g., services and features offered by their own computer or by online providers], as does the volume of features offered." *Id.* at 2:18–33; *see id.* at 15:19–30.

The solution the '715 patent proposes is a graphical user interface that improves the user's experience and the user's ability to interact with electronic content, by implementing different views. *Id.* at 2:45–58. For example, the '715 patent explains different views present different organizations of interface elements based upon device configuration and user activity:

> [A]spects and embodiments are directed to a graphical user interface that organizes interface elements into modes of content for presentation to a user. Different views of the modes of content are used to present the user with an interface that is responsive to configurations of the device and responsive to activity being performed by the user. Further the elements that comprise the graphical user interface are configured to present a summarized view of available actions and content, in order to simplify user interaction. The different views present different organizations of the interface elements and in some example display only certain ones of the modes of content in order to reduce the number of options a user must navigate to accomplish an objective.

Id. at 2:35–58.

The '715 patent further explains that its user interface comprises a plurality of views of representations of computer content and explains the views as follows:

> The user interface comprises a map based graphical user interface displayed on the computer system, the map based user interface comprising a plurality of views of a plurality of visual representations of computer content, wherein the computer content includes at least one of selectable digital content, selectable computer operations and passive digital content, and the plurality of visual representations of computer content rendered on the computer display, wherein the plurality of visual representations of computer content include an association to a first view of the plurality of views, the first view including the computer content, and wherein the each of the plurality of visual representations is responsive to focus and execution, wherein execution includes clicking on the visual representation, and an execution component comprising at least one computer hardware element configured to transition the computer system display between the plurality of views, wherein the execution component further comprises a view selector component configured to select

> one of the plurality of views for display on a computer system in response to a computer system configuration.

Id. at 2:63–3:25.

The computer system of the '715 patent also describes different profiles to customize the graphical user interface in different modes, including: a closed mode (in which the display screen is disposed substantially against the base of the computer); a laptop mode (in which the portable computer has a conventional laptop appearance, achieved by, e.g., rotating the display about the longitudinal axis up to approximately 180 degrees from the closed mode); an easel mode (in which the base of the computer and its display component stand upright forming an inverted "V," and the keyboard is concealed and not easily accessible); a flat mode (in which the computer's base component and display component lay flat on a surface); and a frame mode (in which the keyboard is concealed and not easily accessible, and software and/or hardware protection may be provided for the keyboard to prevent keys from being pressed, or to prevent the computer from responding to pressed keys). *Id.* at 6:39–42, 6:49–56, 11:40–42, 24:37–63, 25:40–50.

Figure 17 of the '715 patent, reproduced below, illustrates a portable computer in laptop mode, in which the keyboard is oriented to be accessible to the user. *Id.* at 13:29–32, 21:1–3. Figure 4 of the '715 patent, reproduced below, illustrates the portable computer in easel mode, in which the keyboard is concealed and not easily accessible. *Id.* at 12:57–58, 24:61–62, 26:60–65. And Figure 26 of the '715 patent, reproduced below, illustrates the portable computer configured into frame mode, in which the keyboard is concealed and not easily accessible. *Id.* at 13:55–58, 24:61–62.

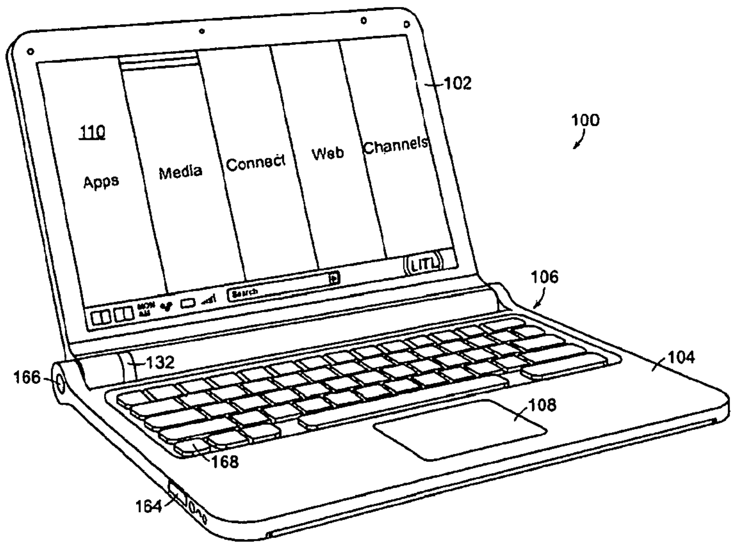


FIG. 17

Figure 17 illustrates a portable computer in laptop mode.
Id. at 13:29–32.

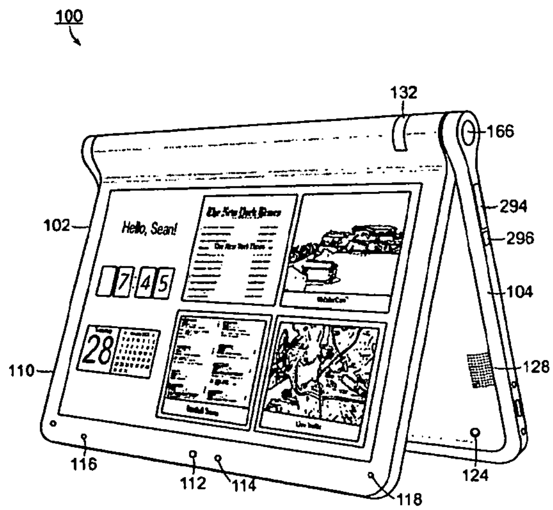


FIG. 4

Figure 4 illustrates a portable computer in easel mode.
Id. at 12:57–58.

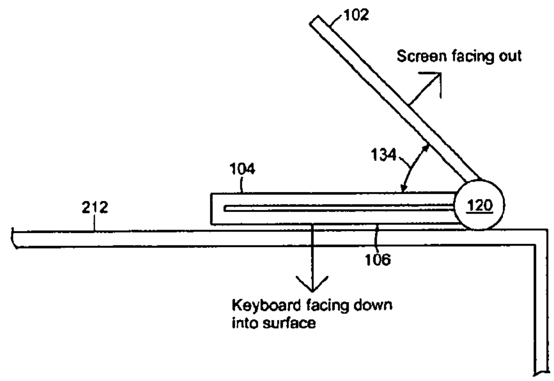


FIG. 26

Figure 26 illustrates a portable computer in frame mode.
Id. at 13:55–58.

The '715 patent's computer assigns different views to the different modes (e.g., the laptop mode, the easel mode, the flat mode, and the frame mode) based on the mode's configuration. *Id.* at 2:45–3:16, 31:18–26. For example, the computer may display a "home view" in laptop mode, and may display a "Channel View" in easel mode as Figure 23 of the '715 patent shows. We reproduce Figure 23 below. *Id.* at 31:18–26.

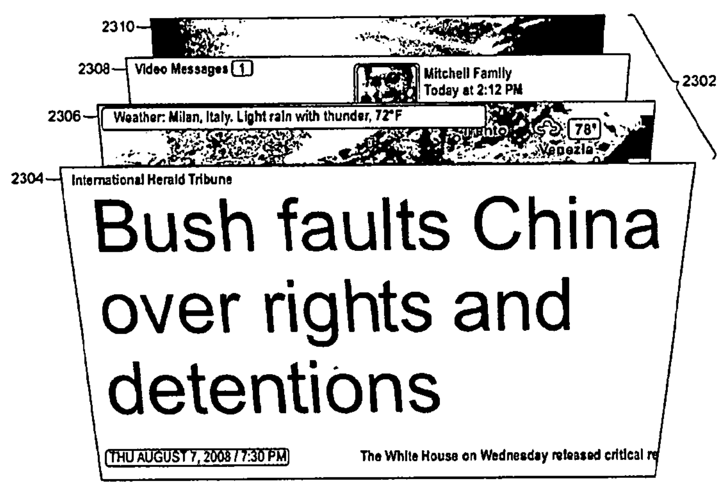


FIG. 23

Figure 23 is a screen shot of a graphical user interface of the portable computer set in easel mode, displaying a channel view that may also display a plurality of modes of content. *Id.* at 13:47–49, 31:20–26.

As Figure 23 shows, the channel view includes selector display (2302) and visual representations of content or channel cards (2304–2310) available for selection. *Id.* at 31:18–26, 53:63–54:1. The visualization the channel view provides resembles and behaves like a rolodex. *Id.* at 54:7–10. In one example, a user invokes the channel view by operating/moving a physical scroll wheel (e.g., scroll wheel 132 illustrated in Figure 4, reproduced above). *Id.* at 53:60–64. As the user moves the scroll wheel, individual channels 2304–2310 appear to flip around the hinge of the device. *Id.* at 54:10–19. In response to a selection, the foremost channel card displayed is selected and displayed full screen. *Id.*

As further examples, the ’715 patent explains that the computer may display a “channel page view” (illustrated in Figure 20A, reproduced below), and a “channel full view” (illustrated in Figure 21, reproduced below).

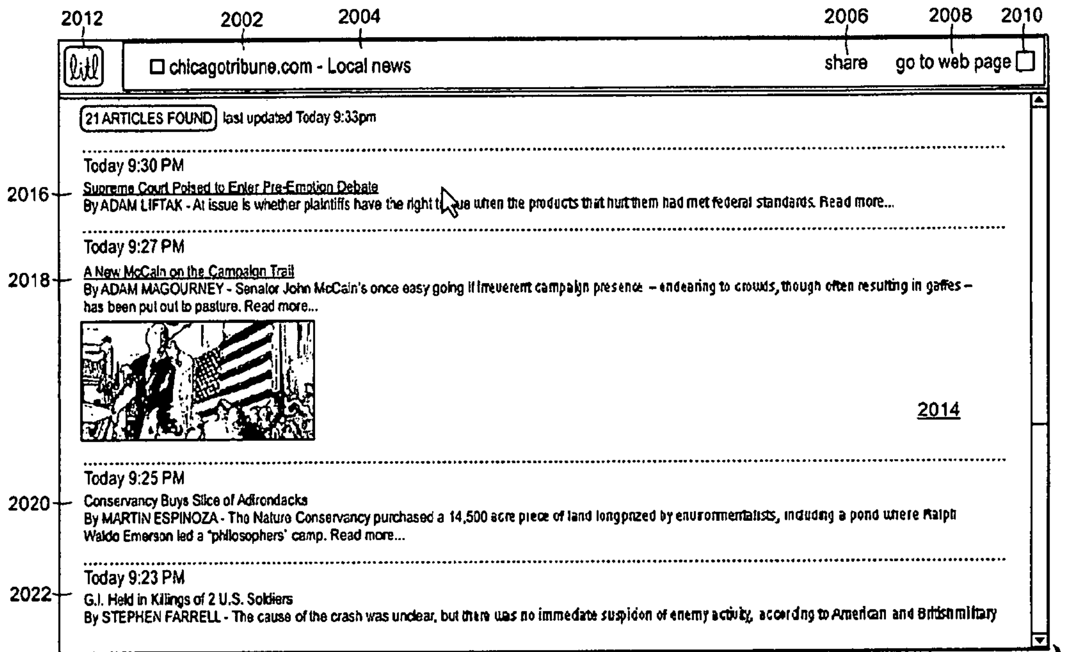


FIG. 20A

Figure 20A is a screen shot illustrating a graphical user interface showing a channel page view, which presents a unique view into content made available through a website, and provides a consistent framework for user interaction with rss style content. *Id.* at 13:38–40, 51:28–50.

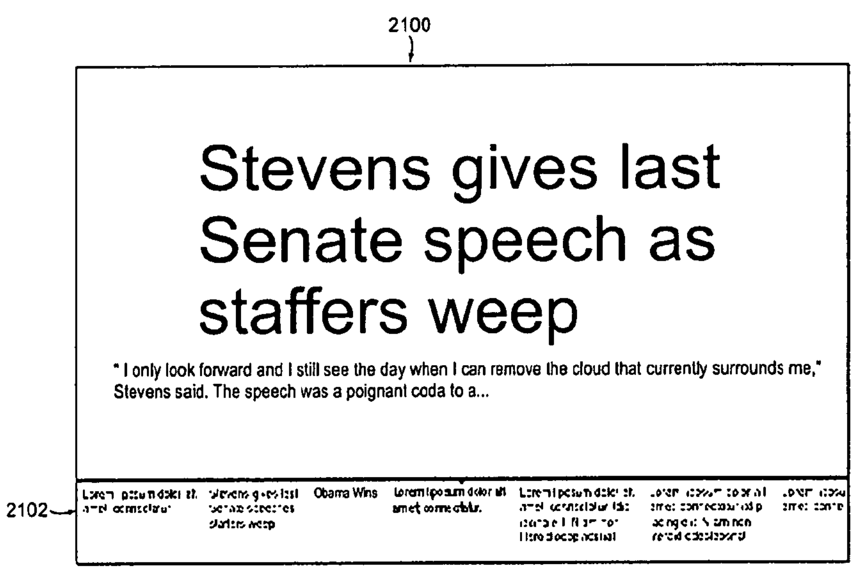


FIG. 21

Figure 21 is a screen shot illustrating a graphical user interface showing a channel full view, which includes displays configured to identify a source of an rss feed, and, in response to a user selection, displays a content menu permitting selection of any of the rss items.
Id. at 13:41–43, 52:33–52.

C. Challenged Claims

Among challenged claims 1–20, claims 1, 17, and 20 are independent. Claims 2–16 and 19 depend from claim 1, and claim 18 depends from claim 17. Claim 1 is exemplary of the claimed subject matter of the '715 patent and is reproduced as follows, with added bracketed identifiers to claim elements.

> 1. [1pre] A customized user interface to display computer content on a display component of a computer system including a keyboard, the user interface comprising:
>
> > [1a] at least one processor operatively connected to a memory of the computer system;
> >
> > [1b] a graphical user interface, executing on the at least one processor, configured to display the computer content on the display component of the computer system, the graphical user interface configured to:
> >
> > > [1c] display a plurality of views of a plurality of visual representations of computer content, wherein the computer content includes at least one of selectable digital content, selectable computer operations and passive digital content;
> >
> > [1d] an execution component, executing on the at least one processor, configured to:
> >
> > > [1e] detect a current computer system configuration from at least a first computer system configuration where the keyboard is operable to receive input from an operator of the computer system to control the computer system and a second computer system configuration where the keyboard is inoperable to

> receive input from the operator of the computer system to control the computer system;
>
> [1f] select one of the plurality of views for display on the computer system in response to the detected current computer system configuration; and
>
> transition the display component to the selected one of the plurality of views.

Ex. 1001, 70:63–71:24; *see also* Ex. 1009 and Pet. 51–59 (annotating claim 1 with the same identifiers).

D. *Asserted Grounds of Unpatentability*

Petitioner asserts that the challenged claims are unpatentable based on the following grounds:

Ground	**Claim(s) Challenged**	**35 U.S.C. §**	**Reference(s)/Basis**
1	1, 20	103	Shimura,[1] Tsuji[2]
2	2–19	103	Shimura, Tsuji, Pogue[3]

Pet. 3. Petitioner supports the asserted grounds with the Declaration of Jean Renard Ward. Ex. 1007; *see also* Ex. 1008 (curriculum vitae of Jean Renard Ward).

III. ANALYSIS

We organize our analysis into three main sections: (A) level of ordinary skill in the art; (B) claim construction; (C) the adequacy of Petitioner's ground one showings for purposes of trial institution; and (D) the adequacy of Petitioner's ground two for purposes of trial institution.

---

[1] JP1994-242853 (H6-242853), published September 2, 1994 (Ex. 1003). We refer to the Certified English translation (Ex. 1004).
[2] US 2005/0062715 A1, published Mar. 24, 2005 (Ex. 1005).
[3] Windows XP Home Edition: The Missing Manual (2d ed.) (David Pogue, Pogue Press, LLC & O'Reilly Media, Inc. 2004) (Ex. 1006).

A. Level of Ordinary Skill in the Art

With regard to the level of ordinary skill in the art, Petitioner contends that a person of ordinary skill would have had:

> at least a Bachelor's degree in Electrical Engineering, Computer Engineering, or Computer Science, plus two to three years of work experience in designing hardware and/or software aspects of user interfaces for computing devices and be familiar with designs of the user interface employed and displayed by the operating system and its organization of content and functionality. . . . Alternatively, the POSITA would also have received a graduate degree such as Master's or PhD degree in the same field with at least one year of the same work experience.

Pet. 14 (citing Ex. 1007 ¶¶ 24–28).

Patent Owner does not dispute Petitioner's asserted level of ordinary skill in the art. *See generally* Prelim. Resp.

We find, based on the current record, that Petitioner's contention is reasonable. For purposes of this decision, we adopt the level of ordinary skill in the art Petitioner proposes.

B. Claim Construction

Petitioner proposes constructions for several claim terms, including: "execution component" (asserting "'execution component' is a means-plus-function limitation under 35 U.S.C. §112, ¶6"); and "content mode" (asserting that for "'content mode(s),' 'single content mode,' and 'two content modes' each is construed as 'user selectable element(s) displayed on a user interface that, when selected, allows the user to access the content organized therein'"). Pet. 15–29.

Patent Owner does not dispute Petitioner's proposed construction for "content mode" because "the Petition fails even if that construction is adopted." Prelim. Resp. 15. Patent Owner disputes Petitioner's proposed means-plus-function constructions for "execution component" because "the Petition misapplies the law for construing an alleged means-plus-function limitation." *Id.*

We determine we need not explicitly construe "execution component" and "content mode" at this stage of the proceeding. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("we need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

We determine, however, that construction is necessary for "plurality of views of a plurality of visual representations of computer content" (as recited in claim 1, and, similarly, in the other challenged claims of the '715 patent). For brevity, we refer to this recitation as the "views recitation." With respect to the views recitation, the '715 patent provides that "different views present different organizations of the interface elements" and "organize modes of content." Ex. 1001, 2:54–56, 3:26–28. For example, the '715 patent describes the different views as presenting different organizations of interface elements as follows:

> Different views of the modes of content are used to present the user with an interface that is responsive to configurations of the device and responsive to activity being performed by the user. Further the elements that comprise the graphical user interface are configured to present a summarized view of available actions and content, in order to simplify user interaction. The different views present different organizations of the interface elements and in some example display only certain ones of the modes of content in order to reduce the number of options a user must navigate to accomplish an objective.
>
> . . .

> The user interface comprises a map based graphical user interface displayed on the computer system, the map based user interface comprising a plurality of views of a plurality of visual representations of computer content, wherein the computer content includes at least one of selectable digital content, selectable computer operations and passive digital content, and the plurality of visual representations of computer content rendered on the computer display, wherein the plurality of visual representations of computer content include an association to a first view of the plurality of views, the first view including the computer content, and wherein the each of the plurality of visual representations is responsive to focus and execution, wherein execution includes clicking on the visual representation, and an execution component comprising at least one computer hardware element configured to transition the computer system display between the plurality of views, wherein the execution component further comprises a view selector component configured to select one of the plurality of views for display on a computer system in response to a computer system configuration. . . .
>
> According to one aspect of the present invention, the plurality of views are configured to organize modes of content into different views.

Id. at 2:45–3:28.

The entirety of the '715 patent is consistent with the description above. As we explain in the summary of the '715 patent provided in Section II.B, *supra*, the purpose of the '715 patent is to better organize "more and more features" provided by "feature packing," so that the typical computer user can better take advantage of features offered. *Id.* at 1:40–2:44. The '715 patent explains that "different views [that] present different organizations of the interface elements and in some example[s] display only certain ones of the modes of content in order to reduce the number of options a user must navigate to accomplish an objective." *Id.* at 2:45–58.

As Patent Owner explains, the '715 patent discusses views extensively. *See, e.g.*, Prelim. Resp. 29–33 (providing numerous citations to the '715 patent. In particular, the '715 patent describes many examples of views that each organize content in a different way. *See, e.g.*, *id.* at Figs. 2 (home view), 3A (web page view), 5 (quick access view), 6 (bookmark view), 20A (channel page view), 21 (channel full view), 23 (channel view); *see also id.* at 12:48–15:15 (summarizing the '715 patent's figures). We agree with Patent Owner that, when discussing views, the '715 patent consistently refers to different ways of organizing content. Prelim. Resp. 29–33.

Although not a focus of the '715 patent, the '715 patent also describes how the orientation of displayed content may be changed to ensure it is right-side up. The '715 patent explains that changing the visual display may be rotated when the computer's configuration is changed as follows:

> According to one embodiment, 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 laptop mode. Thus, a user may simply "flip" the portable computer 100 into the easel mode and immediately be able to comfortably view information on the display screen 110, without having to access display screen controls to adjust the orientation of the visual display.

Ex. 1001, 20:10–24. The '715 patent further explains how the computer may incorporate sensors to allow automatic adjustment of the display's orientation. *Id.* at 20:24–38; *see also id.* at 23:59–24:1 (explaining change in orientation). The '715 patent, however, never refers to merely changing the visual display's orientation as changing views of a plurality of visual representations of computer content.

Based on the analysis above and the record before us, and for purposes of this Decision, we construe the claim recitation "plurality of views of a plurality of visual representations of computer content" (and similar recitations) as referring to a plurality of ways of organizing visual representations of computer content. The recitation is distinct from merely providing a plurality of ways of displaying content (by, for example, changing display orientation, color, resolution, etc.).

C. Ground One: Obviousness Based on Shimura and Tsuji

All grounds rely on Shimura and Tsuji. We provide an overview of Shimura and Tsuji before we address the parties' contentions.

1. Overview of Shimura (Exs. 1003 and 1004)

Shimura is a Japanese patent application publication (Ex. 1003) for which Petitioner has provided a certified English translation (Ex. 1004). Shimura relates to a personal computer "which can adopt a mode suitable for a user environment centered on a pen input operation and a mouse input operation while retaining a mode which can use a keyboard." Ex. 1004, code [57]. Figure 1 of Shimura, reproduced below, illustrates an example of the personal computer. *Id.*

【Figure 1】
図1

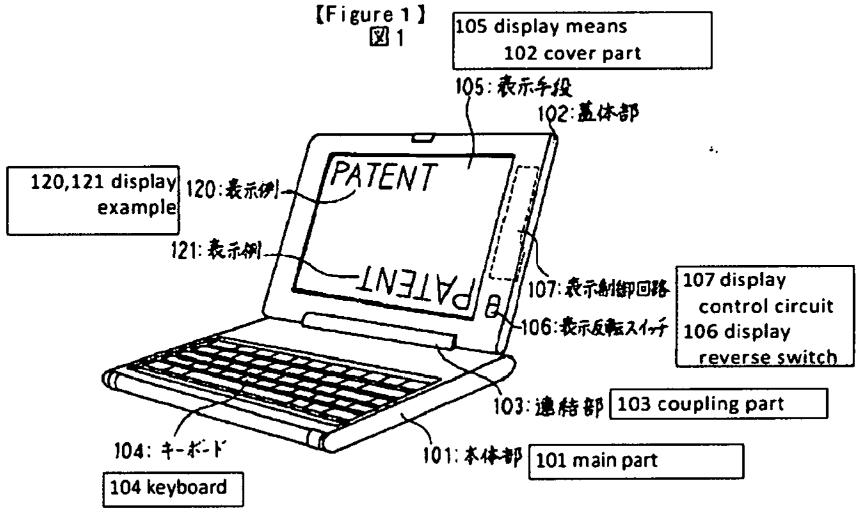
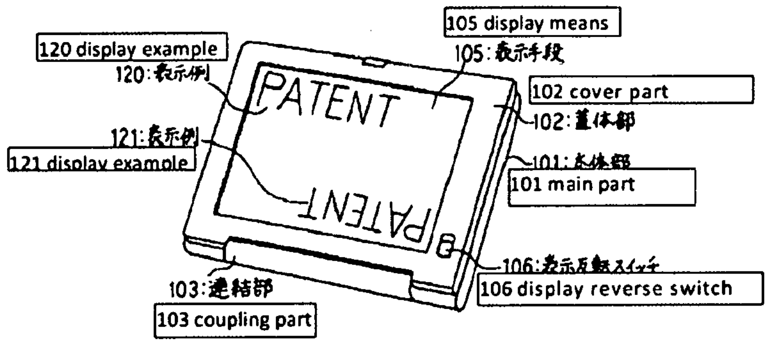


Figure 1 illustrates a personal computer. *Id.*

As shown in Figure 1, the personal computer includes main part 101 provided with keyboard 104 on the front, cover part 102 provided with display 105 on the front, and coupling mechanism 103 used to couple one end of main part 101 and one end of cover part 102 with display 105 such that cover part 102 faces main part 101, and coupling mechanism 103 enables the opening and closing of computer parts 101 and 102. *Id.* Coupling mechanism 103 is structured so that it can also open cover part 102 so that the orientation of cover part 102 exceeds 180° relative to main part 101. *Id.* Figures 4 and 5 of Shimura, reproduced below, show inclined views of the personal computer, with main part 101 rotated nearly 360° with respect to cover part 102 (Figure 4), and main part 101 and cover part 102 opened to an angle of approximately 340° (Figure 5). *Id.* ¶¶ 16–17, Figs. 4 and 5.

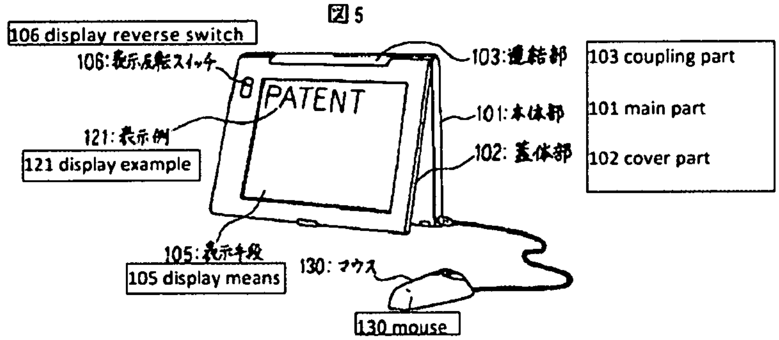
[Figure 4]

図4



[Figure 5]

図5



Figures 4 and 5 show inclined views of the personal computer in which main part 101 has been rotated by more than 180° with respect to cover part 102. *Id.* ¶¶ 6–7, 12, 16–17.

Coupling mechanism 103 enables the rotation of cover part 102 with respect to main part 101. *Id.* ¶¶ 12–13. Coupling mechanism 103 is fastened by hinges to main part 101 and cover part 102. *Id.* ¶ 12. A display reverse switch 106 enables display 105 to be switched upside down. *Id.* ¶¶ 12, 17. A user may place display reverse switch 106 in a normal state and a reverse state. *Id.* ¶ 12. For example, a user may set display reverse switch 106 to a normal mode so that the display orientation of display 105 has orientation 120 (as shown in Figure 1). *Id.* ¶ 12. A user may also set display reverse switch 106 to a reverse mode so that a display orientation of display 105 has orientation 121 (e.g., upside down, as shown in Figure 5). *Id.* ¶¶ 12, 17. Display control circuit 107 of the personal computer controls the output to display 105 by controlling a computer circuit stored in main part 101. *Id.* ¶ 12. Display control circuit 107 turns the display upside down (to orientation 121) based on the state of display reverse switch 106. *Id.*

2. Overview of Tsuji (Ex. 1005)

Tsuji is a US patent application publication that relates to a portable computer including: a housing with a top surface; a keyboard placed on the top surface of the housing; a display unit with a front surface and a rear surface, supported by the housing and "rotated between a closed position in which the keyboard is covered and an open position in which the keyboard is exposed"; a sensor which senses an angle formed between the front surface of the display unit and the top surface of the housing; and a display device in the display unit to display a screen image in one of "a first orientation in which a bottom-end portion of the screen image is located toward the housing and a second orientation in which a top-end portion of the screen image is located toward the housing in accordance with the angle sensed by the sensor." Ex. 1005 ¶¶ 3, 10. Tsuji's Figures 1, 2, and 5, reproduced below, illustrate the portable computer with its display in various positions. *Id.* ¶¶ 13–15.

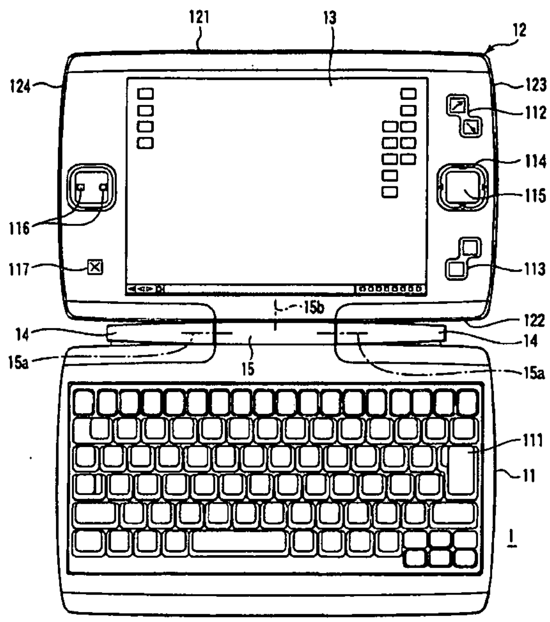


FIG. 1

Figure 1 illustrates a portable computer including display unit 12 that can rotate around first central axis 15a that extends in parallel to the outer surface of computer main body 11, and can also rotate around second central axis 15b perpendicular to first central axis 15a. *Id.* ¶¶ 13, 31–33.

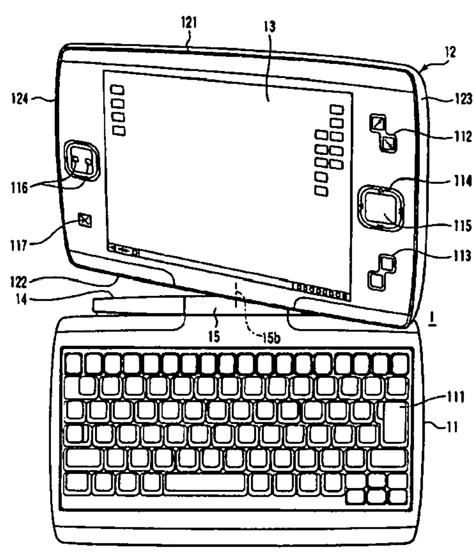


FIG. 2

Figure 2 illustrates the portable computer with display unit 12 rotated around second central axis 15b, display unit 12 rotatable 360° around second central axis 15b in the horizontal direction with respect to the outer surface of computer main body 11. *Id.* ¶¶ 14, 33.

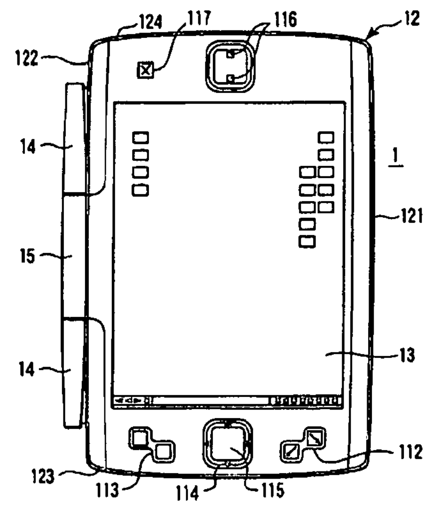


FIG.5

Figure 5 illustrates the portable computer with display unit 12 set to a PDA style by rotating the display unit 180° around second central axis 15b in a horizontal direction so that the display unit is accessible in a second open position. *Id.* ¶¶ 17, 33–34.

Figure 14 of Tsuji, reproduced below, illustrates a control operation for an automatic image rotating function performed by the portable computer shown in Figure 1. *Id.* ¶ 26.

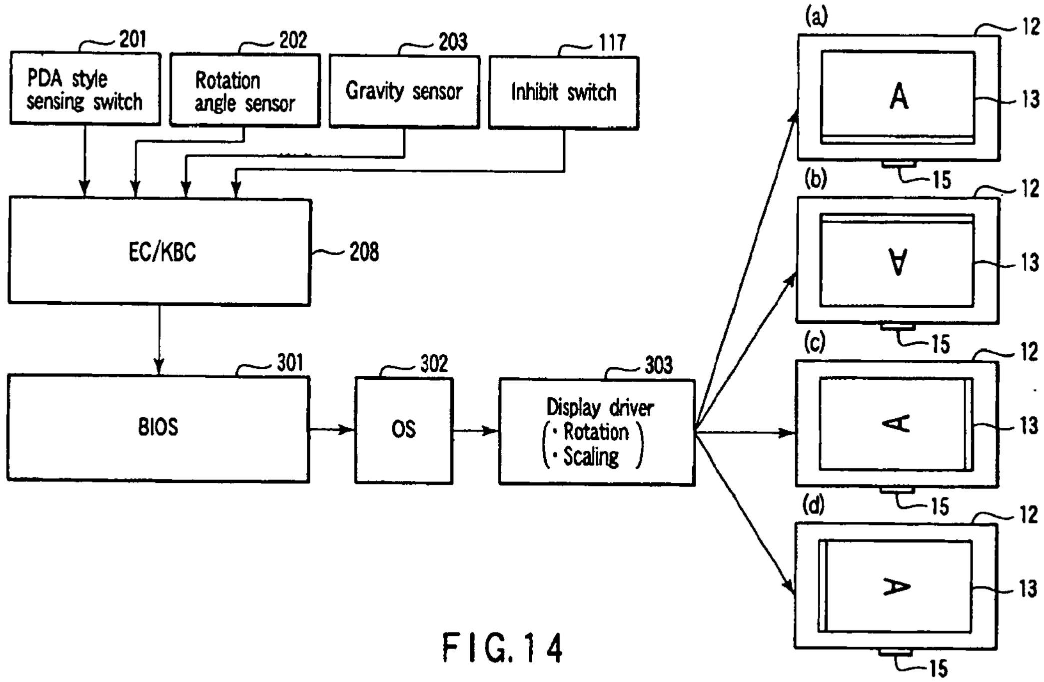


FIG.14

Figure 14 illustrates a control operation for an automatic image rotating function performed by the portable computer shown in Figure 1. *Id.* ¶ 26.

A BIOS (Basic Input Output System) program 301 shown in Figure 14 acquires values from a sensing switch, a rotation angle sensor, and a gravity sensor to determine whether the portable computer is used in a PC style (as shown in Figure 1, reproduced above) or in a PDA style (as shown in Figure 5). *Id.* ¶¶ 34, 64, 69–71. When the computer is used in PC style, BIOS 301 performs control to change the orientation of a screen image in response to a signal from rotation angle sensor 202. *Id.* ¶ 70. When the computer is used in PDA style, BIOS 301 performs control to change the orientation of a screen image in response to a signal from gravity sensor 203. *Id.* BIOS 301 then informs display driver 303 of the orientation of the screen image to be displayed on the computer's LCD and the aspect ratio of the screen image, and display driver 303 performs an operation for rotating the screen image displayed on the computer's LCD and a scaling operation for varying the aspect ratio in response to an instruction from BIOS 301. *Id.* Display driver 303 then sets the orientation of the screen image displayed on the LCD in one of four orientations (a), (b), (c) and (d). *Id.* ¶ 71.

3. Discussion

Based on the present record, Petitioner does not demonstrate a reasonable likelihood of showing the combination of Shimura and Tsuji (ground 1) would have rendered obvious the subject matter of challenged claims 1 and 20. Pet. 42–62. Petitioner also does not demonstrate a reasonable likelihood of showing the subject matter of the challenged claims would have been obvious over the combination of references Petitioner applies for ground 2. *Id.* at 62–102.

Claim 1 recites, *inter alia*, a "graphical user interface" configured to "display a plurality of views of a plurality of visual representations of computer content, wherein the computer content includes at least one of selectable digital content, selectable computer operations and passive digital content" (limitation [1c]), and an "execution component" configured to "select one of the plurality of views for display on the computer system in response to the detected current computer system configuration [as determined by the keyboard being operable or inoperable to receive input from the computer's operator]" and "transition the display component to the selected one of the plurality of views" (limitation [1f]). Ex. 1001, 71:1–24.

Petitioner contends Shimura's display 105 teaches the claimed "graphical user interface." Pet. 53–54 (citing Ex. 1004, Fig. 1; Ex. 1007 ¶¶ 185–189). Petitioner further contends Shimura's graphical user interface meets the views recitation because Shimura's display 105 "displays content in either a normal or inverted view (i.e., rotated 180°)," where

> [t]he view depends on the state of display reversal switch 106 inputted to display control circuit 107 inside the cover part 102. . . . If the display reverse switch 106 is set to normal view, the display control circuit 107 causes the display screen 105 to display the content in normal view. . . . Similarly, if the display reverse switch 106 is set to reverse mode the content is displayed in an inverted view.
>
> A POSITA would have considered the Shimura-Tsuji Computer's ability to display content in either a normal or inverted view to disclose [1c].

Id. at 54–56 (citing Ex. 1004 ¶ 12, Fig. 1; Ex. 1007 ¶¶ 190–194). With respect to limitation [1f], Petitioner contends that a combined Shimura-Tsuji computer can select a view based on computer system configuration:

> [t]he Shimura-Tsuji Computer can determine the computer system configurations and "select[s] one of the plurality of views [e.g., normal and inverted views] for display on the computer system in response to the detected current computer system configuration" and transitions the display to that view.

Id. at 59 (citing Ex. 1007 ¶¶ 203–206). For the claimed "execution component," Petitioner also relies on Tsuji's BIOS program 301 "that informs a display driver 303 . . . of the orientation of the image to be displayed," and on Tsuji's display driver 303 "which is controlled by the BIOS program 301, [and] performs the operation for rotating the image displayed on the LCD." *Id.* at 59–60 (citing Ex. 1005 ¶¶ 68–74, Fig. 14; Ex. 1007 ¶ 205).

Patent Owner argues that Petitioner has failed to meet its burden for claim 1 because the "Petition fails to properly construe 'plurality of views,' which refers to a plurality of ***ways of organizing*** displayed content." Prelim.

Resp. 24, 44–45. Patent Owner's argument is persuasive for the reasons explained below.

As Patent Owner argues, the Petition relies only on different orientations (such as a "normal view" and an "inverted view") of a single organization of displayed content, to meet claim 1's views recitation. *Id.* at 24–25. For example, Patent Owner points out that the Petition considers Shimura's display of the word "PATENT" right-side-up (normal view) and upside-down (inverted) as meeting the recited "plurality of views." *Id.* at 26–27 (citing Pet. 49–50, 54–55). As we explain above in our claim construction, however, inverting or re-orienting a single way of organizing displayed content does not create a "plurality of views of a plurality of visual representations of computer content" as claimed and described in the '715 patent. As such, Petitioner's implicit "construction of 'plurality of views' as reading on different orientations of the same organization of displayed content is wrong because it is inconsistent with every embodiment of a 'plurality of views' described in the specification." *Id.* at 25, 38–41.

Indeed, Patent Owner correctly explains that the '715 patent addresses reorientation of a display but reorientation does not result in the views recitation. Patent Owner makes this distinction by arguing:

> [in] the claims and the specification of the '715 Patent—a "view" is a ***way of organizing*** displayed content. Ex. 1001, Abstract, 2:54–58 ("[t]he ***different views*** present ***different organizations*** of the interface elements"); 3:26–28 ("the plurality of ***views*** are configured to ***organize modes of content*** into different views"); 7:25–27, 9:55–57 (a "plurality of views" of computer content as recited in claims 1, 17 and 20, is a plurality of ways of organizing displayed content).
> . . . the specification also describes ***re-orientating*** the same display organization about the computer's longitudinal axis to

> ensure it is right-side-up, but uses different terminology to describe that re-orientation and never refers to two different orientations of the same organization of displayed content as different views.
>
> . . .
>
> The specification makes clear "views" are particular ***ways of organizing*** displayed content—***not*** different ***orientations*** of a single organization of displayed content.

Prelim. Resp. 27–28; *see id.* at 29–37, 42–44. We find that Patent Owner's explanation of this distinction is best supported by the text of the '715 patent.

Thus, on the current record, Petitioner has not made a sufficient showing that the combination of Shimura and Tsuji teaches the subject matter of limitations [1c] and [1f] of claim 1.

Independent claim 20 includes recitations similar to the views recitation of claim 1. *See* Ex. 1001, 73:19–74:18; Pet. 60–62. Patent Owner maps claim 20 to the prior art's teachings merely by referring back to claim 1. Pet. 60–62. For the reasons we provide as to claim 1, Petitioner has not made a sufficient showing that the combination of Shimura and Tsuji teaches the subject matter of claim 20.

D. Ground Two: Obviousness Based on Shimura, Tsuji, and Pogue

We provide an overview of Pogue before we address the parties' contentions.

1. Overview of Pogue (Ex. 1006)

Pogue is a book on Windows XP, titled "Windows XP Home Edition: The Missing Manual." Ex. 1006, 2. Pogue explains that "[t]he purpose of this book . . . is to serve as the manual that should have accompanied Windows XP" and to provide "step-by-step instructions for using almost every Windows feature." *Id.* at 15.[4] Pogue presents various screen images from a computer running Windows XP, including the "Windows XP computer screen" after a fresh install of Windows XP (Figure 2-2) and a Filmstrip view that "turns [a] folder window into a slide show machine, complete with Next and Previous buttons beneath an enlarged picture, as well as buttons that rotate the image on the screen" (Figure 2-5). *Id.* at 36, 87.

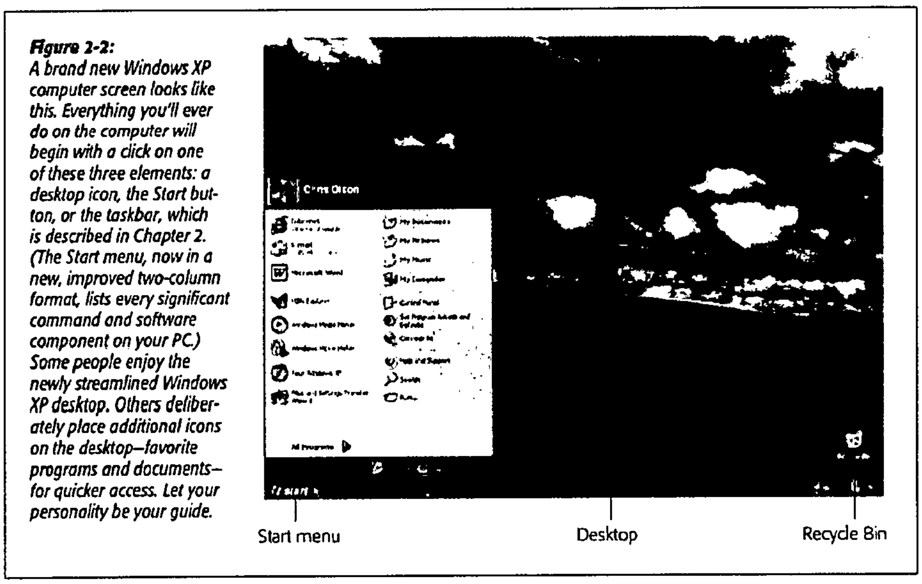


Figure 2-2 shows the Windows XP computer screen displayed after a fresh install of Windows XP. *Id.* at 36.

[4] Page numbers refer to numbered pages of Exhibit 1006 rather than referring to pages of the book.

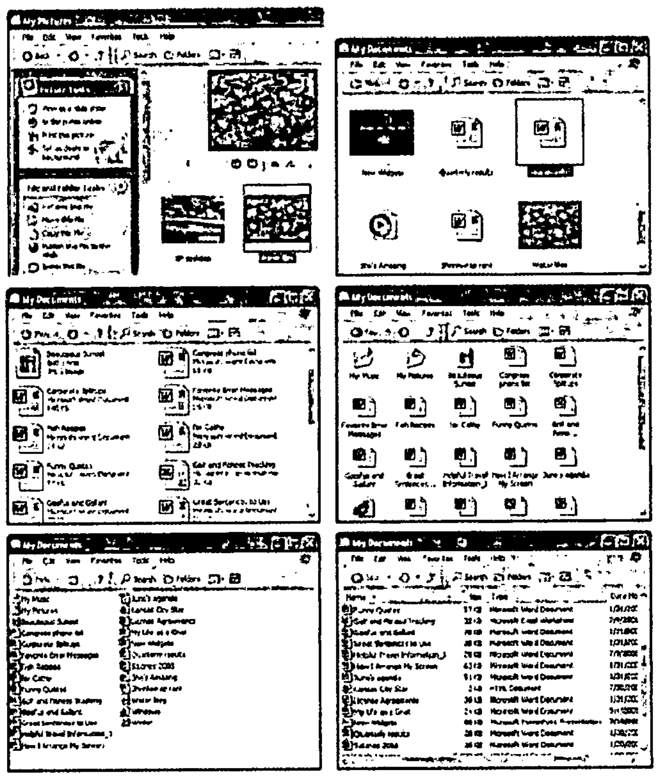


Figure 2-5:
*The new **Filmstrip** view (upper left) creates a slide show right in the folder window. **Thumbnails** view (upper right) is also good for photos—or anyone who would like a larger target for clicking each icon. (Tip: If you press Shift as you switch to Thumbnails view, you hide the file names. Do it again to bring the names back.)*

*In the new **Tiles** view (middle left), your icons appear at standard size, sorted alphabetically into vertical columns—with name and file details just to the right. **Icons** view (middle right) sorts the icons horizontally in rows, displaying only their names. The **List** view (lower left) packs, by far, the most files into the space of a window. **Details** view (lower right) is the same as List view, except for the additional columns of information that reveal the size, the icon type, and the date and time the item was last modified.*

Figure 2-5 shows a Filmstrip view that "turns [a] folder window into a slide show machine, complete with Next and Previous buttons beneath an enlarged picture, as well as buttons that rotate the image on the screen." *Id.* at 87.

2. *Discussion*

Petitioner's second ground of unpatentability is based on obviousness over Shimura, Tsuji, and Pogue. Pet. 62. Although Petitioner states that Pogue discloses a "home view" and a "channel view," as recited in claim 2, Petitioner does not show that Pogue remedies the deficiencies of Shimura and Tsuji with respect to the claimed selection and display of "a plurality of views of a plurality of visual representations of computer content," as recited in claim 1. *See* Pet. 63–66.

In particular, claims 2–16 and 19 depend from claim 1 and include all the limitations claim 1 requires. Claim 1 requires "an execution component . . . configured to: select one of the plurality of views for display on the computer system in response to the detected current computer system configuration." Ex. 1001, 71:10–20; *see also* Ex. 1009, 1 (mapping this recitation as [1f]). Even if Pogue teaches a plurality of views (within the claim construction we provide above), Petitioner does not rely on Pogue to meet the [1f] recitation. Instead, Petitioner alleges that the Shimura-Tsuji combination selecting between normal and inverted views meets the [1f] recitation. Pet. 59. But, as we explain above, Petitioner's mapping of Shimura-Tsuji to [1f] is insufficient. Thus, for the reasons discussed with respect to claim 1, we determine that Petitioner has not established a reasonable likelihood of prevailing in its contention that the asserted combination of Shimura, Tsuji, and Pogue would have rendered obvious claims 2–16 and 19.

As Patent Owner's arguments with respect to independent claim 17 (arguments similar to those submitted for claims 1 and 20, *see* Prelim. Resp. 24–27, 42–45) further explain, Petitioner also has not shown that the combination of Shimura and Tsuji teaches the limitations directed to the "plurality of views of a plurality of visual representations of the computer content" recited in independent claim 17. *Id.* at 62–64. Petitioner labels the portions of claim 17 requiring a graphical user interface "configured to display a plurality of views of a plurality of visual representations of the computer content" and requiring an execution component configured to "select, responsive to the sensor input, a first content view from the plurality of views" as [17b] and [17e] respectively. Ex. 1009, 4. Petitioner does not provide any mapping to prior art for these recitations beyond what Petitioner provided for claim 1. Pet. 100–101. Petitioner, therefore, does not show that Pogue remedies the deficiencies of Shimura and Tsuji that we addressed with respect to claim 1. Thus, Patent Owner's arguments persuade us that Petitioner has not made a sufficient showing that the combination of Shimura, Tsuji, and Pogue teaches the subject matter of claim 17.

Claim 18 depends from claim 17 and includes all the limitations claim 17 requires. For the reasons discussed with respect to claim 17, we determine that Petitioner has not established a reasonable likelihood of prevailing in its contention that claim 18 would have been rendered obvious by the asserted combination of Shimura, Tsuji, and Pogue.

Therefore, Petitioner does not establish a reasonable likelihood of prevailing in demonstrating the unpatentability of any challenged claim of the '715 patent in its second ground of unpatentability for the same reasons as Petitioner's first ground of patentability.

IV. CONCLUSION

For the reasons above, we determine that Petitioner has not established a reasonable likelihood that it would prevail in showing that at least one of the challenged claims is unpatentable.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is denied, and we do not institute an *inter partes* review of any claim of the '715 patent based on a ground asserted in the Petition.

PETITIONER:

Martin Bader
Nam Kim
Michael Hopkins
SHEPPARD, MULLIN, RICHTER & HAMPTON LLP
mbader@sheppardmullin.com
nkim@sheppardmullin.com
mhopkins@sheppardmullin.com

PATENT OWNER:

Gerald B. Hrycyszyn
Richard F. Giunta
Jason Balich
WOLF GREENFIELD & SACKS, P.C.
ghrycyszyn-ptab@wolfgreenfield.com
rgiunta-ptab@wolfgreenfield.com
jbalich-ptab@wolfgreenfield.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LENOVO (UNITED STATES) INC.
Petitioner

v.

LITL LLC
Patent Owner

IPR Case No. IPR2021-00800
U.S. Patent No. 10,289,154

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. §311 *ET SEQ.* AND 37 C.F.R. §42.100 *ET SEQ.* (CLAIMS 1-20 OF U.S. PATENT NO. 10,289,154)

EXHIBIT LIST

EXHIBIT	DESCRIPTION
1001	U.S. Pat. No. 10,289,154 ("the '154 Patent")
1002	Prosecution History of the '154 Patent
1003	JP 1994-242853 to Shimura
1004	Certified English translation of JP 1994-242853 ("Shimura")
1005	U.S. Pub. No. 2005/0062715 to Tsuji et al. ("Tsuji")
1006	U.S. Pub. No. US 2005/0122318 ("Tonouchi")
1007	Windows XP Home Edition: The Missing Manual, 2nd Edition ("Pogue")
1008	U.S. Pat. No. 6,449,146 ("Ryuuzaki")
1009	JP 2005-168036 to Kawai
1010	Certified English translation of JP 2005-168036 ("Kawai")
1011	Declaration of Jean Renard Ward
1012	Curriculum Vitae of Jean Renard Ward
1013	Claim Listing
1014	Family Diagram of Modified Shimura Computer
1015	Panasonic-CF-19-laptop_manual (CF-19)
1016	Dell Latitude XT Tablet
1017	Hardy, Lenovo ThinkPad X61 Tablet PC Review (2007) ("Lenovo")
1018	Clifford & Gomez, Measuring Tilt with Low-g Accelerometers (2005) ("Freescale")

EXHIBIT	DESCRIPTION
1019	U.S. Pub. No. 2006/0034042 to Hisano et al. ("Hisano")
1020	JP 2002-258982 to Kiyoyuki
1021	Certified English translation of JP 2002-258982 ("Kiyoyuki ")
1022	JP 1996-179851 to Shigeo
1023	Certified English translation of JP 1996-179851 ("Shigeo")
1024	DE 1031455A1 to Schweizer
1025	Certified English translation of DE 1031455A1 ("Schweizer")
1026	U.S. Pat. No. 6,882,335 to Saarinen ("Saarinen")
1027	U.S. Pat. No. 6,493,216 to Lin ("Lin")
1028	U.S. Pat. No. 8,151,105 to Park et al. ("Park")
1029	Ride, MIT's $100 Laptop (2005) ("MIT")
1030	HP Compaq Tablet PC TC1100 QuickSpecs ("Compaq")
1031	Panasonic CF-T8 Operating Instructions
1032	Motion Computing M1400 Tablet PC User Guide
1033	Motion Computing M1400 Tablet PC Addendum
1034	Sony Vaio VGN-UX280P (UX Series MicroPC) Spec Sheet
1035	Microsoft Corporation, *Designing for Direct Manipulation*, http://msdn2.microsoft.com/en-us/library/ms698539(VS.85,printer).aspx (accessed on Mar. 3, 2008)
1036	The Windows Interface Guidelines–A Guide for Designing Software ("Windows Interface")
1037	The Windows Interface Guidelines for Software Design ("Windows Interface Software Design")
1038	U.S. Pat. No. 7,058,902 to Iwema et al. ("Iwema")

EXHIBIT	DESCRIPTION
1039	U.S. Pub. No. 2006/0209016 to Fox et al. ("Fox")
1040	Intentionally left blank
1041	Intentionally left blank
1042	WaybackMachine Archive of https://www.windows-help-central.com/show-desktop-icon-in-xp-missing.html.
1043	Windows XP Hacks & Mods for Dummies ("Leonhard")
1044	Windows XP in a Nutshell ("Karp")
1045	U.S. Pat. No. 5,646,820 to Honda et al. ("Honda")
1046	Toshiba Satellite A300 Portable Person Computer User's Manual ("Toshiba")
1047	U.S. Pat. No. 5,682,290 to Markow et al. ("Markow")
1048	U.S. Pat. No. 5,610,992 to Hickman ("Hickman")
1049	U.S. Pat. No. 6,807,053 to An et al. ("An")
1050	ThinkPad X61 Tablet Service and Troubleshooting Guide ("Lenovo Service Guide")
1051	U.S. Pat. No. 5,559,670 to Flint et al. ("Flint")
1052	Declaration of Michael Hopkins
1053	Declaration of Liliana Nunez

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Federal: Statutes, Rules, Regulations, Constitutional Provisions

I. INTRODUCTION

The 20 claims challenged here are directed to a portable computer with multiple display modes and related features, all of which were well-known before the priority date. This portable computer is configurable between various display modes, including a laptop, easel, and frame mode. But these modes, and portable computers configurable to transition between them, were all well-known before the priority date. Related claimed features include a hinge assembly, detection of the display mode based on a rotation sensor, automatic rotation based on a detected display mode, enlargement of displayed content in different display modes, and other well-known standard computer components, such as a touch-pad, a power switch, a CPU, a camera, a speaker, and a volume control. But likewise, these and other claimed features were also all well-known before the priority date.

As explained below, six prior art patents—Shimura, Tsuji, Tonouchi, Pogue, Ryuuzaki, and Kawai—in various combinations render obvious all 20 challenged claims. This petition requests that the Board find unpatentable and cancel all challenged claims.

II. MANDATORY NOTICES UNDER 37 C.F.R. §42.8

A. Real Parties-In-Interest (§42.8 (b)(1))

Pursuant to 37 C.F.R. § 42.8(b)(1), Lenovo (United States) Inc. ("Petitioner") is a real party-in-interest. Petitioner is an indirect wholly-owned subsidiary of Lenovo Group Limited. Because Lenovo (Beijing) Limited has been named as a defendant in the "related matter" identified pursuant to 37 C.F.R. § 42.8(b)(2) (i.e., *LiTL LLC v. Lenovo (United States), Inc. and Lenovo (Beijing) Limited.*, Case No. 1:20-cv-00689 (D. Del.)), Lenovo (Beijing) Limited is also a real party-in-interest.

B. Related Matters (§42.8 (b)(2))

The patent at issue, U.S. Patent No.` 10,289,154 ("'154 Patent"), is the subject of the following district court proceeding: *LiTL LLC v. Lenovo (United States) Inc. and Lenovo (Beijing) Limited*, Case No. 1:20-cv-00689 (D. Del.).

C. Lead and Backup Counsel (§42.8 (b)(3))

Petitioner appoints Martin Bader (Reg. No. 54,736) of Sheppard, Mullin, Richter & Hampton LLP as Lead Counsel, and appoints Nam Kim (Reg. No. 64,160), Mike Kim (Reg. No. 72,867), and Michael Hopkins (Reg. No. 75,019) of the same firm as Back-Up Counsel. An appropriate Power of Attorney is filed concurrently herewith.

D. Service Information (§42.8 (b)(4))

Service of any documents to Counsel can be made via hand delivery to Sheppard Mullin Richter & Hampton LLP, 12275 El Camino Real, Suite 100, San Diego, California 92130. Petitioner consents to service by e-mail at LegalTm-LNV-LTL@sheppardmullin.com.

III. FEE FOR *IPR* (37 C.F.R. §42.15(a) and §42.103)

Petitioner has paid the required fees. The Office is authorized to charge any fee deficiency, or credit any overpayment, to Deposit Account No. 50-4561.

IV. REQUIREMENTS FOR *IPR* UNDER 327 C.F.R. §42.104

A. Grounds for Standing (§42.104(a))

Petitioner certifies that the '154 Patent is available for IPR and that the Petitioner is not barred or estopped from requesting IPR challenging the claims of the '154 Patent.

B. Identification of Challenged Claims (§42.104(b)(1))

This Petition challenges the validity of claims 1-20 of the '154 Patent.

C. Grounds of Challenge (§42.104(b)(2))

The Grounds of unpatentability presented in this Petition are as follows.

Ground	Basis	References	Challenged Claim
1	§103	Obvious over Shimura in view of Tsuji and Tonouchi	1-8
2	§103	Obvious over Shimura in view of Tsuji, Tonouchi, and Pogue	9-10
3	§103	Obvious over Shimura in view of Tsuji, Tonouchi, Ryuuzaki, and Kawai	11-16, 20
4	§103	Obvious over Shimura in view of Tsuji, Tonouchi, Ryuuzaki, Kawai, and Pogue	17-19

The '154 Patent issued from U.S. Application No. 15/896,201, filed February 14, 2018, which is a continuation of Application No. 15/394,492 (U.S. Patent No. 9,927,835), which is a continuation of Application No. 13/651,636 (U.S. Patent No. 9,563,229), which is a continuation of Application No. 12/170,939 (U.S. Patent No. 8,289,688), which is a continuation of Application No. 12/170,951 (U.S. Patent No. 8,624,844), and claims priority to U.S. Provisional Application No. 61/041,365, filed April 1, 2008. Without conceding valid priority entitlement, for purposes of this Petition only, it is assumed that April 1, 2008 marks the earliest effective priority date (the "Critical Date") of the '154 Patent.

V. PROPOSED GROUNDS SHOULD NOT BE DENIED INSTITUTION ON ANY DISCRETIONARY BASIS

The grounds in the instant Petition rely upon prior art and argument that have never before been presented to the USPTO. While Shimura was listed in an Information Disclosure Statement with over 200 other references, it was never discussed during prosecution of the '154 patent or the prosecution of any parent application. Thus, the specific arguments and supporting evidence presented in this petition—including the detailed supporting declaration of Petitioner's expert witness Jean Ward—were never presented to, nor addressed by, the examiner of the parent applications or the examiner of the '154 Patent. *See Microsoft Corp. v. Parallel Networks Licensing, LLC*, Case No. IPR2015-00483 at 15 (PTAB July 15,

2015) (Paper 12) (instituting review where there was no evidence the asserted prior art, listed on a "lengthy Information Disclosure Statement initialed by the Examiner," was ever considered by the Examiner); *Cisco Systems, Inc. v. Crossroads Sys., Inc.*, Case No. IPR2014-01544 at 13-14 (PTAB Apr. 3, 2015) (Paper 9) (instituting review where "the Examiner did not address substantively the teachings" of asserted prior art references that had been disclosed during prosecution); *Taro Pharm. U.S.A., Inc., v. Apotex Tech., Inc.*, Case No. IPR2017-01446 at 18 (PTAB Nov. 28, 2017) (Paper 7) (instituting review where the prior art reference had been considered by the examiner, but new declaration evidence had not been previously presented to the Patent Office); *Synaptic Medical Inc. v. Karl Storz-Endoscopy-America, Inc.*, Case No. IPR2018-00462 at 10 (PTAB July 16, 2018) (Paper 6) (instituting review where "the references here were not applied to reject the claims of the [challenged] Patent and there is no evidence that the Examiner considered the particular disclosures cited in the Petition or addressed arguments similar to those Petitioner now presents"); *Comcast Cable Communs., LLC v. Promptu Sys. Corp.*, Case No. IPR2018-00342 at 17 (PTAB July 19, 2018) (Paper 13) (instituting review where the prior art "was only cited in an IDS and not applied by the examiner in the reissue application process in any rejection of claims"); *Pure Storage, Inc. v. Realtime Data LLC*, Case No. IPR2018-00549 at 11 (PTAB July 23, 2018) (Paper 7) (instituting review where "there is no evidence of record that [the prior art references] were substantively considered by the Examiner").

Petitioner respectfully submits that the Board should not exercise its discretion to deny institution under 35 U.S.C. § 325(d) for at least these reasons. *See Becton Dickinson & Co. v. B. Braun Melsungen AG*, Case IPR2017-01586, slip op. at 17-18 (PTAB Dec. 15, 2017) (Paper 8) (informative).

VI. RELEVANT INFORMATION CONCERNING THE '154 PATENT

A. Overview of the '154 Patent

The '154 Patent is directed to a "portable computer that is configurable between a plurality of display modes including a laptop mode (in which the portable computer has a conventional laptop appearance) and an easel mode in which the base of the computer and its display component stand vertically forming an inverted 'V.'" EX-1001, Abstract. The portable computer 100 is configurable into the plurality of display modes (e.g., FIGs. 1, 4, and 26 below, corresponding to a laptop mode, an easel mode, and a frame mode) based on a hinge assembly (e.g., FIGs. 7B and 10 below) rotatably coupling the display component 102 to the base 104 of the computer 100. *Id.*, Abstract.

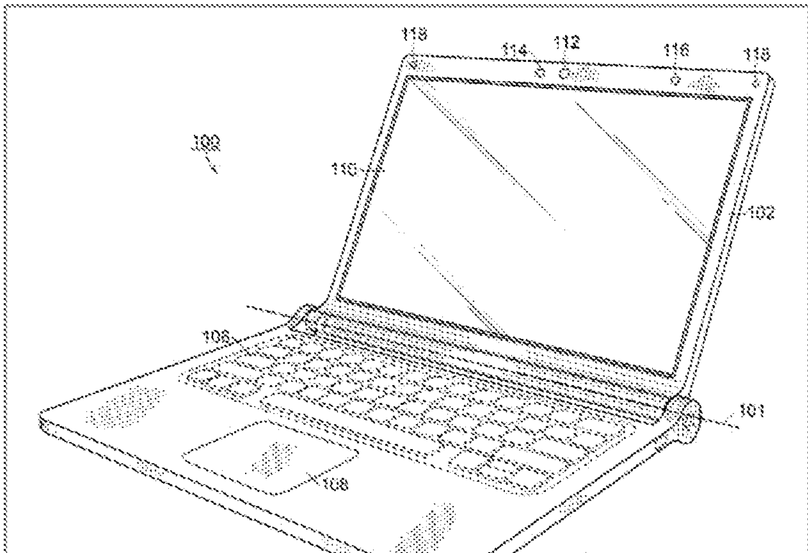

118
114
112
116
118
100
110
102
106
101
108
104

FIG. 1

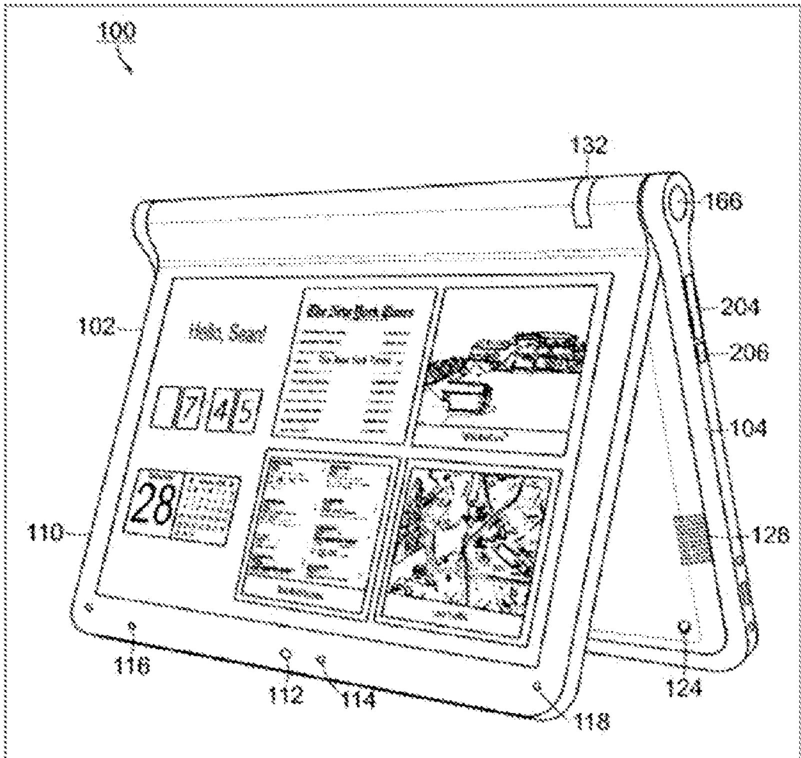

100
132
166
102
Hello, Sean!
204
206
104
7
4
5
28
110
128
116
112
114
118
124

FIG. 4

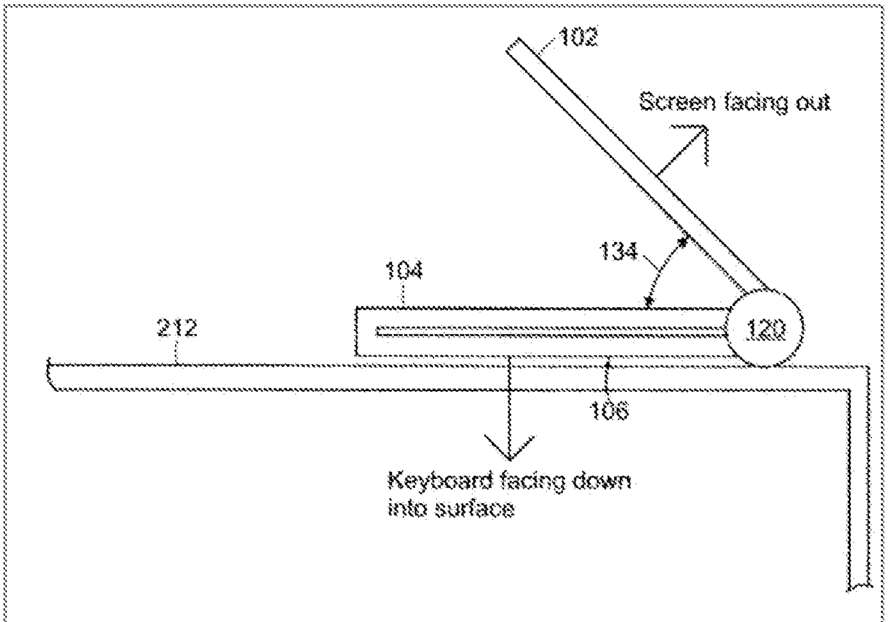

102
Screen facing out
134
104
212
120
106
Keyboard facing down
into surface

FIG. 26

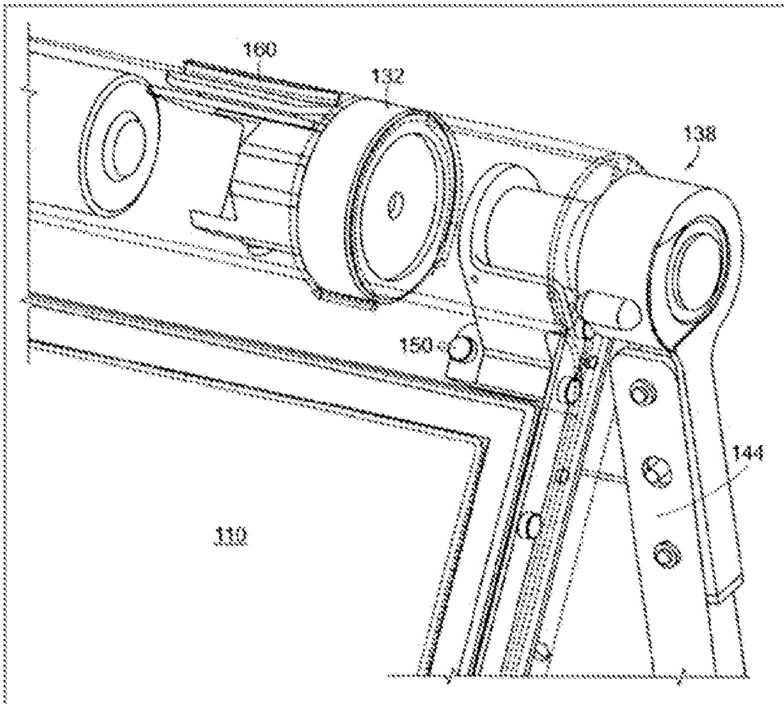

160
132
138
150
144
110

FIG. 7B

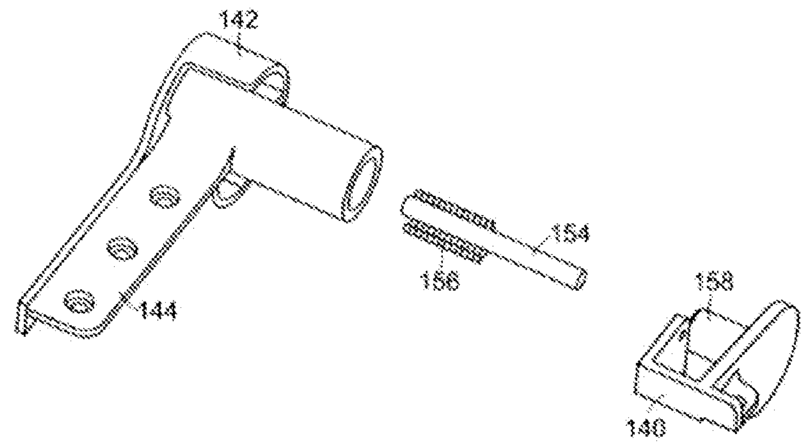


FIG. 10

At the Critical Date, portable computers using a hinge assembly and configurable into a plurality of display modes, including the laptop, easel, and frame modes, were well-known in the art. EX-1011, ¶47; EX-1004; EX-1005; EX-1006; EX-1015; EX-1017; EX-1019; EX-1021; EX-1023; EX-1025; EX-1026; EX-1027; EX-1028; EX-1029; EX-1030; EX-1051.

The displayed content of the portable computer of the '154 Patent can be rotated by 180° so that the displayed content is oriented properly for an intended user. EX-1001, 8:44-54, 17:19-43. The 180° rotation of the displayed content may be manual or automated. *Id.*, 17:19-43. For example, in an embodiment where the rotation is automated, the portable computer uses an orientation (or mode) sensor that detects whether the portable computer is in a laptop mode or an easel mode and adjusts the display accordingly. *Id.*, 8:54-58. The orientation (or mode) sensor may be located in the hinge assembly 138 and "may be used to determine a precise relative orientation[, such as an angle,] of the base component 104 with respect to the display component 102 … to determine [a given display mode.]" *Id.*, 8:64-9:5, 30-34. In some embodiments, the orientation sensor may be located in a display component 102 or base 104 and may include an accelerometer "whose output is fed to the computer operating system (or to dedicated logic circuitry) which then triggers a display inversion as appropriate between the two modes." *Id.*, 9:2-5.

The '154 Patent also describes automatically adjusting the displayed content into a full screen view (i.e., the displayed image or video is displayed on the full screen size, rather than in a window) when the portable computer 100 is configured into the easel mode. *Id.*, 14:61-67.

In addition, the '154 Patent discusses a "graphical user interface [GUI] that … provides a clear overview of the entire computing environment and searching capability within the environment." *Id.*, 11:58-61. The '154 Patent describes various views, including a "home view," (or "home screen"), an example architecture of which is depicted in FIG. 11 below. *Id.*, 12:8-20.

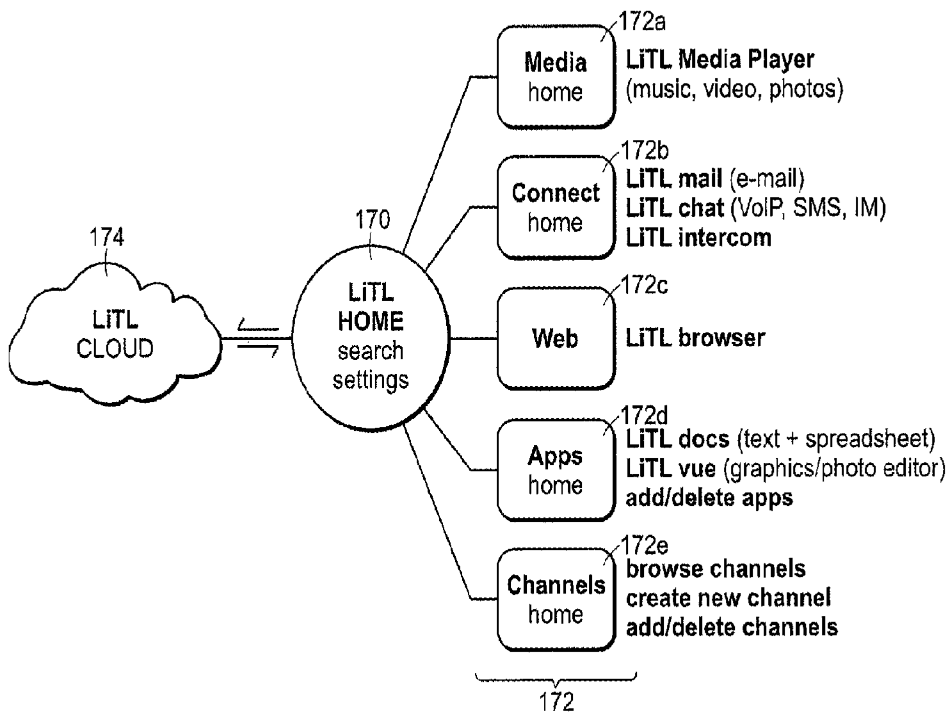


FIG. 11

The home view "displays a plurality of modes of content 172," such as media 172a, web 172c, and applications 172d. *Id.*, 12:9-18. These "modes of content may be displayed in … a 'desktop' and icon configuration, a 'dashboard' type display, … or another configuration, as would be recognized by those skilled in the art." *Id.*, 12:59-65.

Moreover, the '154 Patent describes "software and/or hardware protection … provided for the keyboard to prevent keys from being pressed (or to prevent the portable computer from responding to pressed keys) when the portable computer is in the frame mode." *Id.*, 17:4-8.

The '154 Patent also discusses integrated navigation hardware that "allows a user to easily and comfortable [sic] control various features and functions of the portable computer, and to manipulate content displayed on the portable computer." *Id.*, 11:33-36. The navigation hardware may include a scroll wheel, navigation buttons 166, 168, or conventional tools (e.g., touchpad 108, track ball, mouse, or other peripherals) to "control, adjust and/or select various functionality of the portable computer." *Id.*, 11:40-12:5.

In addition, the '154 Patent describes "a touch pad 108 or trackball (not shown) for receiving user commands, as known to those skilled in the art." *Id.*, 7:14-15. The portable computer of the '154 Patent also includes a central processing unit (CPU) in the base 104, a camera 112 on the display component 102, a power button 122 in the base 104, a speaker in the base 104, and a volume control (e.g., scroll wheel 132, volume control button 204, mute button 206) in the base 104. *Id.*, 7:9-11, 16-18, 44-47, 8:1-2, 13:24-26.

Challenged Claim 20 is representative. *Id.*, 20:6-46.

B. Prosecution History of the '154 Patent

The '154 Patent was allowed after one Office Action and claim amendments. EX-1002, *passim*. The applicant submitted a preliminary amendment, dated July 13, 2018, cancelling claims 1-20 and adding new claims 21-40. *Id.*, 80-86. In the single Office Action, dated November 28, 2018, the Examiner rejected all pending independent claims based on a nonstatutory double patenting rejection under U.S. Patent No. 8,289,688. *Id.*, 51. Applicant filed a terminal disclaimer in response, and the claims were allowed. *Id.*, 45. The Notice of Allowance identifies that the specific limitation of "a display manager configured to detect a current display mode from among the plurality of display modes based at least in part on the orientation information and enlarge at least some computer content displayed on the display screen when the current display mode transitions from the first mode to the second mode" is not anticipated or made obvious by the prior art of record. *Id.*, 13. The Examiner identifies five specific prior art references, none of which are used in this Petition, and what claim limitations they allegedly fail to disclose. *Id.*, 14-16.

However, as demonstrated below, all of these claim limitations were squarely within the prior art, including the prior art relied upon in this Petition.

C. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (hereafter "POSITA") would have had at least a Bachelor's degree in Electrical Engineering, Computer Engineering, or Computer Science, plus two to three years of work experience in designing hardware and/or software aspects of the User Interface (UI) for computing devices; the POSITA would also be familiar with designs of the user interface employed and displayed by the operating system and its organization of content and functionality. Alternatively, the POSITA would have received a graduate degree such as Master's or PhD degree with at least one year of work experience related to hardware and/or software design aspects of the UI for computing devices; the POSITA would also be familiar with designs of the user interface employed and displayed by the operating system and its organization of content and functionality. EX-1011, ¶26.

D. Claim Listing

EX-1013 is a claim listing that enumerates each claim element.

VII. CLAIM CONSTRUCTION FOR "DISPLAY MANAGER"—37 C.F.R. §42.104(b)(3)

The claim construction standard defined in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) applies to this proceeding. 83 Fed. Reg. No. 197, 51340 (Oct. 11, 2018); 37 C.F.R. § 42.100. Words in a claim are given their plain meaning, which is the meaning understood by a POSITA after reading the entire patent. *Phillips*, 415 F.3d at 1312-13. *Phillips*, 415 F.3d at 1312-13.

Petitioner proposes that only the terms below in the Challenged Claims require express construction for purposes of the current validity challenges. Petitioner reserves the right to respond to any constructions that LiTL may offer or that the Board may adopt. Petitioner is not waiving any arguments concerning indefiniteness or claim scope that may be raised in other proceedings.

Claim limitations construed below directly or indirectly include a "display manager" configured to perform recited functions. For purposes of this Petition only, "display manager" is assumed to be a means-plus-function limitation under 35 U.S.C. §112, ¶6. *See Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1348-50 (Fed. Cir. 2015); *Synchronoss Techs., Inc. v. Dropbox Inc.*, No. 16-CV-00119-HSG, 2017 WL 6059302, at *10 (N.D. Cal. Dec. 7, 2017) (construing the term "synchronization manager" as a means-plus-function limitation because "the word 'synchronization' does not impart sufficient specific structure to the words 'manager' or 'agent,' which a person of ordinary skill would understand to be 'generic descriptors for software or hardware that perform a specified function, or manage something, respectively'").

A. The means-plus-function limitations of [1e1], [11e1], and [20e1]

The function of [1e1], [11e1], and [20e1] is "detect[ing] a current display mode from among the plurality of display modes based at least in part on the orientation information."

The '154 Patent also discloses that the computer includes an "orientation sensor" that may be used "to determine whether the device is in the laptop mode, easel mode, or some point in between." EX-1001, 8:64-9:2. The orientation sensor can "include electronic or mechanical components, or a combination thereof." *Id.*, 10:15-17. The orientation sensor can include an accelerometer or a mechanism to "detect a relative orientation of the display component 102 and the base component 104." *Id.*, 10:4-7. The orientation sensor information can be output to "the computer operating system (or to dedicated logic circuitry)." *Id.* 9:2-5. Dedicated logic circuitry includes a processor to receive the output of the sensors. EX-1011, ¶132.

Thus, based on this disclosure, the corresponding structure for each of the means-plus-function limitations of [1e1], [11e1], and [20e1] to include at least a computer operating system and/or dedicated logic circuitry to receive data from orientation sensors and use that received data to detect the current display mode, and its equivalents. *Id.*, ¶133.

B. The means-plus-function limitations of [1e2], [11e4], and [20e4]

The function of [1e2], [11e4], and [20e4] "enlarg[ing] at least some computer content displayed on the display screen when the current display mode transitions from the first mode to the second mode."

The '154 Patent describes that "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." EX-1001, 14:61-67. A POSITA would have understood that this was also controlled by "the computer operating system (or to dedicated logic circuitry)." *Id.* 9:2-5.

Thus, based on this disclosure, the corresponding structure for each of the means-plus-function limitations of [1e2], [11e4], and [20e4] to include at least a computer operating system and/or dedicated logic circuitry to detect a display mode based on outputs from orientation sensors and increase the size of displayed content if the detected display mode is a predetermined display mode (e.g., easel mode), and its equivalents. EX-1011, ¶¶133-136.

C. The means-plus-function limitations of Claim 3, [4b], [11e2], [20e2], [11e3], and [20e3] for displaying content in an orientation when in a current display mode

The first function of Claim 3 is "display[ing] content in a first orientation when the current display mode is the first mode." The second function of Claim 3 is "display[ing] content in a second orientation that is rotated 180 degrees relative to the first orientation when the current display mode is the second mode." The function of [4b] is "display content in the first orientation when the current display mode is the frame mode." The function of [11e2] is "display[ing] content in a first orientation when the current display mode is the first mode or the third mode." The function of [20e2] is "display[ing] content in a first orientation when the current display mode is the laptop mode or the frame mode." The function of [11e3] is " display[ing] content in a second orientation that is rotated 180 degrees relative to the first orientation when the current display mode is the second mode." The function of [20e3] is "display[ing] content in a second orientation that is rotated 180 degrees relative to the first orientation when the current display mode is the easel mode."

The '154 Patent discloses detecting (or identifying based on sensor input indicating a position of the display component) a current display mode (e.g., laptop easel, or frame mode) using data output from orientation sensors. V.A.

The '154 Patent discloses that the "display orientation of the portable computer may vary when the portable computer is configured from the laptop mode into the easel mode, or vice versa." EX-1001, 14:52-55. "For example, as discussed above, 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 through the display screen is upside-down compared to when the portable computer is in the laptop mode." *Id.*, 14:55-60. "[T]he visual display on the display screen 110 may be automatically rotated to accommodate comfortable viewing of information by persons located in different positions relative to the base component 104 or display component 102. The visual display on the display screen 110 may also be manually adjusted by a user using, for example, the keyboard 106, touch pad 108 or mouse (not shown), scroll wheel 132 or navigation buttons (not shown)." *Id.*, 17:20-27.

Thus, based on this disclosure, the corresponding structure for each of the means-plus-function limitation of Claim 3 to include at least a computer operating system and/or dedicated logic circuitry to detect a current display mode (e.g., laptop, easel, or frame mode) based on outputs from orientation sensors and orient the displayed content accordingly (e.g., normal or inverted view), and its equivalents. EX-1011, ¶¶137-144, 149-156.

D. The means-plus-function limitation of Claim 9

The function of Claim 9 is "transition[ing] to a home screen when the navigation element is activated."

The '154 Patent discloses that the "'home' screen 170 [] displays a plurality of modes of content 172." EX-1001, 12:8-9. As shown in FIG. 11, "the home screen 170 contains five modes of content 172; however, it is to be appreciated that the home screen may include more or fewer than five modes of content and that the modes of content may differ from the examples discussed below. According to one example, the modes of content 172 accessible via the home screen 170 may include 'media' 172a, 'connect' 172b, 'web' 172c, 'applications' 172d, and 'channels' 172e." *Id.*, 12:10-17. A user can "press[] the navigation button 168 while within a given mode of content[,] allow[ing] the user to 'back up' to the home screen." *Id.*, 14:19-21.

Thus, based on this disclosure, the corresponding structure for each of the means-plus-function limitation of Claim 9 to include at least a computer operating system and/or dedicated logic circuitry to detect execution of a navigation element and transition the display to the home screen based on the detected execution of the navigation element, and its equivalents. EX-1011, ¶¶145-148.

E. The means-plus-function limitation of Claims 17 and 18

The function of Claim 17 is "transition[ing] to a first home screen when the navigation element is activated and the current display mode is the first mode." The function of Claim 18 is " transition[ing] to a second home screen when the navigation element is activated and the current display mode is the second mode, wherein the first home screen is different from the second home screen."

The '154 Patent discloses that the "display orientation of the portable computer may vary when the portable computer is configured from the laptop mode into the easel mode, or vice versa." EX-1001, 14:52-55.

The '154 Patent also discloses that the "'home' screen 170 [] displays a plurality of modes of content 172." *Id.*, 12:8-9. As shown in FIG. 11, "the home screen 170 contains five modes of content 172; however, it is to be appreciated that the home screen may include more or fewer than five modes of content and that the modes of content may differ from the examples discussed below. According to one example, the modes of content 172 accessible via the home screen 170 may include 'media' 172a, 'connect' 172b, 'web' 172c, 'applications' 172d, and 'channels' 172e." *Id.*, 12:10-17. A user can "press[] the navigation button 168 while within a given mode of content[,] allow[ing] the user to 'back up' to the home screen." *Id.*, 14:19-21. Navigation button 168, as shown in FIG. 17 below, would be available in a laptop mode. EX-1011, ¶160.

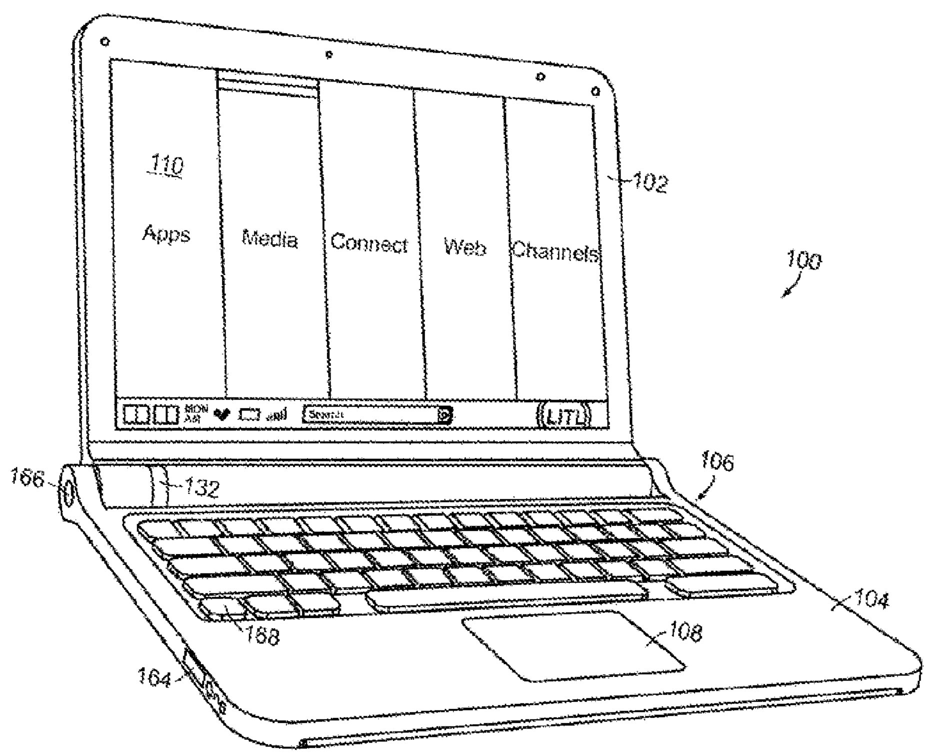


FIG. 17

"[T]he functionality of the two navigation buttons 166, 168 may be the same." EX-1001, 14:6-12. As shown in FIG. 16 below, "the navigation button

166 may be easily accessed when the portable computer 100 is in the easel mode, providing a convenient navigation tool for this configuration." *Id.*, 14:3-6.

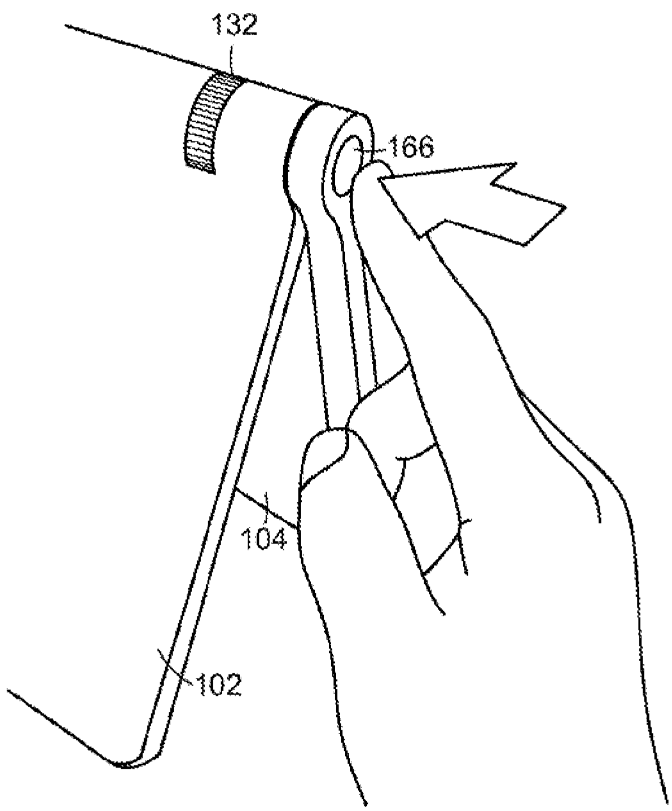


FIG. 16

A POSITA would have understood that a user would be able to use the navigation button 166 in the easel mode to go to the home screen of the '154 Patent. EX-1011, ¶161.

Thus, based on this disclosure, the corresponding structure for each of the means-plus-function limitation of Claims 17 and 18 to include at least a computer operating system and/or dedicated logic circuitry to detect a current display mode (e.g., laptop or easel mode), orient the displayed content accordingly (e.g., normal or inverted view), detect execution of a navigation element, and transition the display to the home screen in the correct display orientation (e.g., normal or inverted view) based on the detected display mode and detected execution of the navigation element, and its equivalents. *Id.*, ¶¶157-162.

VIII. PRECISE REASONS FOR RELIEF REQUESTED

A. Summary of the Prior Art Applied in This Petition

1. Overview of Shimura

Shimura published as Japanese Patent No. 1994-242853 on September 2, 1994, from an application filed on February 15, 1993. Shimura therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). The Shimura reference published in Japanese (EX-1003), and a certified English translation is provided herein (EX-1004, reference hereinafter will be made to the certified English translation for simplicity).

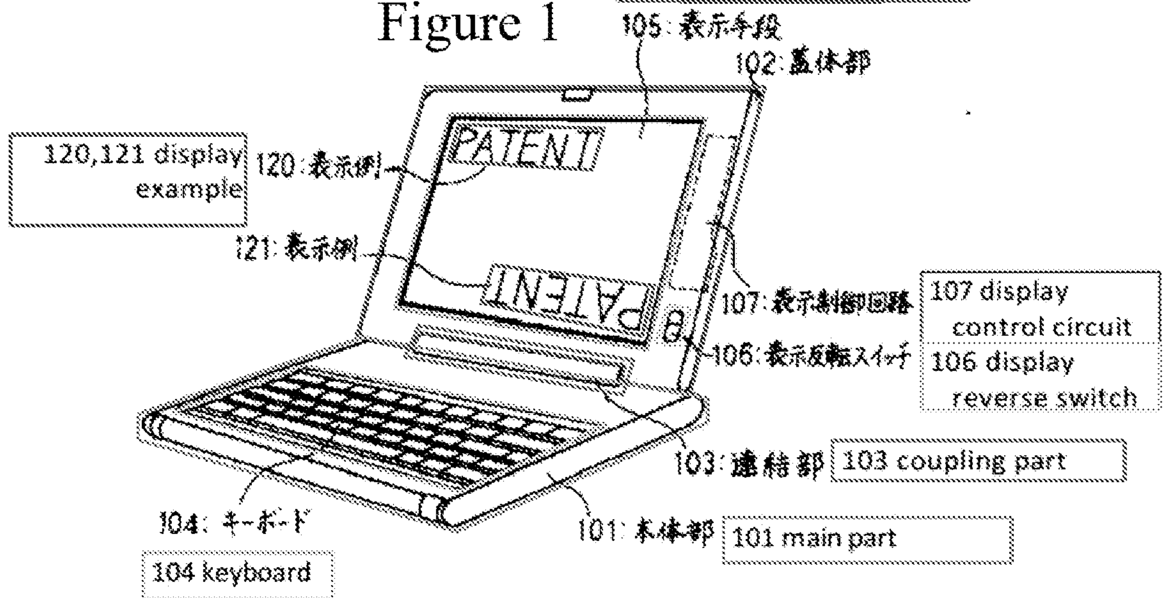
Shimura is directed to a portable "computer which can adopt a mode suitable for a user environment." EX-1004, Abstract. The portable computer includes:

- main part 101 (dark green below in Annotated Figure 1 of Shimura) with keyboard 104 (light green);
- a cover part 102 (dark blue) with display means 105 (light blue);
- a coupling part 103 (red) fastening the main part 101 to the cover part 102;

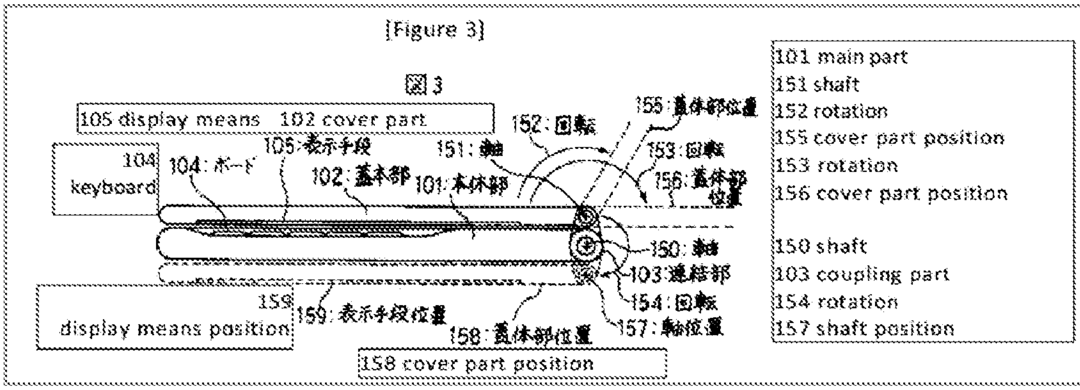
- a display reverse switch 106 (orange) to set the display to a normal view or an inverted view (i.e., the displayed content is turned upside down); and
- display elements 120, 121 (dark red).

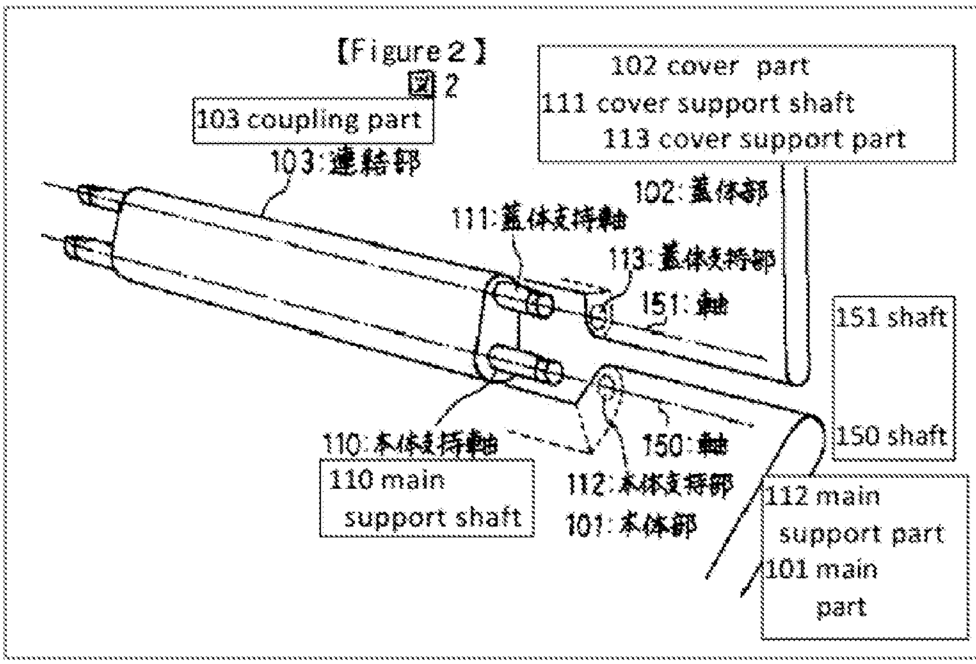
Id., Abstract, ¶¶10-12, 17.

Annotated Figure 1



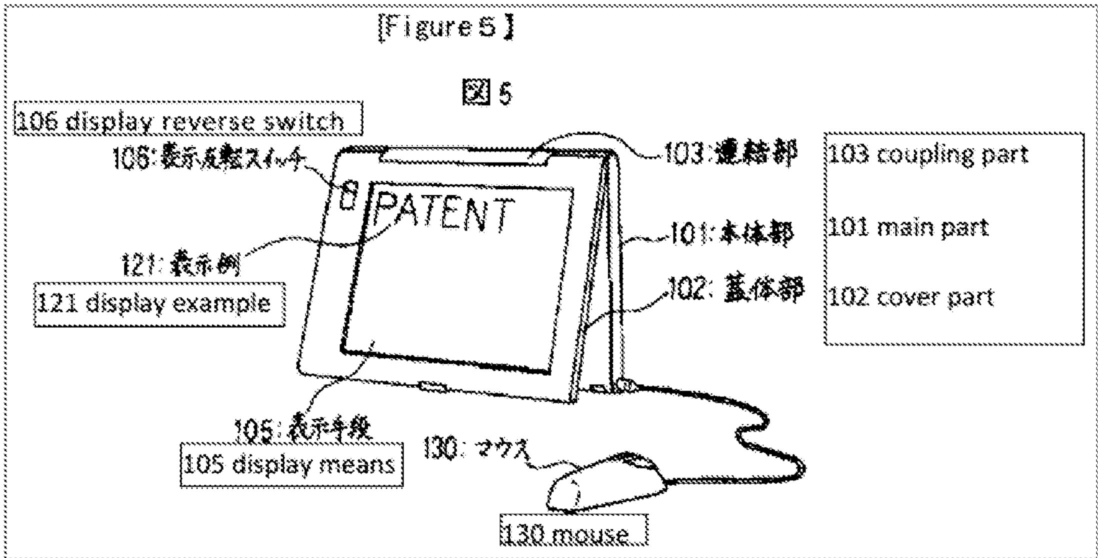
The coupling part 103 allows the cover part 102 to be rotated up to 360° about the main part 101 into various display modes, as illustrated in Figure 3 below. *Id.*, ¶¶11-17. The coupling part 103 may include two shafts 150, 151, which facilitates rotation of the cover part 102 about the main part 101, as illustrated in Figure 2 below. *Id.*, ¶¶13-14. The coupling part 103 includes main support part 112 of the main part 101 and cover support part 113 of the cover part 102. *Id.*, ¶13.





In a first display mode, which corresponds to the laptop mode of the '154 Patent, the keyboard 104 is facing upward and the display means 105 is facing the user, as illustrated in Figure 1. *Id.*, ¶¶11, 14; EX-1011, ¶166.

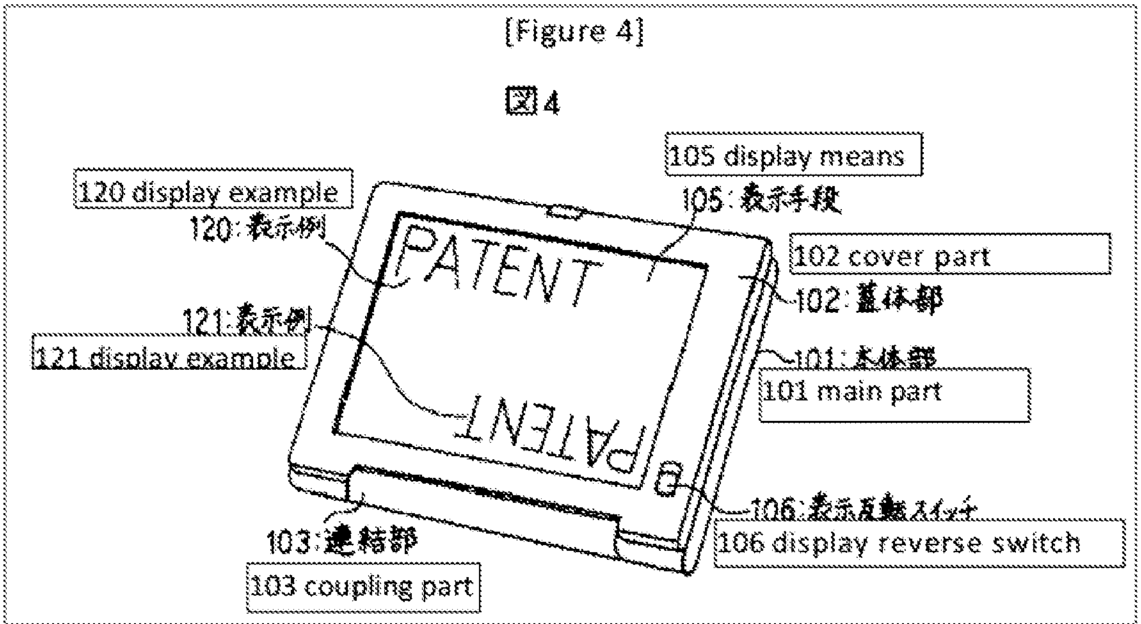
In a second display mode, which corresponds to the easel mode of the '154 Patent, the cover part is rotated 340° about the main part 101 such that the display means 105 is facing the user and the keyboard 104 is facing away from the user, and the user may be limited to interacting with the operating environment using mouse 130, as illustrated in Figure 5 below. EX-1004, ¶¶14-17; EX-1011, ¶167.



In a third display mode, which corresponds to the frame mode of the '154 Patent, the keyboard 104 and the display means 105 are facing away from each other, as illustrated in Figure 4 below. EX-1004, ¶17.[1]

---

[1] The '154 Patent describes that in frame mode, "the keyboard 106 [is] 'face down' on the surface 212 and the display 110 [is] facing upward." EX-1001, 16:1-5. Therefore, the hinge-rotation angle must be greater than 270°. EX-1011, ¶¶189-205. Likewise, Figure 4 of Shimura shows the keyboard face down on a surface and the display facing upward. EX-1004, ¶¶16, 18. Shimura further discloses that the portable computer can be configured to any angle between 0° to 360°, such as 340°. *Id.* ¶¶8, 10, 17.



Shimura also discloses a "second switching means" that can be set to invalidate input from the keyboard. *Id.*, ¶8. The input invalidation functionality can be used in a frame mode, as depicted in Figure 4 of Shimura (above), where data may be mistakenly inputted from the keyboard on the back of the display means 105. *Id.*, ¶18. Shimura also discloses that the input invalidation functionality operates automatically based on an angle of the cover part 102 compared to main part 101. *Id.*, ¶¶18, 19.

2. <u>**Overview of Tsuji**</u>

Tsuji published on March 24, 2005 and claims priority to a Japanese application filed on September 19, 2003. Tsuji therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Referring to FIGS. 1 and 5 below, Tsuji discloses portable computer 1 including computer main body 11 with a CPU (central processing unit). EX-1005,

¶30. The display unit 12 of Tsuji is "implemented as a touch screen device that is capable of recognizing a position indicated by a stylus (pen) or a user's finger." *Id.*, ¶31; FIGs. 1 and 5 below. The portable computer 1 can be configured into a PC style, as illustrated in FIG. 1 below, and a PDA style, as illustrated in FIG. 5 below. *Id.*, ¶34.

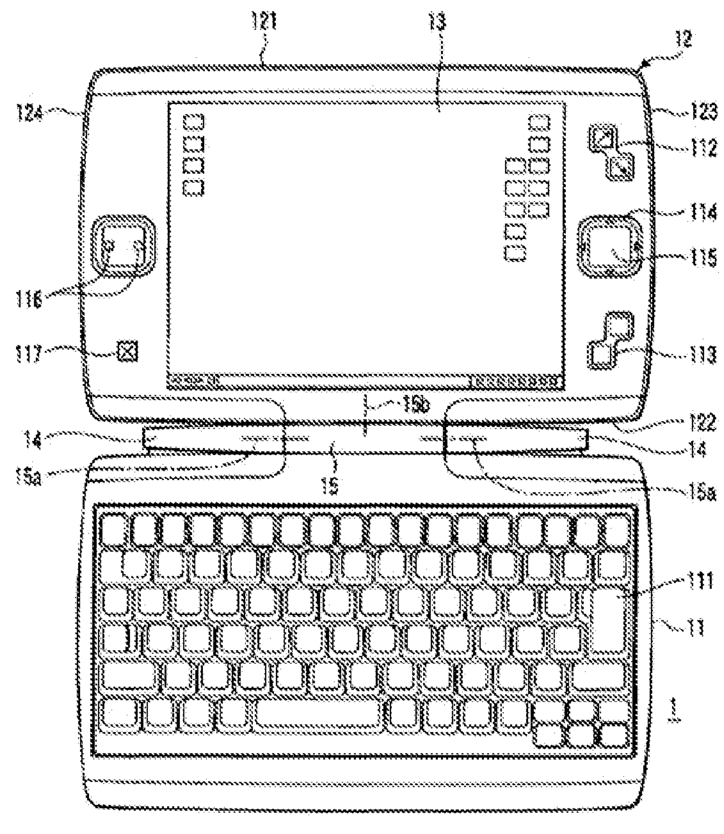


FIG. 1

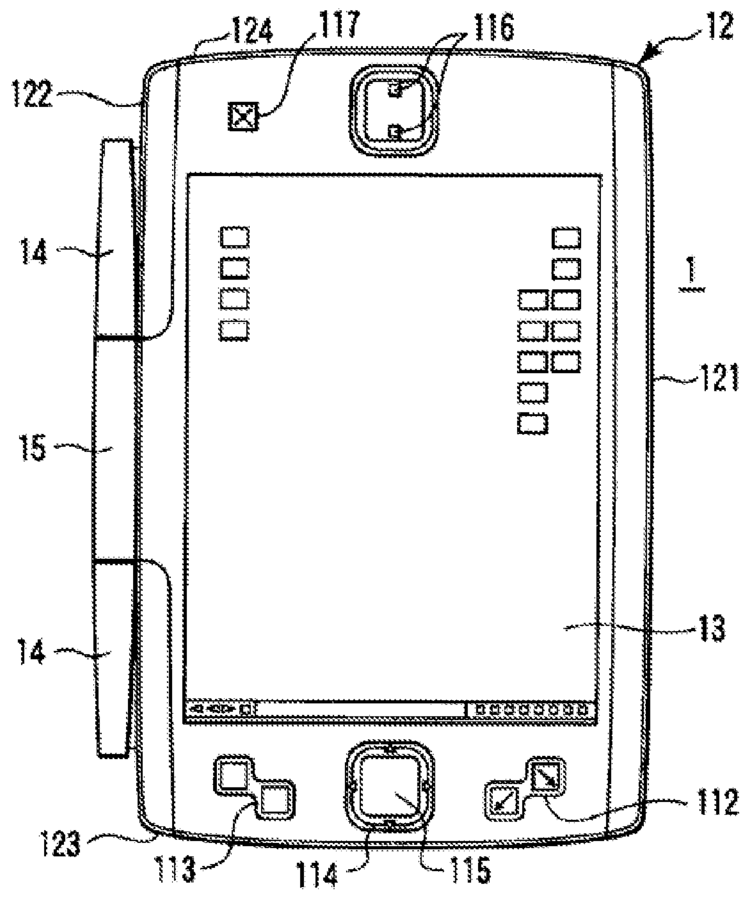


FIG. 5

A display driver 303 in the portable computer 1 "performs an operation for rotating a screen image displayed on the LCD 13 and a scaling operation for varying the aspect ratio in response to an instruction from the BIOS 301." *Id.*¶70. The BIOS 301 relies on gravity sensor 203 and/or rotation angle sensor 202, illustrated in FIG. 10 below, to orient the display unit 12 (i.e., rotate the screen image). *Id.*, ¶¶48, 50-52, 58, 74, 77.

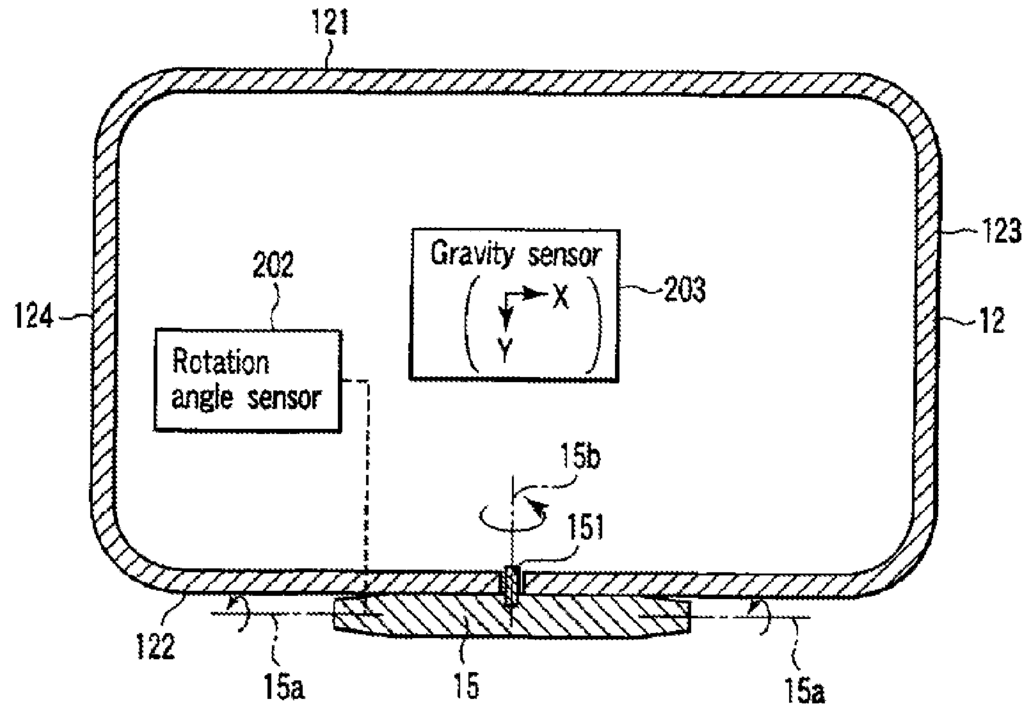


FIG. 10

Tsuji also discloses key switches 118 and 119 referred to as a R (right) button and a L (left) button illustrated in FIG. 4 below. *Id.*, ¶38 ("Any given function can programmably be assigned to each of the R and L button switches 118 and 119."). The R and L buttons "are exposed regardless of whether the computer 1 is used in a PC style or a PDA style." *Id.*, ¶39.

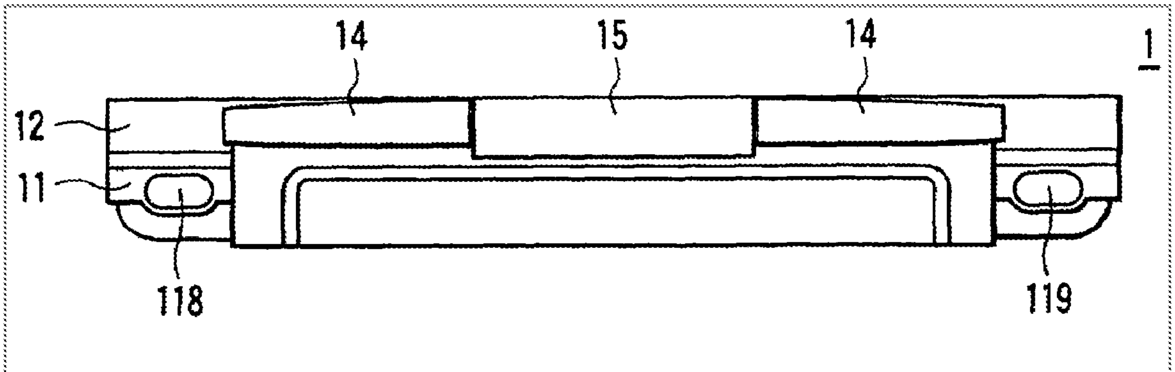


FIG. 4

3. **Overview of Tonouchi**

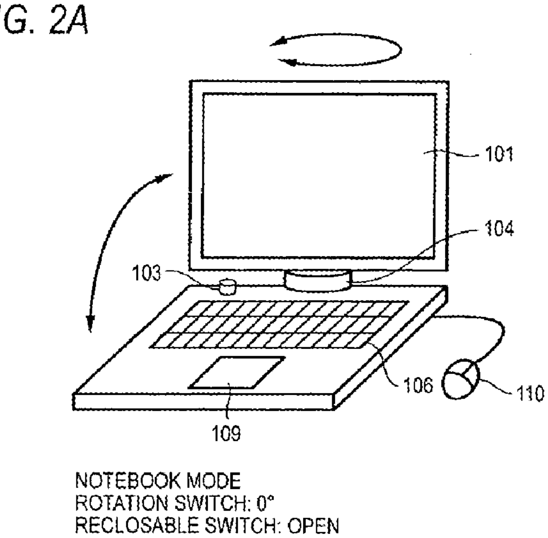
Tonouchi published on June 9, 2005 and claims priority to a Japanese application filed on November 14, 2003. Tonouchi therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Tonouchi discloses a convertible notebook PC including, among other components, screen display 101, keyboard 106, and touch-pad 108, as illustrated in FIG. 2A below.[2] EX-1006, ¶25.

---

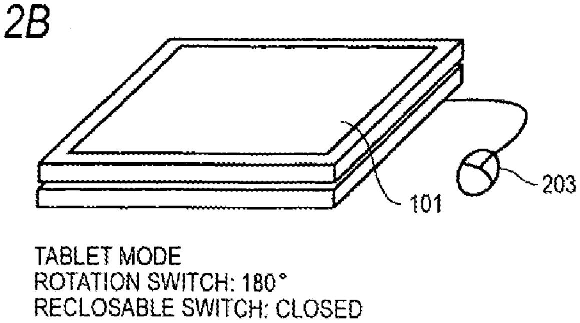
[2] The touch-pad appears to be labeled in FIG. 2A as 109. This is understood as a typographical error and the touch-pad should be labeled as 108.

FIG. 2A



The convertible notebook PC can be switched between a notebook mode (FIG. 2A above) and a tablet mode (FIG. 2B below). *Id.*, ¶31.

FIG. 2B



Depending on the display mode, the displayed content and functionalities are different, as illustrated in FIG. 5. *Id.*, ¶31. For example, "[d]isplayed 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." *Id.* As examples of different functionalities, keyboard and touch-pad input are accepted in the notebook mode and are not accepted in the tablet mode. *Id.*,

¶32. As another example, pen input is not accepted in the notebook mode and is accepted in the tablet mode. *Id.*

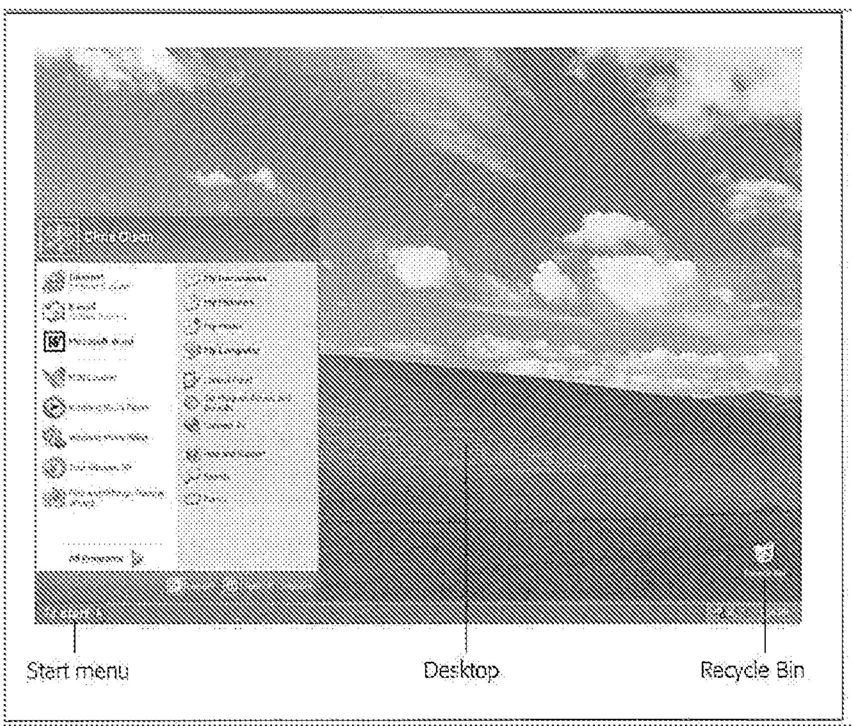
4. **Overview of Pogue**[3]

Pogue is a printed publication and is prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). Pogue bears a marking "Copyright © 2004 Pogue Press, LLC," has an ISBN Number, and a statement that it was "Published by O'Reilly Media, Inc." in the United States. EX-1006, 5; *FLIR Sys., Inc. v. Leak Surveys, Inc.*, IPR2014-00411, slip op. at 18-19 (PTAB Sept. 5, 2014) (Paper 9). Pogue's listing on amazon.com contains user reviews from as early as January 2005, and archived webpages indicate Pogue was available to purchase on various websites prior to the Critical Date. EX-1052, ¶¶2-4; *CIM Maintenance Inc. v. P&RO Solutions Group, Inc.*, IPR2017-00516, slip op. at 18-20 (PTAB June 22, 2017) (Paper 8); *Workspot, Inc. v. Citrix Systems, Inc.*, IPR2019-01002, slip op. at 17-21 (PTAB Nov. 20, 2019) (Paper 12). Pogue was cataloged by at least one library as early as October 2005. EX-1053, ¶2. As confirmed by the publisher, Pogue was available online to "subscribers, individuals, and libraries" as early as January 11, 2005. EX-1052, ¶5.

---

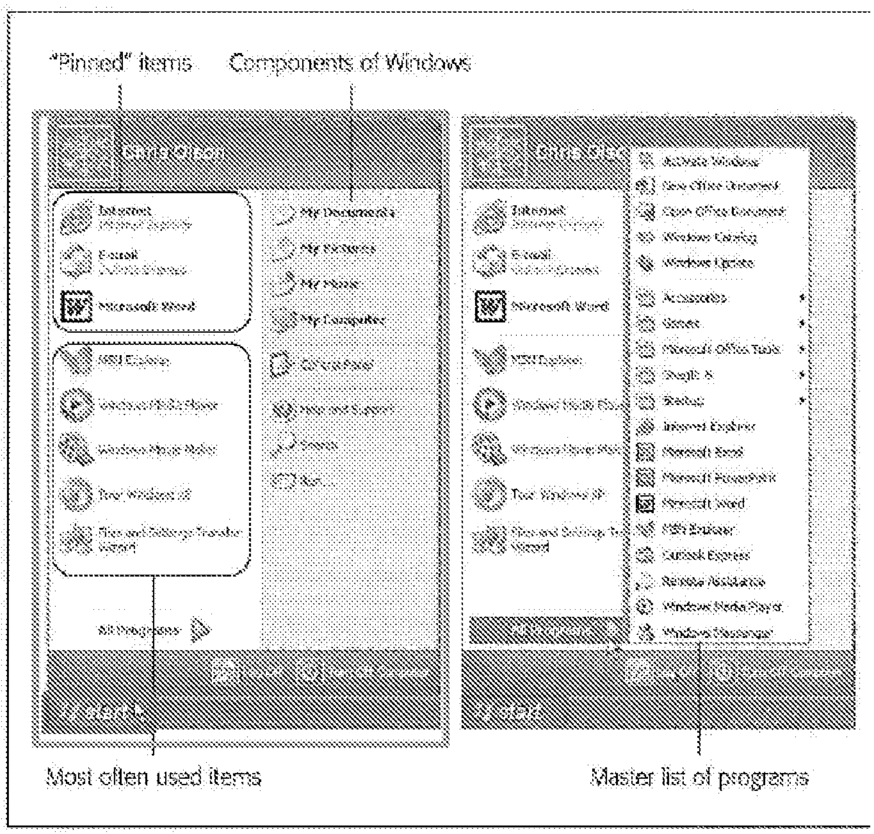
[3] All citations to Pogue are to the pages of the reference itself, not the stamped EX-1007 page numbers.

Pogue is meant "to serve as the manual that should have accompanied Windows XP" and includes "step-by-step instructions for using almost every Windows feature." EX-1007, 2. "Windows is an *operating system*, the software that controls your computer," and Windows XP is one version of the Windows operating system. *Id.*, 1, 5. "Every application on your machine, as well as every document you create, is represented on the screen by an *icon*." *Id.*, 5. For example, the "[d]esktop[] covers everything you see on the screen when you turn on a Windows XP computer: icons, windows, menus, scroll bars, the Recycle Bin, shortcuts, the Start menu, shortcut menus, and so on":



Id., 3, 23.

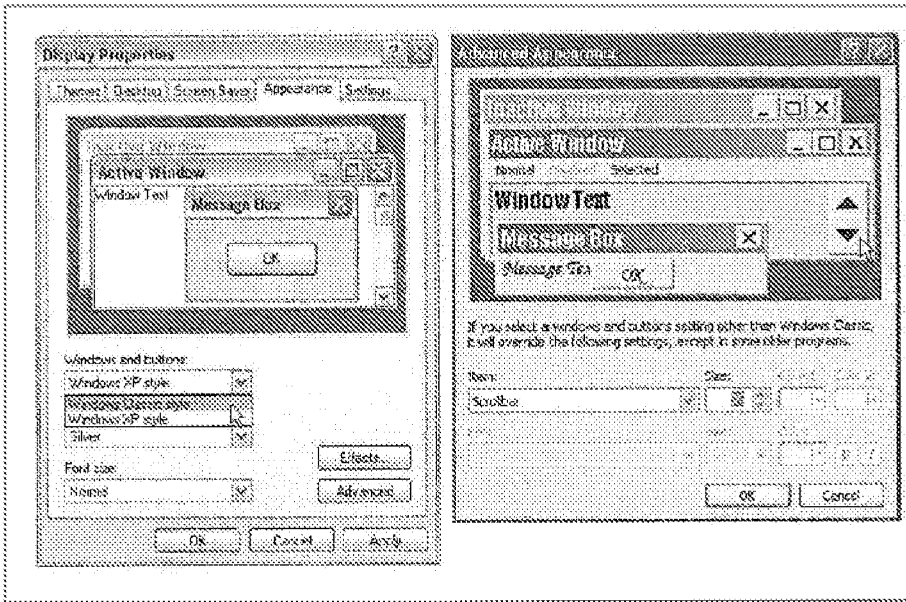
In order to quickly access the desktop and make it visible, a user can use the Quick Launch toolbar to minimize all windows or press the Windows logo key+D. *Id.*, 95. Clicking the Start button (red in Figure 2-3), or pressing the Windows logo key or Ctrl+Esc, opens the Start menu (blue). *Id.*, 25.



The desktop and Start menu of Pogue display multiple programs, which are summarized, in relevant part, in the table below:

Pogue
Windows Media Player
Email
Internet, MSN Explorer
Microsoft Word, Windows Movie Maker

Among other customizations to the Windows XP interface, Pogue discloses changing design schemes that can be used to "control both the size of [the] desktop icons and the font used for their names (as shown in Figure 8-11 [below])." *Id.*, 264.



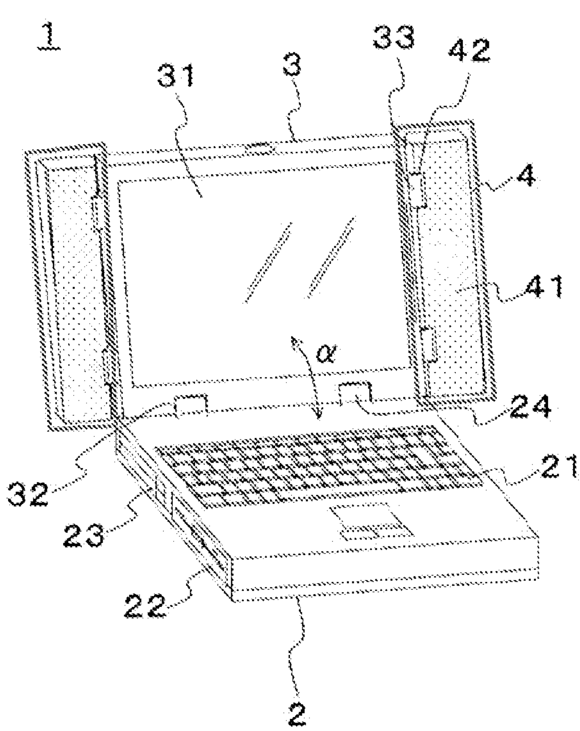
Windows XP's hardware requirements include a computer with 233 MHz processor clock speed, 64 MB of RAM, 1.5 GB of free hard disk space, 800 x 600 resolution video adapter and monitor, a CD-ROM or DVD drive, and a keyboard and compatible pointing device. *Id.*, 558.

5. **Overview of Ryuuzaki**

Ryuuzaki issued as a U.S. patent on September 10, 2002 and claims priority to a Japanese application filed on October 15, 1999. Ryuuzaki therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Ryuuzaki discloses notebook personal computer machine 1 including first casing 2, second casing 3, and third casing 4. EX-1008, 4:39-41. The first casing 2 includes a CPU and keyboard 21. *Id.*, 4:42-44. The first casing 2 also includes a power switch and a volume control that "may [both] be provided on the lateral side edges of the first casing 2." *Id.*, 4:51-55. The third casing 4 may contain speakers (red in FIG. 1). *Id.*, 4:1-2, 14-17, 5:15-21, 25-28.

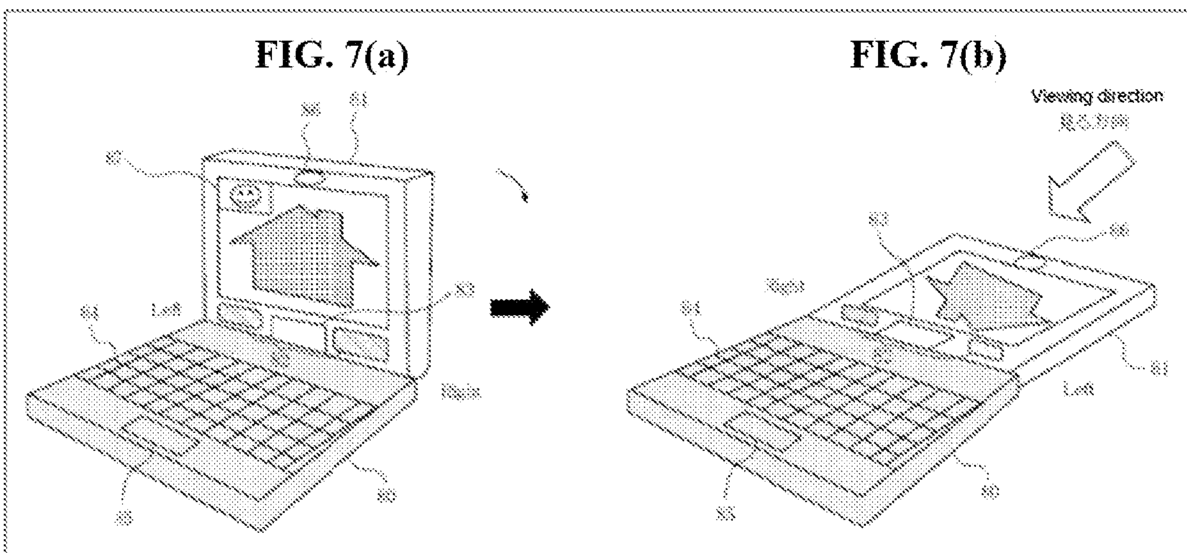
FIG. 1



6. **<u>Overview of Kawai</u>**

Kawai published as Japanese Patent No. 2005-168036 on June 23, 2005, from an application filed on December 20, 2004. Kawai therefore qualifies as prior art under at least pre-AIA 35 U.S.C. §§ 102(a) and (b). The Kawai reference was published in Japanese (EX-1009), and a certified English translation is provided herein (EX-1010, reference hereinafter will be made to the certified English translation for simplicity).

Kawai discloses a portable computer, including body 80 and liquid crystal panel 81, that can be configured in various display modes, as illustrated in FIGs. 7(a) and (b). EX-1010, ¶38. The portable computer detects the rotation of the liquid crystal panel 81 and inverts the displayed content for different display modes; for example, a normal view is illustrated in FIG. 7(a), and an inverted view is illustrated in FIG. 7(b) below. *Id.*, ¶44. Among other components, Kawai discloses camera 86 installed on the liquid crystal panel 81, as illustrated in FIGs. 7(a) and 7(b) below. *Id.*, ¶43.



7. **Family Diagram**

EX-1014 is a diagram depicting different modified Portable Computers of Shimura used in the Grounds below.

B. Ground 1: Shimura in view of Tsuji, and Tonouchi rendered Claims 1-8 obvious.

1. **Combination of Shimura and Tsuji (hereafter "Shimura-Tsuji combination")**

A POSITA would have been motivated to combine Shimura with Tsuji for several reasons. EX-1011, ¶¶189-205.

First, they are both contemporaneous patent documents directed toward complementary solutions to highly analogous problems in the same field of endeavor. They are both directed toward a portable computer that can be used in various display modes and displayed content orientations. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶34, 51, FIGs. 1, 5-8. They both discuss display modes where the keyboard is inoperable and/or inaccessible. EX-1004, ¶¶8, 18, 19; EX-1005, ¶¶32, 45; EX-1011, ¶190. While Shimura discloses a portable computer capable of receiving pen input, EX-1004, Abstract, ¶¶4, 5, 9, 11, 16, 20, it does not explicitly disclose receiving input from a finger; Tsuji, however, explicitly discloses that the touchscreen can also receive input from a finger. EX-1005, ¶31.

a. Incorporating Tsuji's Touch Screen Display into the Shimura Computer

A POSITA would have been motivated to incorporate the touch screen display of Tsuji, capable of both finger and stylus inputs, into the Shimura Computer because such a display was well known at the Critical Date and such a display would provide an input device (e.g., a finger) that would not require an external peripheral device (e.g., a mouse, or stylus). A POSITA would have had additional motivation to incorporate the touch-sensitive display of Tsuji because the keyboard is not always accessible or operable in all of the display modes of the Shimura Computer, and it would improve flexibility since a user might not have a stylus. *Id.* Thus, a display that would be able to receive input from a finger would improve a user's interaction with the Shimura Computer. EX-1011, ¶191.

The Shimura computer incorporating Tsuji's touch screen display includes other well-known portable computer components. *Id.*, ¶196. For example, Tsuji discloses that the computer main body 11 includes a CPU (central processing unit). EX-1005, ¶30. While such a CPU is not explicitly disclosed in Shimura, a POSITA would have known that the Shimura Computer must include such a well-known common component of a portable computer. EX-1011, ¶192.

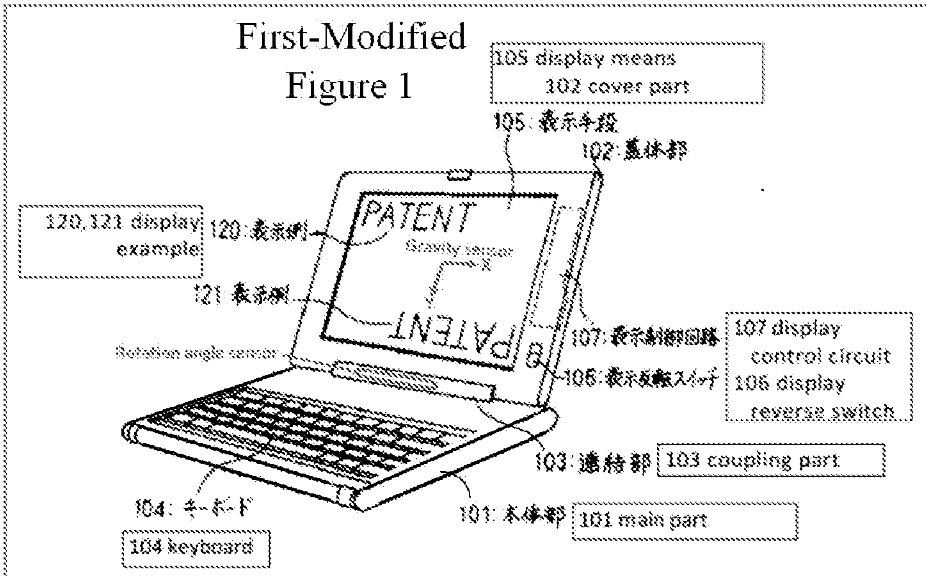
b. Further Incorporating Tsuji's Rotation Angle and Gravity Sensors into the Shimura Computer

A POSITA would have been motivated to further incorporate the rotation angle and gravity sensors of Tsuji, illustrated in FIG. 10, into the Shimura Computer to improve operability and/or usability by providing the option of automatically controlling the orientation of the displayed content based on one or more sensors. EX-1005, ¶33; EX-1011, ¶193.

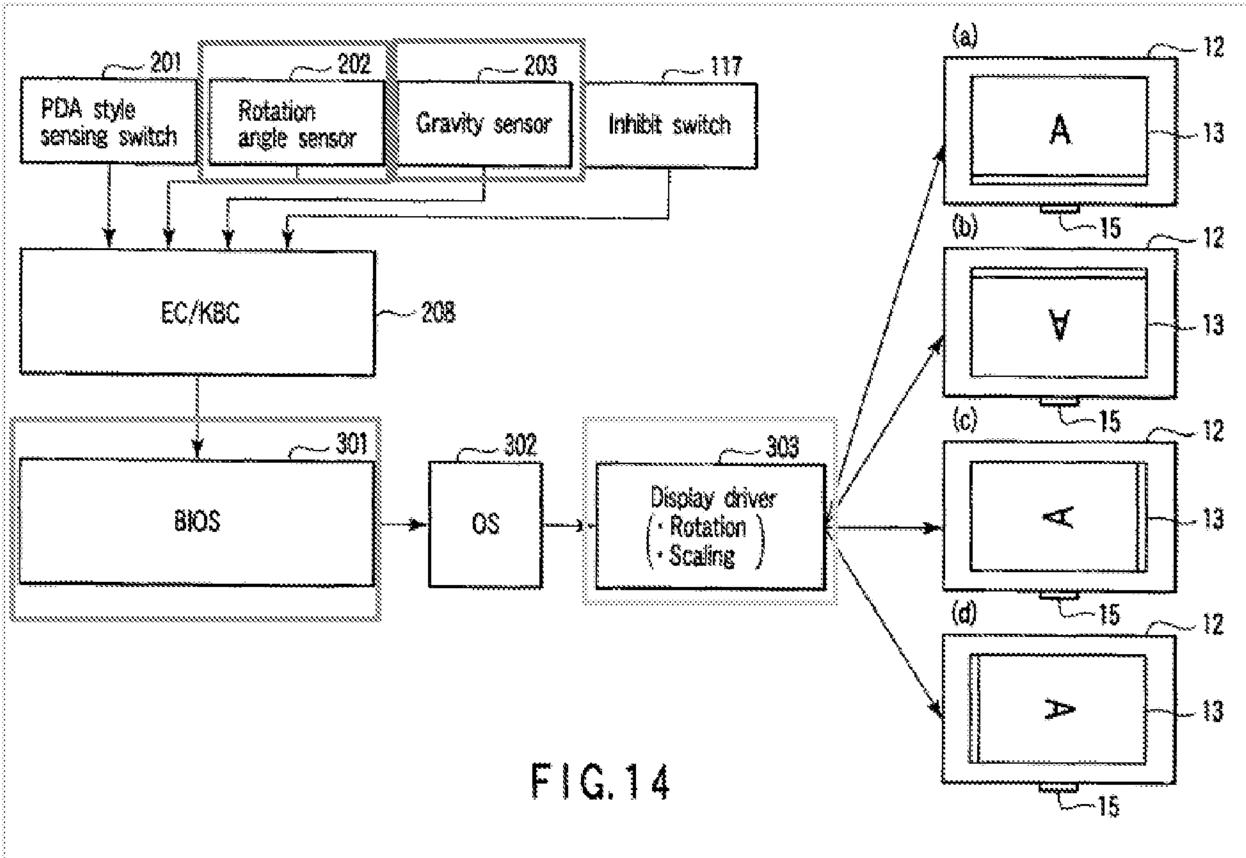
Specifically, Tsuji discloses the rotation angle sensor 202 sensing whether a rotation angle is greater than a specific rotation angle, and the gravity sensor 203 "sensing which orientation the display unit main body is located in relative to the orientation of the force of gravity." EX-1005, ¶¶58-59. Based on this disclosure, a POSITA would have been motivated to implement the combination of the rotation angle sensor 202 and the gravity sensor 203 in the Shimura Computer to enable it to distinguish between various display modes (e.g., the laptop mode, the easel mode, and the frame mode). For example, as detailed below, even when the easel mode and the frame mode have the same rotation angle such that the output of the rotation angle sensor 202 would be the same, the output of the gravity sensor 203 would be different in those two modes and this difference can be used to distinguish between them. EX-1011, ¶194.

Also based on the above disclosure of Tsuji, a POSITA would have been motivated to implement the rotation angle sensor of Tsuji in the hinge of the

Shimura Computer and the gravity sensor of Tsuji in the cover part 102 of the Shimura Computer, as illustrated in First-Modified Figure 1 of Shimura below. *Id.*, ¶199.

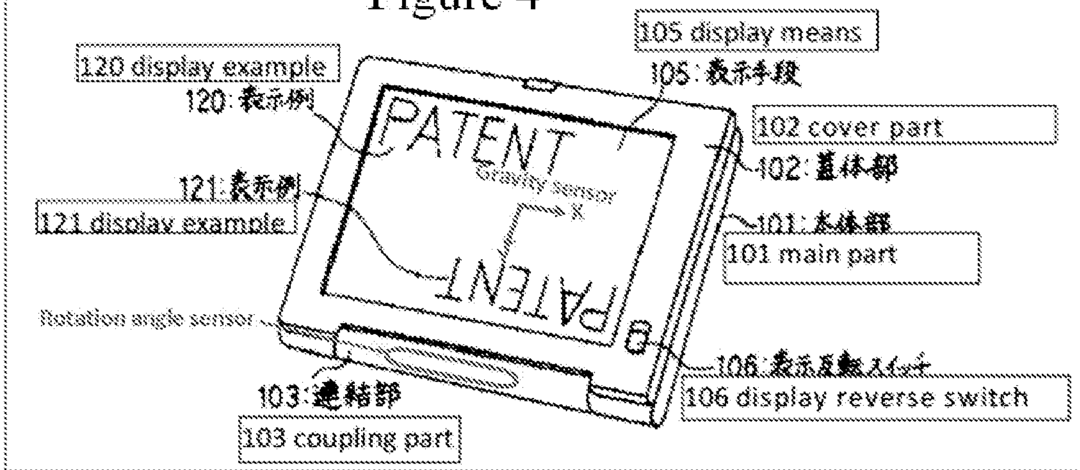


The output of the rotation angle sensor indicates the amount of rotation of the display component (102) relative to the base (101). *Id.* The output of the gravity sensor indicates the X-component and the Y-component of gravity in the plane of the display component (102). *Id.* As illustrated in FIG. 14 of Tsuji (below), the outputs of the rotation angle sensor 202 (outlined in red) and gravity sensor 203 (outlined in blue) are received by a BIOS program 301 (outlined in green) running on a processor that uses those outputs to determine the computer system configuration and instruct the display driver 303 (outlined in orange) to adjust the display screen in accordance with the logic diagram in Table 1 below. EX-1005, ¶¶63-71.

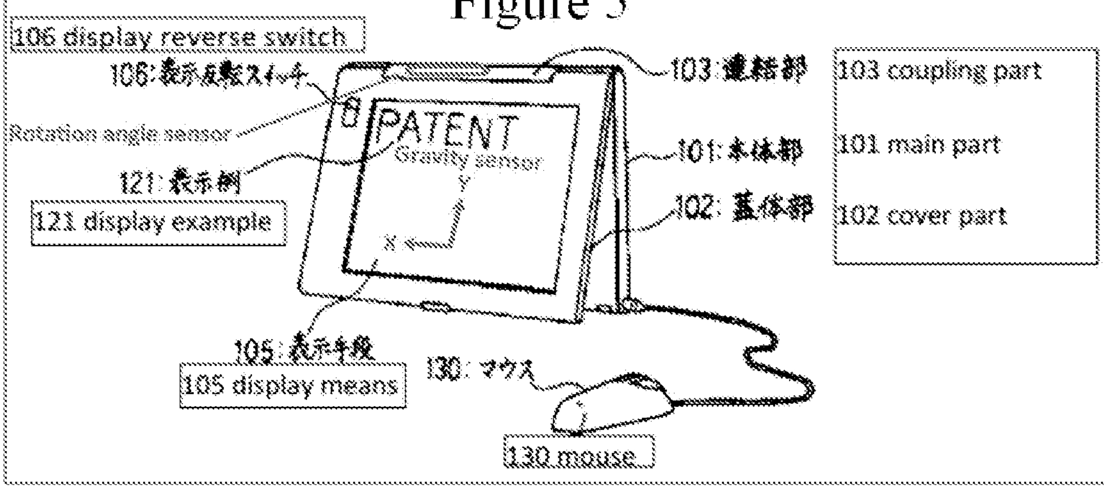


In the illustrated laptop mode example above in the First-Modified Figure 1, the output of the gravity sensor would indicate the Y-component of gravity in the plane of the display component (102) pointing towards the hinge (103). *Id.* By monitoring the Y-component of gravity in the plane of the display component, illustrated in First-Modified Figures 4 and 5 of Shimura below, the easel mode and the frame mode can be distinguished. EX-1011, ¶197.

First-Modified
Figure 4



First-Modified
Figure 5



Exemplary logic for determining the display mode based on outputs of the rotation angle sensor and the gravity sensor is summarized in Table 1 below (*id.*, 202):

Rotation Angle Sensor Rotating Angle	Gravity Direction (Y-Component)	Display Mode
Between 0° and 180°	Not used	Laptop mode
>180°	Away from the hinge assembly	Easel mode
>270°[4]	Towards the hinge assembly, or none	Frame mode[5]

Table 1

Additionally, accelerometers configured to detect the direction of gravity were well-known and commercially available at the Critical Date. *Id.*, ¶203; EX-1018, 1, 4 (demonstrating in Figures 2-4 that the tilt is "a static measurement where gravity is the acceleration being measured.")

In fact, the application note identifies image rotation in a portable device as one of applications of the accelerometers. EX-1018, 1, 4. So a POSITA would have known to use such a commercially available accelerometer and to use it as a gravity sensor. EX-1011, ¶200.

A POSITA would have known that the modified display control circuit 107 and modified electronic circuit of Shimura receiving the outputs of the hinge-

---

[4] *See* n.1.

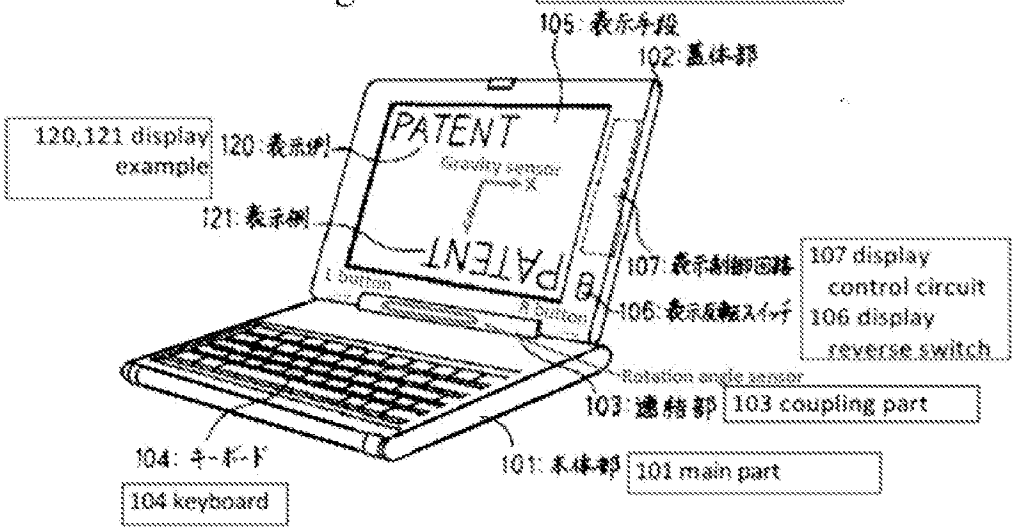
[5] This assumes that the surface (e.g., a desktop) on which the base rests is horizontal/flat with respect to the Earth. A POSITA would also understand that a threshold would allow for affordances in the hinge angle or a slightly tilted desktop.

rotation sensor 202 and gravity sensor 203 of Tsuji orient the displayed content between at least a normal view and an inverted view. *Id.*, ¶201. For example, a POSITA would have understood that the displayed content would be oriented in a normal view in the laptop mode and frame mode and an inverted view in the easel mode. *Id.* In a laptop mode, where the hinge-rotation sensor is less than 180°, the displayed content is in a normal view. *Id.* In an easel mode, where the hinge-rotation sensor is greater than 180°, and the output of the gravity sensor indicates the Y-component of gravity in the plane of the cover part 102 points away from the hinge assembly, the displayed content is in an inverted view. *Id.* Otherwise, the displayed content would appear upside-down to the user. *Id.* Finally, in a frame mode, where the hinge-rotation sensor is greater than 270°, and the output of the gravity sensor indicates the Y-component of gravity in the plane of the cover part 102 points toward the hinge assembly or is zero, the displayed content is in a normal view. *Id.* Otherwise the displayed content would appear upside-down to the user. *Id.* Automatically controlling the orientation of displayed content in different display modes of a portable computing device based on a rotation angle sensor and/or an accelerometer (e.g., a gravity sensor) was well-known at the Critical Date. *Id.*; EX-1005; EX-1017; EX-1019; EX-1021; EX-1023; EX-1026.

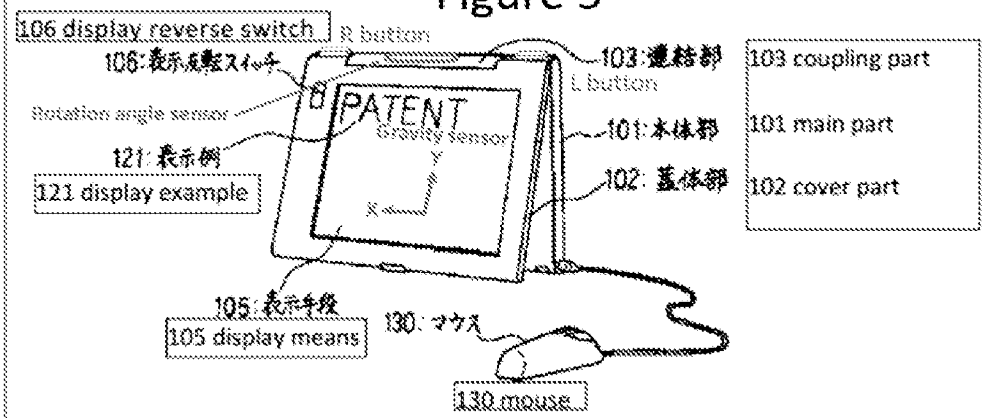
c. Further Incorporating Tsuji's R and L Buttons into the Shimura Computer

A POSITA would have been motivated to further incorporate the R and L buttons 118 and 119 of Tsuji into the Shimura Computer, to improve the user operability of the portable computer, regardless of the display mode. Tsuji provides express motivation for the proposed modification. EX-1005, ¶39 ("The R and L button switches 118 and 119 are exposed regardless of whether the computer 1 is used in a PC style or a PDA style."). With the integrated R and L buttons, as illustrated in Second-Modified Figure 1 of Shimura below (i.e., a laptop mode), Second-Modified Figure 5 below (i.e., an easel mode), and Second-Modified Figure 4 below (i.e., a frame mode), a user would be able to navigate the contents and/or interface of the Shimura Computer in these display modes. EX-1011, ¶202.

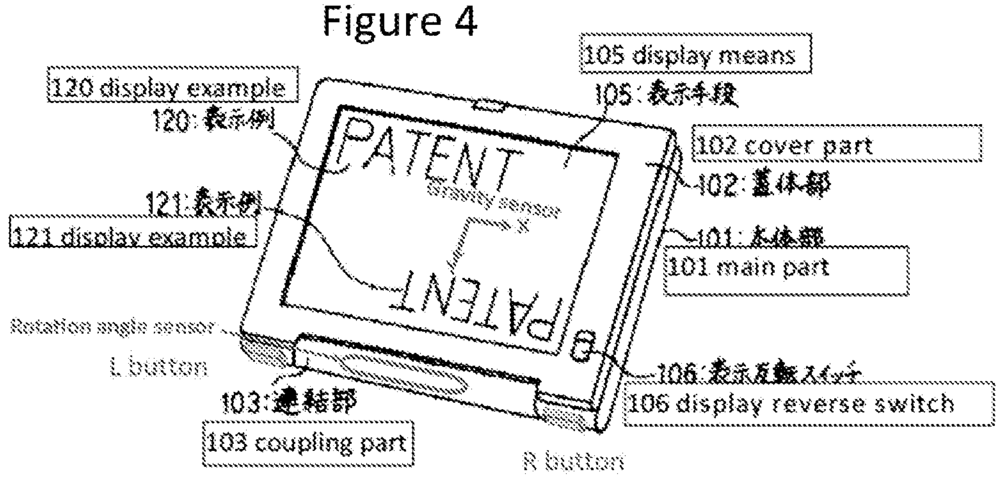
Second-Modified
Figure 1



Second-Modified
Figure 5



Second-Modified
Figure 4



d. Combining Tsuji with Shimura to Arrive at the Shimura-Tsuji Computer

It would have been obvious to incorporate Tsuji's:

- touch-sensitive display into Shimura's display component;
- automatic display-orientation control feature used to process the sensor(s)'s outputs into Shimura's modified display control circuit 107 and modified electronic circuit; and

- R and L buttons 118 and 119 into the main part 101 of the Shimura Computer.

The resulting system will be hereafter referred to as the "Shimura-Tsuji Computer." *Id.*, ¶207.

There would have been motivation to combine, and a reasonable expectation of success in combining, Tsuji with Shimura because the combination is merely a combination of prior art elements according to known methods to yield predictable results. *See KSR*, 550 U.S. at 415-21. That is, Tsuji taught the prior art concept of:

- a touch-sensitive display that can receive input from a finger;
- automatically controlling the orientation of the displayed content in different display modes based on the hinge-rotation and gravity sensors; and
- integrating an input device accessible in multiple display modes.

Application of these teachings to Shimura would have yielded a predictable portable computer with the above three prior art concepts. *Id.*, ¶208.

For all the reasons identified in VI.B.1, the POSITA would have been motivated to arrive at the Shimura-Tsuji Computer by adding or otherwise integrating into the Shimura Computer:

- Tsuji's sensor(s) to improve operability and/or usability by automatically controlling the orientation of the displayed content in different display modes;

- Tsuji's improved touch-sensitive display that is not limited to pens, but can also receive input from a finger; and
- Tsuji's R and L buttons, so a user could interact with the portable computer in multiple display modes.

Id., ¶209.

2. **Combination of Shimura, Tsuji and Tonouchi (hereafter "Shimura-Tsuji-Tonouchi combination")**

For all the reasons set forth in VI.B.1 above, a POSITA would have been motivated to combine Tsuji with Shimura. EX-1011, ¶¶189-205.

A POSITA would have been also motivated to combine Tonouchi with Shimura and Tsuji for several reasons. EX-1011, ¶¶207-214.

All references are contemporaneous patent documents directed toward highly analogous problems in the same fields of endeavor. For example, they are directed toward portable computer systems that can be used in various display modes. EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶34, 51, FIGs. 1, 5-8; EX-1006, ¶¶25, 31. Further, they all disclose touch sensitive displays. EX-1004, ¶¶9, 11, 20; EX-1005, ¶31; EX-1006, ¶¶3, 31, 32, 34, FIG. 5. Moreover, Tsuji and Tonouchi are both Toshiba patents. EX-1005, Cover Page; EX-1006, Cover Page. In addition, Shimura, Tonouchi, and Tsuji all discuss display modes where the keyboard is inoperable and/or inaccessible. EX-1004, ¶¶8, 18, 19; EX-1005, ¶¶32, 45; EX-1006, ¶¶27, 30, 32, 34, FIG. 5; EX-1011, ¶208. Shimura discloses a base

(101) with a keyboard (104) to interact with displayed content. EX-1004, ¶11. Meanwhile, Tonouchi discloses another input device, touch-pad 108, integrated into the base to more accurately interact with the displayed content. EX-1006, FIG. 2A, ¶¶25, 27, 30.[6] Such a touch-pad as disclosed in Tonouchi was well-known at the Critical Date. EX-1011, ¶208; EX-1015; EX-1016; EX-1017; EX-1031; EX-1032.

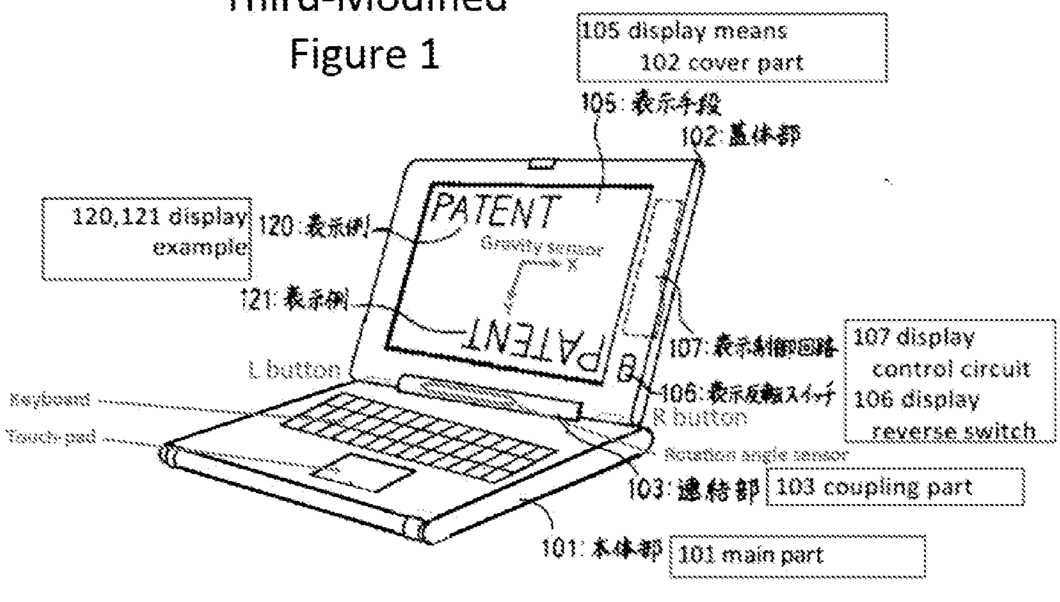
a. Incorporating Tonouchi's Touch-pad into the Shimura-Tsuji Computer

A POSITA would have been motivated to incorporate the touch-pad of Tonouchi into the main part 101 of the Shimura-Tsuji Computer because: (1) such a touch-pad integrated into a base was well-known at the Critical Date; and (2) such a touch-pad would provide a more accurate input device than the finger or stylus applicable to the touch-screen of the Shimura-Tsuji Computer. EX-1011, ¶209; EX-1015; EX-1016; EX-1017; EX-1031; EX-1032. The resulting system that includes the touch-pad of Tonouchi is illustrated in the Third-Modified Figure 1 of Shimura below. *Id.*

---

[6] *See* n.2.

Third-Modified
Figure 1



b. Incorporating Tonouchi's Enlargement Feature into the Shimura-Tsuji Computer

In certain display modes (e.g., easel mode and frame mode), a user may not be able to access the touch-pad of the Shimura-Tsuji Computer and thus be limited to using a less sensitive input method (e.g., stylus or finger). EX-1006, ¶31, FIG. 5. For such display modes, a POSITA would have been motivated to implement Tonouchi's enlargement feature into the Shimura-Tsuji Computer to allow a user to more easily select displayed content. EX-1011, ¶210.

Tonouchi discloses that in a tablet mode, the keyboard and touch-pad input are not accepted and the user is limited to using a stylus and/or finger to interact with the displayed content. EX-1006, FIG. 5. Tonouchi further discloses enlarging the displayed content in tablet mode. *Id.*, ¶31. A POSITA would have found it obvious to apply this enlargement feature to the easel and frame modes disclosed in Shimura because the keyboard and touch-pad inputs are not accepted in those display modes. Moreover, similar to the tablet mode of Tonouchi, in Shimura's easel and frame modes a user would need to rely on a less sensitive input method (e.g., pen/stylus and/or finger input) than at least the touch-pad of Tonouchi. EX-1011, ¶211.

Thus, it would have been obvious to a POSITA to incorporate the enlargement feature of Tonouchi into the modified display control circuit 107 and modified electronic circuit of Shimura so as to activate the feature in the easel and frame modes. *Id.*, ¶212. This is especially true because such an enlargement feature was well-known at the Critical Date. *Id.*; EX-1006; EX-1019; EX-1035; EX-1036; EX-1037; EX-1038; EX-1039.

c. Combining Tonouchi with Shimura and Tsuji to Arrive at the Shimura-Tsuji-Tonouchi Computer

There would have been motivation to combine, and a reasonable expectation of success in combining, the touch-pad and enlargement feature of Tonouchi with the teachings of Shimura and Tsuji. This is because prior art elements are merely combined according to known methods to yield predictable results. *See KSR*, 550 U.S. at 415-21. Tonouchi taught the well-known prior art concept of a touch-pad and enlarging displayed content for display modes where the user uses a stylus and/or finger (e.g., an easel mode and a frame mode). Application of this teaching to the Shimura-Tsuji Computer would have yielded a predictable portable computer that includes a touch-pad as an input device and that enlarges displayed content so a user can more easily interact with the displayed content in different display modes. The resulting system will be hereafter referred to as the "Shimura-Tsuji-Tonouchi Computer." EX-1011, ¶213.

For all the reasons identified in VI.B.2, the POSITA would have been motivated to combine the teachings of Shimura and Tsuji with the teachings of Tonouchi to arrive at the Shimura-Tsuji-Tonouchi Computer, which:

- implements an integrated input device that interacts with the displayed content more accurately than a finger or stylus; and
- improves the display of Shimura to more easily select displayed content with a stylus and/or finger.

EX-1006, ¶¶2-4, 17, 18; EX-1011, ¶214.

3. <u>Claim 1</u>

a. Limitation [1pre]

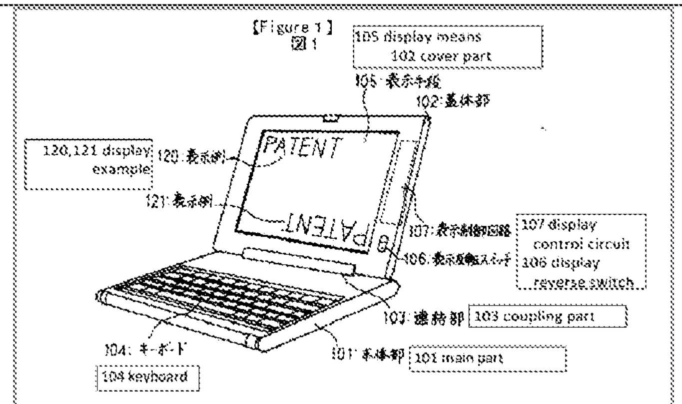
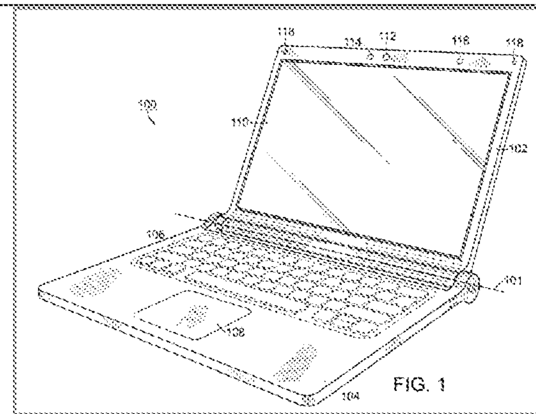
Shimura discloses [1pre]. VI.A.1; EX-1011, ¶¶215-216.

As shown in Figures 1, 4, and 5 below, Shimura discloses a laptop computer, which is a portable computer, in various display modes. As summarized in Table 2 below,

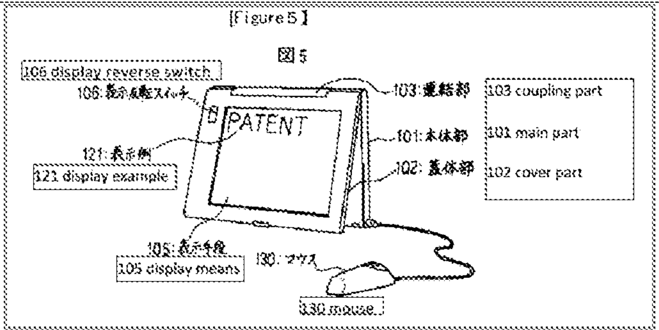
- Shimura's Figure 1 discloses the claimed "laptop mode" of the '154 Patent (FIG. 1);

- Shimura's Figure 5 discloses the claimed "easel mode" of the '154 Patent (FIG. 4); and
- Shimura's Figure 4 discloses the claimed "frame mode" of the '154 Patent (FIG. 26).

EX-1011, ¶216; Table 2 below.

Shimura	**'154 Patent**
Laptop mode	
	 FIG. 1

Easel mode



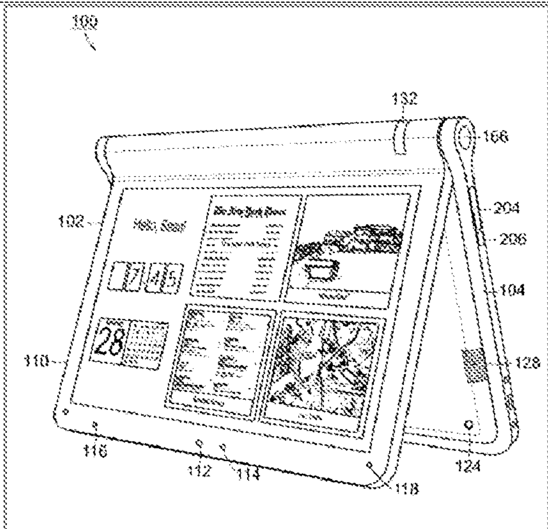
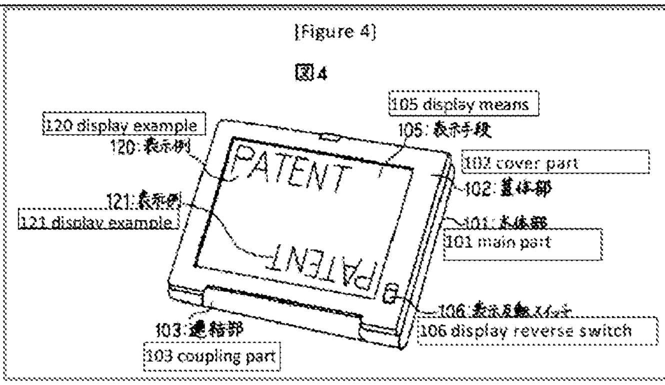


FIG. 4

Frame mode



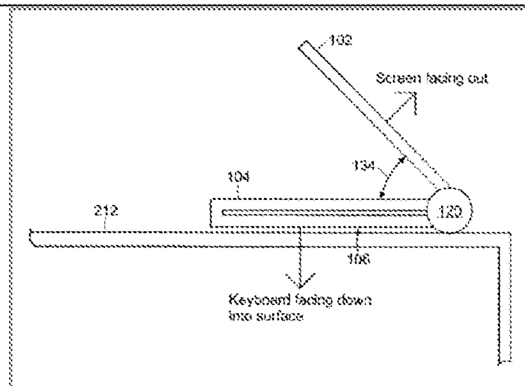


FIG. 26

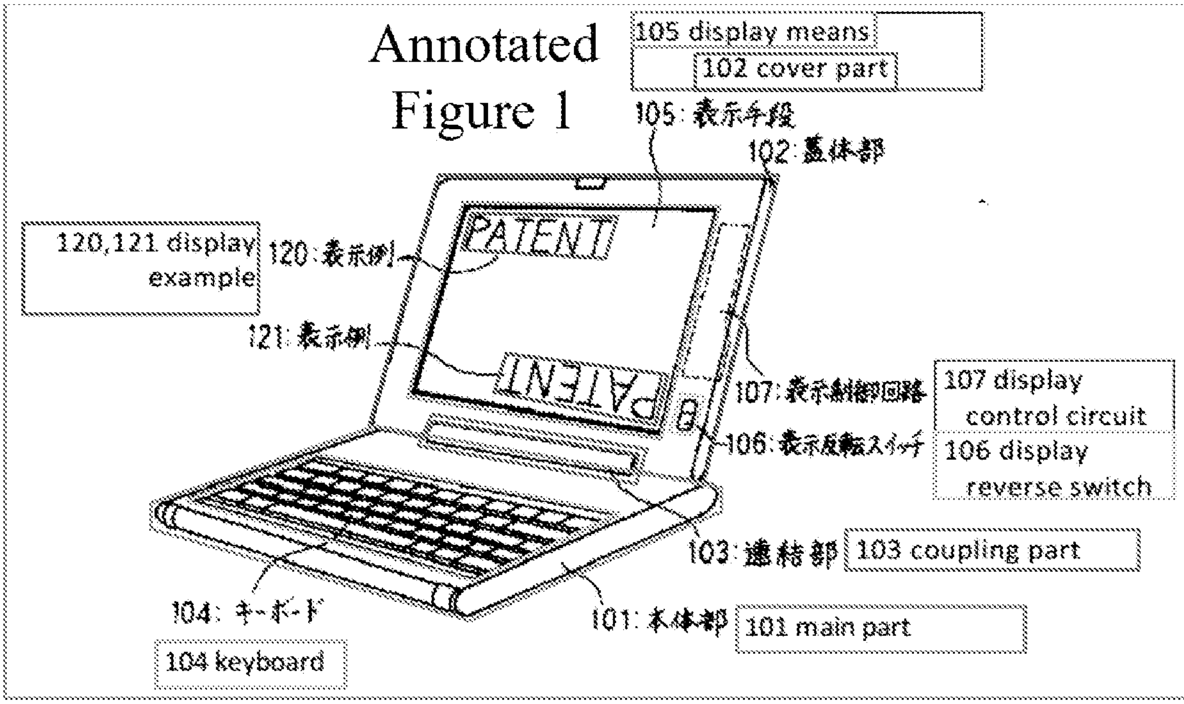
Table 2

b. Limitation [1a]

The Shimura-Tsuji combination discloses [1a] and renders it obvious.

VI.B.1; EX-1011, ¶¶217-218.

Shimura discloses "a display component [cover part 102 in dark blue] comprising a display screen [display means 105 in light blue]," as shown in Annotated FIG. 1 below. EX-1004, Abstract, ¶¶6-9, 11-12, 14-17.

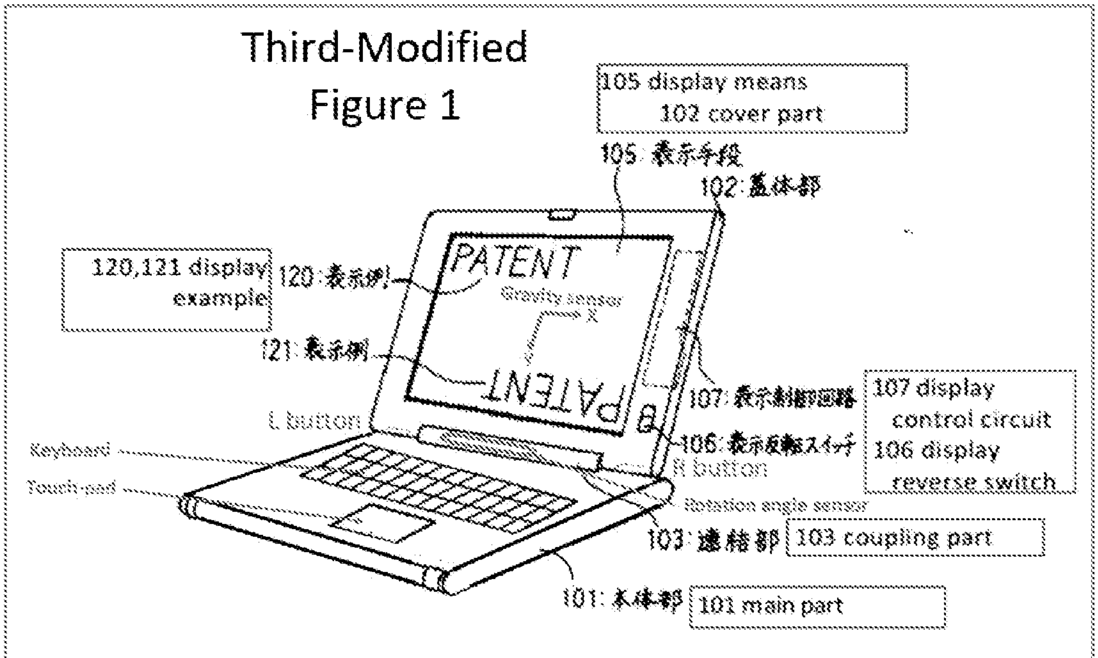


c. **Limitation [1b]**

The Shimura-Tsuji-Tonouchi combination discloses [1b] and renders it obvious. VI.B.2; EX-1011, ¶¶219-221.

While a touch-pad incorporated into a base of a portable computer was well-known, Tonouchi provides explicit disclosure of a base comprising a keyboard and a touch-pad. EX-1006, ¶¶25, 27, 30, FIG. 2A.

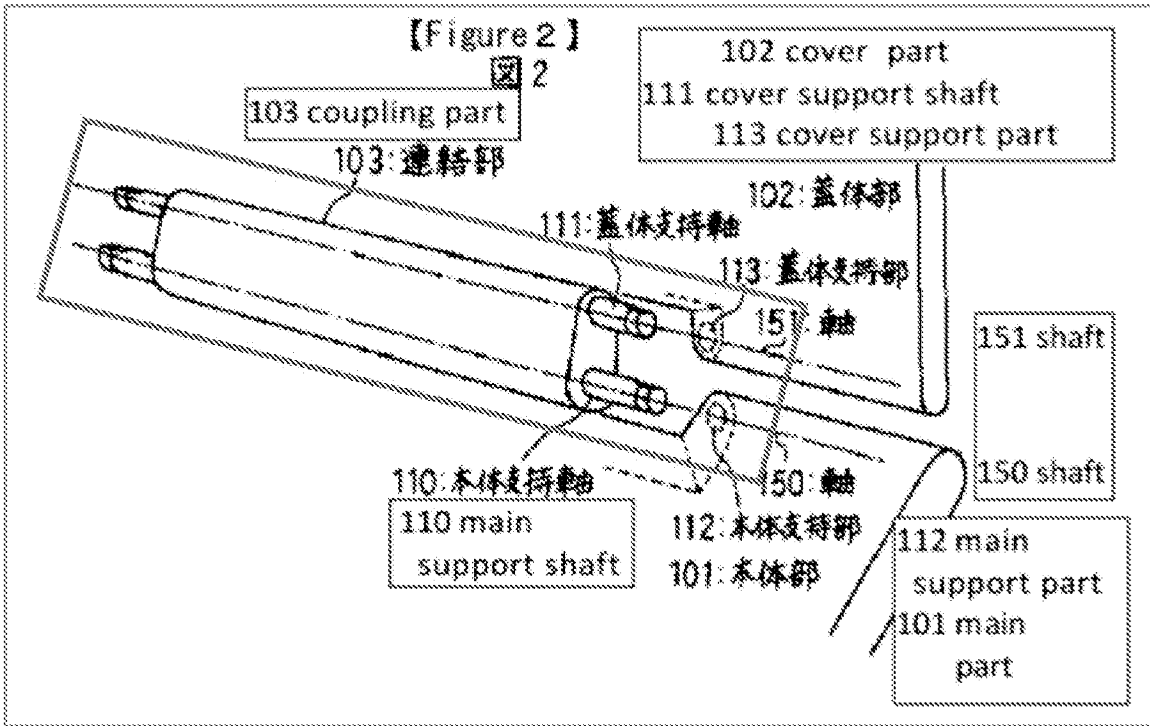
A POSITA would have been motivated to combine the teachings of Tonouchi with the teachings of Shimura and Tsuji to arrive at the Shimura-Tsuji-Tonouchi Computer with a base comprising a keyboard and a touch-pad, as illustrated in the Third-Modified Figure 1 of Shimura below. VI.B.2; EX-1011, ¶221.

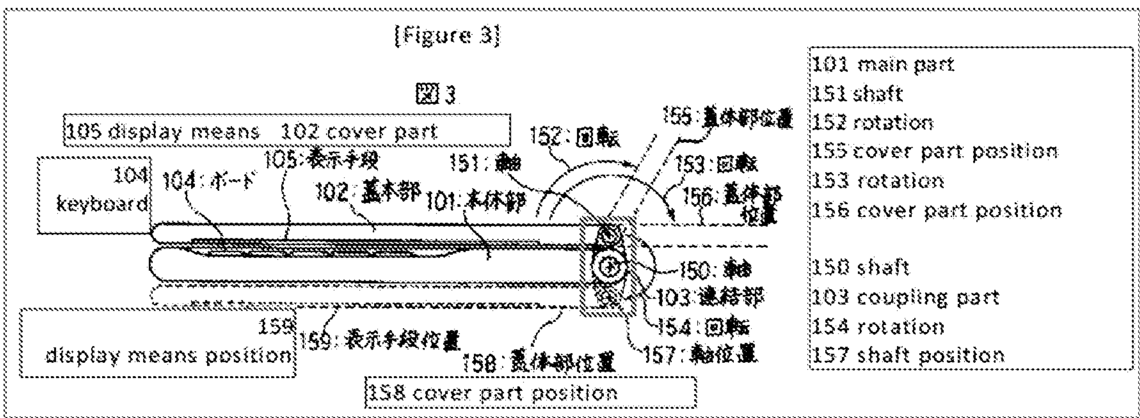


d. Limitation [1c]

Shimura discloses [1c]. VI.A.1; EX-1011, ¶¶222-223.

As shown in Figures 2 and 3 below, the Shimura Computer discloses the claimed "hinge assembly" (coupling part 103 of Shimura in red) that "rotatably couples the base [main part 101 of Shimura] to the display component [cover part 102 of Shimura]." EX-1004, ¶¶12-13; EX-1011, ¶223. Shimura further discloses that the portable computer can be configured from any angle between 0° to 360° (i.e., "permit the display component to rotate relative to the base up to at least 270 degrees from a closed position where the display screen faces the keyboard") and anywhere in between. EX-1004, ¶8.





e. Limitation [1d]

The Shimura-Tsuji combination discloses [1d] and renders it obvious. VI.B.1; EX-1011, ¶¶224-225.

In the Shimura-Tsuji Computer, the combination of the hinge-rotation and gravity sensors can generate outputs used to uniquely determine various display modes (e.g., the laptop, frame, and easel modes in the above examples). VI.B.1.

A POSITA would have considered this combination to be "an orientation sensor configured to generate orientation information indicative of an orientation of at least part of the portable computer." EX-1011, ¶225.

f. Limitation [1e1]

The Shimura-Tsuji combination discloses [1e1] and renders it obvious. VI.B.1; VIII.B.3.h; EX-1011, ¶¶226-228.

First, the Shimura-Tsuji Computer discloses the means-plus-function limitation "display manager" recited in [1e1]. The Shimura-Tsuji Computer discloses the function of the "display manager." V.A. As discussed in VIII.B.3.h, the Shimura-Tsuji Computer can use outputs of sensors to uniquely determine various display modes (e.g., the laptop, frame, and easel modes in the above examples). VI.B.1; EX-1011, ¶227.

Second, the combination of Tsuji's BIOS, the modified display control circuit 107, and the modified electronic circuit in the Shimura-Tsuji Computer discloses the computer operating system and/or dedicated logic circuitry of the '154 Patent, which receives data from the sensors and detects a current display mode, or its equivalents. . V.A; VI.B.1; EX-1011, ¶228.

g. Limitation [1e2]

The Shimura-Tsuji-Tonouchi combination discloses [1e2] and renders it obvious. VI.B.2; EX-1011, ¶¶229-232.

First, the Shimura-Tsuji-Tonouchi Computer discloses the means-plus-function limitation "display manager" recited in [1e2]. The Shimura-Tsuji-Tonouchi Computer discloses the function of the "display manager." V.B. As discussed in VIII.B.3.h, the Shimura-Tsuji Computer can use outputs of sensors to uniquely determine various display modes (e.g., the laptop, frame, and easel modes in the above examples). VI.B.1. This computer has, as explicitly disclosed by Tsuji, a touch-sensitive display capable of receiving input from a stylus pen or finger. EX-1005, ¶31. Tonouchi discloses enlarging displayed content in a tablet mode as compared to the displayed content in a notebook mode. EX-1006, ¶31, FIG. 5. Changing from a first display mode (e.g., a laptop mode) to a second display mode (e.g., an easel mode) of the Shimura-Tsuji-Tonouchi Computer enlarges the displayed content. VI.B.2. This makes it easier to interact with the displayed content using a stylus or finger on the touch-sensitive display of the Shimura-Tsuji-Tonouchi Computer. ; EX-1011, ¶230.

Second, the Shimura-Tsuji-Tonouchi Computer also discloses the corresponding structure for the "display manager." V.A. Tonouchi discloses "an example of processing pertaining to switching between [display modes]." EX-1006, ¶31. For example, "[d]isplayed 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." EX-1011, ¶231.

The combination of Tsuji's BIOS, the modified display control circuit 107, and the modified electronic circuit in the Shimura-Tsuji-Tonouchi Computer discloses the computer operating system and/or dedicated logic circuitry of the '154 Patent, which detects a display mode based on outputs from the sensors and increases the size of displayed content if the detected display mode is a predetermined display mode (e.g., easel mode), or its equivalents. V.A; VI.B.1; EX-1011, ¶232.

h. Limitation [1f]

Shimura discloses [1f]. VI.A.1; VIII.B.3.a; EX-1011, ¶¶233-236.

In the first mode (e.g., laptop mode) of Shimura, the hinge rotation angle is less than 180°. EX-1004, ¶¶11-14, FIG. 1; EX-1011, ¶234.

In the second mode (e.g., easel mode or frame mode) of Shimura, the hinge rotation angle is more than 180. EX-1004, ¶¶14-17, FIGs. 5, 4, respectively; EX-1011, ¶235.

Accordingly, the Shimura-Tsuji-Tonouchi combination renders obvious Claim 1. VI.B.2; EX-1011. ¶¶215-236.

4. Claim 2

Shimura discloses the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi combination renders the claim obvious. VI.A.1; VI.B.2; VIII.B.3.a; VIII.B.3.h; EX-1011, ¶237.

5. **Claim 3**

The Shimura-Tsuji combination discloses the additional limitation of this claim and renders it obvious, and the Shimura-Tsuji-Tonouchi combination renders the claim obvious. VI.B.1; VI.B.2; EX-1011, ¶¶238-241.

First, the Shimura-Tsuji Computer discloses the means-plus-function limitation "display manager" recited in Claim 3. The Shimura-Tsuji Computer discloses the two functions of the "display manager". V.C; EX-1011, ¶239.

As discussed in VIII.B.3.h, the Shimura-Tsuji Computer can use outputs of sensors to uniquely determine various display modes (e.g., the laptop, frame, and easel modes in the above examples). VI.B.1. The outputs of the sensors can also be used to control the orientation of the displayed content, such that in a laptop mode the displayed content is in a normal view and in an easel mode the displayed content is in an inverted view. VI.B.1; EX-1011, ¶240.

Second, the combination of Tsuji's BIOS, the modified display control circuit 107, and the modified electronic circuit in the Shimura-Tsuji Computer discloses the computer operating system and/or dedicated logic circuitry of the '154 Patent, which detects a current display mode based on outputs from sensors and orients the displayed content accordingly, or its equivalents. V.A; VI.B.1; EX-1011, ¶241.

6. **Claim 4**

a. Limitation [4a]

The Shimura-Tsuji combination discloses [4a] and renders it obvious. VI.B.1; VIII.B.3.a; VIII.B.3.h; EX-1011, ¶¶242-245.

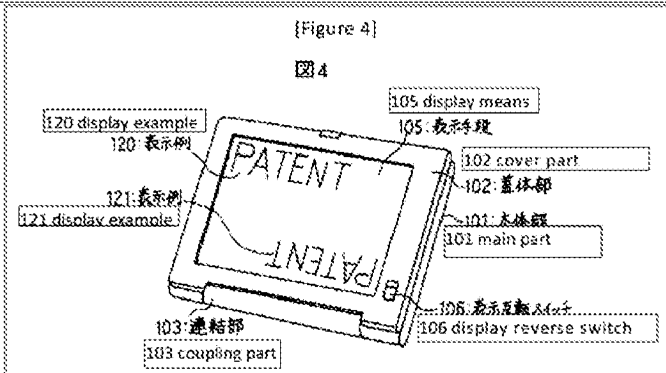
For example, the Shimura-Tsuji Computer could detect one of the claimed "laptop mode," "easel mode," and "frame mode" based on the combination of the hinge-rotation sensor and the gravity sensor. VI.B.1; EX-1011, ¶243.

Moreover, the '154 Patent describes that "the portable computer 100 may be configured into a 'frame' mode, as illustrated in FIG. 26 [below], in which 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." VI.A.1. n.2; EX-1001, 16:1-5; EX-1011, ¶244.[7]

---

[7] The portable computer could have a rotation angle less than 360°. VI.A.1 n.1; EX-1001, 16:1-5; EX-1004, ¶8.

<table>
<tr><th colspan="2">Frame mode</th></tr>
<tr><td>



</td><td>

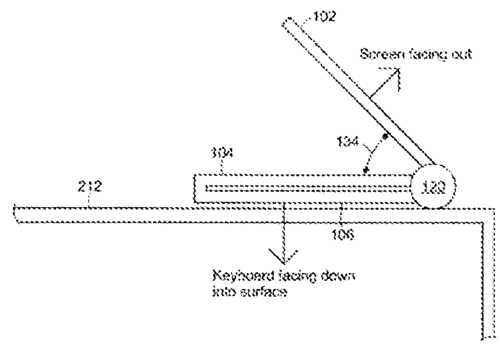


FIG. 26

</td></tr>
</table>

For example, in a laptop mode, where the hinge-rotation sensor is less than 180°, and the parallel component of the gravity sensor is toward the hinge assembly and the perpendicular component of the gravity sensor is away from the back of the display means, the displayed content is in a normal view. EX-1011, ¶245. In an easel mode, where the hinge-rotation sensor is greater than 180°, and the parallel component of the gravity sensor is away from the hinge assembly and the perpendicular component of the gravity sensor is away from the back of the display means, the displayed content is in an inverted view. *Id.*

b. Limitation [4b]

The Shimura-Tsuji combination discloses [4b] and renders it obvious. VI.B.1; VIII.B.3.a; VIII.B.3.h; EX-1011, ¶¶246-248. The Shimura-Tsuji Computer discloses the function and corresponding structure of the means-plus-function limitation "display manager" recited in [4b], or its equivalents. *See*

VIII.B.5.

Accordingly, the Shimura-Tsuji-Tonouchi combination renders obvious Claim 4. VI.B.2; EX-1011, ¶¶242-249.

7. Claim 5

Tsuji discloses the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi combination renders the claim obvious. VI.A.2; VI.B.2; EX-1011, ¶¶250-251.

The Shimura-Tsuji Computer includes a gravity sensor of Tsuji. A gravity sensor is a type of "accelerometer." *See* VIII.B.3.e; VI.B.1; EX-1011, ¶251; EX-1018, 1, 4 (discussing that a Freescale accelerometer senses tilt based on components of gravity measured by the accelerometer, thus demonstrating that a gravity sensor is a type of accelerometer); Figures 2-4.

8. Claim 6

Shimura and Tsuji each disclose the additional limitation of Claim 6, and the Shimura-Tsuji-Tonouchi combination renders the claim obvious. VI.A.1; VI.A.2; VI.B.2; EX-1011, ¶¶252-254.

Shimura discloses the display example "PATENT." EX-1004, ¶¶12, 16, Figures 1, 4, 5. A POSITA would have understood the display examples 120, 121 to be at least one of "an icon, a menu, an image, and a video." EX-1011, ¶253.

Tsuji also discloses displaying an image such as text and graphics, as shown in FIG. 1. EX-1005, ¶35 ("zoom keys for scaling an image (screen image) such as text and graphics displayed on the display screen of the LCD 13.").

9. **Claim 7**

Shimura discloses the additional limitation of Claim 7, and the Shimura-Tsuji-Tonouchi combination renders the claim obvious. VI.A.1; VI.B.2; EX-1011, ¶¶255-254.

Shimura discloses a "second switching means" to invalidate input from the keyboard. EX-1004, ¶8. The second switching means can be set so that input to the keyboard is invalidated. *Id.* The input invalidation may be used in a frame mode as depicted in Figure 4 of Shimura. *Id.*, ¶¶8, 18. The input invalidation functionality may operate automatically based on an angle of the cover part 102 relative to the main part 101. *Id.*, ¶¶18, 19. A POSITA would have understood that this input invalidation discloses "disabl[ing] the keyboard when the current display mode is the second mode." EX-1011, ¶256.

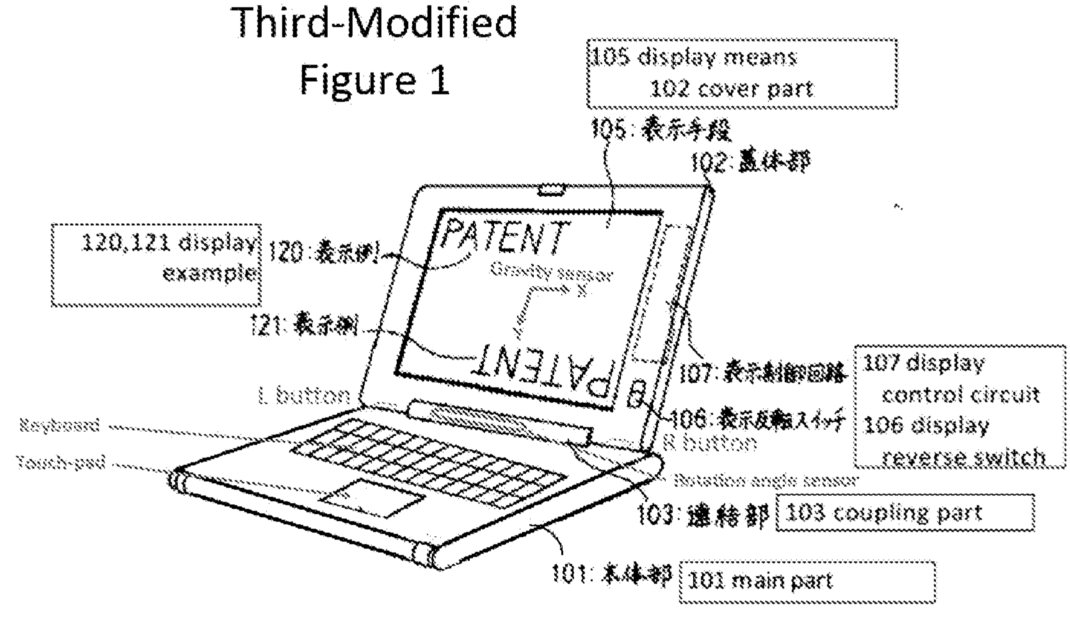
10. **Claim 8**

The Shimura-Tsuji combination discloses the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi combination renders the claim obvious. VI.B.1; VI.B.2; EX-1011, ¶¶257-261.

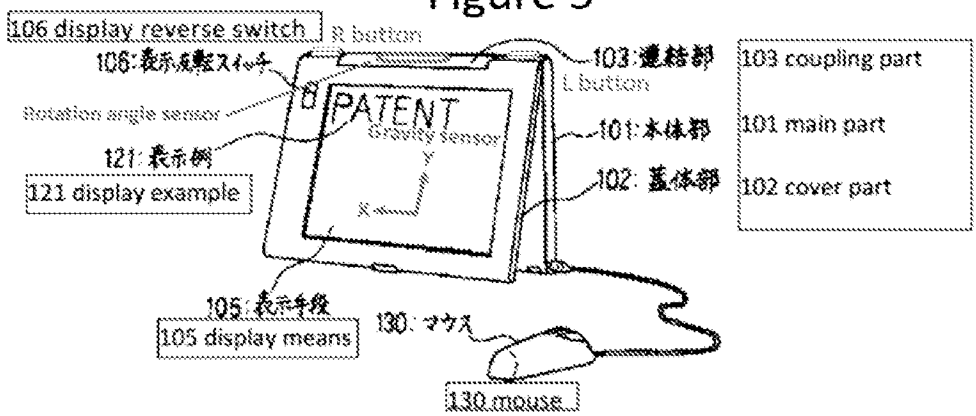
A POSITA would have understood that the scroll wheel and navigation buttons used to perform navigation functionality of the portable computer and displayed content described in the '154 patent are examples of the claimed "navigation element." EX-1001, 4:1-4, 11:32-44, 47-49, 53-56, 58-65. A POSITA would have also understood that the scroll wheel and navigation buttons are accessible in at least the laptop mode, easel mode, and frame mode. EX-1011, ¶258.

Tsuji discloses the claimed "navigation element that is accessible in the first and second modes" by using, for example, R and L button switches 118 and 119 integrated into the portable computer 1. EX-1005, ¶38; EX-1011, ¶263. The R and L button switches 118 and 119 would be accessible in the laptop mode (Third-Modified Figure 1 below), easel mode (Second-Modified Figure 5 below), and frame mode (Second-Modified Figure 4 below) of the Shimura-Tsuji-Tonouchi Computer. EX-1011, ¶259.

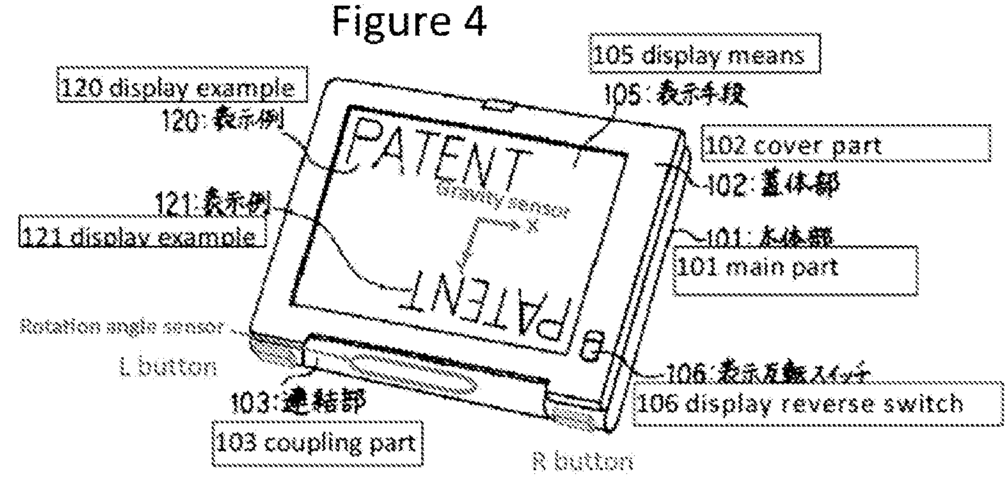
Third-Modified Figure 1



Second-Modified
Figure 5



Second-Modified
Figure 4



The R and L button switches 118 and 119 can be programmed with any given function, including arrow keys (e.g., up, down, left, and right directions) and an enter key, used to navigate around the display screen and select content on the display screen. VI.B.2; EX-1005, ¶¶39, 43, 45; EX-1011, ¶260. A POSITA would have considered these R and L button switches 118 and 119 as the claimed "navigation element that is accessible in the first and second modes." EX-1011, ¶260.

Alternatively, a POSITA would have been motivated to incorporate the touch screen of Tsuji, capable of the same basic functionality as a mouse (e.g., selecting or moving displayed content), into the Shimura Computer. EX-1005, ¶31 ("The LCD 13 is implemented as a touch screen device that is capable of recognizing a position indicated by a stylus (pen) or a user's 45 finger."). A POSITA would have considered such a touchscreen as the claimed "integrated navigation hardware control configured to control features and manipulate content." EX-1011, ¶261.

C. Ground 2: Shimura in view of Tsuji, Tonouchi, and Pogue rendered Claims 9 and 10 obvious.

1. <u>Combination of Shimura, Tsuji, Tonouchi, and Pogue (hereafter "Shimura-Tsuji-Tonouchi-Pogue combination")</u>

For all the reasons set forth in VI.B.2 above, a POSITA would have been motivated to combine Tonouchi with Shimura and Tsuji. EX-1011, ¶¶206-214.

A POSITA would have also been motivated to combine Shimura, Tsuji and Tonouchi with Pogue for several reasons. *Id.*, ¶¶263-267.

The hardware requirements to run Windows XP include a 233 MHz processor clock speed, 64 MB of RAM, 1.5 GB of free hard disk space, 800 x 600 resolution video adapter and monitor, a CD-ROM or DVD drive, and a keyboard and compatible pointing device. VI.A.4; EX-1007, 558. Computers at the Critical Date would have met at least these requirements. EX-1011, ¶267. As an example, the Panasonic CF-19 series laptop, Dell Latitude XT laptop, and Lenovo Thinkpad X61 laptop—all from before the Critical Date—each met these hardware requirements and were able to run on Windows XP. EX-1011, ¶267; EX-1015; EX-1016; EX-1017. While Shimura, Tsuji, and Tonouchi disclose hardware components and related circuitry, they do not expressly disclose an operating system; Pogue expressly discloses Windows XP, one example of a well-known operating system at the Critical Date. EX-1007, 1.

In Windows XP, a user can access the desktop via a desktop button (e.g., pressing the Windows logo key+D on the keyboard, or clicking the Show Desktop button on the desktop). *Id.*, 95. A user can access the Start menu via a Start menu button (e.g., pressing the Windows logo key or Ctrl+Esc on the keyboard, or clicking the Start menu button on the desktop). *Id.*, 25. Tsuji provides express disclosure that "[a]ny given function can programmably be assigned to each of the R and L button switches 118 and 119." VI.A.4; EX-1005, ¶38. As such, a POSITA would have been motivated to program at least one of the R and L buttons to the desktop and/or Start menu buttons so that a user would be able to easily access the desktop and/or Start menu, respectively, in all display modes by pressing one of the programmed R and L buttons. EX-1011, ¶265.

There would have been motivation to combine, and a reasonable expectation of success in combining, Pogue with Shimura, Tsuji, and Tonouchi because prior art elements are merely combined according to known methods to yield predictable results. *See KSR*, 550 U.S. at 415-21. Pogue taught the well-known Windows XP operating system. Application of this teaching to Shimura, Tsuji, and Tonouchi would have yielded a predictable portable computer with at least one of the R and L buttons of Tsuji programmed to access the desktop and/or the Start menu of Pogue. EX-1011, ¶266.

For the foregoing reasons, the POSITA would have been motivated to combine the teachings of Shimura, Tsuji, and Tonouchi with the teachings of Pogue to arrive at the Shimura-Tsuji-Tonouchi-Pogue Computer using the Windows XP operating system that utilizes at least one of the R and L buttons programmed to access the desktop and/or the Start menu of Pogue. *Id.*, ¶¶263-267.

2. <u>Claim 9</u>

The Shimura-Tsuji-Tonouchi-Pogue combination discloses the additional limitation of this claim and renders the claim obvious. VI.C.1; EX-1011, ¶¶268-272.

First, the Shimura-Tsuji-Tonouchi-Pogue Computer discloses the means-plus-function limitation "display manager" recited in Claim 9. The Shimura-Tsuji-Tonouchi-Pogue Computer discloses the function of the "display manager." V.D; EX-1011, ¶269. Pogue discloses a home screen that displays such multiple modes of content. VI.A.4. Specifically, Pogue discloses the desktop and Start menu of

Windows XP that displays icons for various programs, including "Internet," "E-mail," "Microsoft Word," "MSN Explorer," and "Media Player". VI.A.4; Figures 2-2, 2-3.

Thus, the desktop and Start menu of Pogue, like the home screen of the '154 Patent, disclose multiple modes of content, summarized in the table below:

'154 Patent	**Pogue**
Media mode 172a	Windows Media Player
Connect mode 172b	Email
Web mode 172c	Internet, MSN Explorer
Applications mode 172d	Microsoft Word, Windows Movie Maker

In addition, the Shimura-Tsuji-Tonouchi-Pogue Computer includes at least one of the R and L buttons that have been programmed to be the desktop button or the Start menu button. VI.C.1. As such, a user would be able to easily access the desktop and/or Start menu, respectively, in all display modes by pressing the programmed button. EX-1011, ¶271.

Second, a the combination of Tsuji's BIOS, the modified display control circuit 107, and the modified electronic circuit in the Shimura-Tsuji Computer discloses the computer operating system and/or dedicated logic circuitry of the '154 Patent, which detects execution of a navigation element (e.g., one of the R and L buttons that have been programmed to be the desktop button or the Start menu button) and transitions the display to the home screen (e.g., desktop or Start menu) based on the detected execution of the navigation element (e.g., programmed R or

L button), or its equivalents. V.A; VI.B.1; EX-1011, ¶276.

3. **Claim 10**

The Shimura-Tsuji combination discloses the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi-Pogue combination renders the claim obvious. VI.B.1; VI.C.1; VIII.C.2; EX-1011, ¶¶273-274.

The R and L buttons programmed to be the desktop button or the Start menu button are located on the lateral side of the base (101) of the Shimura-Tsuji-Tonouchi-Pogue Computer. VI.C.1. A POSITA would have understood that the R and L buttons of the Shimura-Tsuji-Tonouchi-Pogue Computer are examples of the claimed "navigation button disposed on a side of the base." EX-1011, ¶274.

D. Ground 3: Shimura in view of Tsuji, Tonouchi, Ryuuzaki, and Kawai rendered Claims 11-16 and 20 obvious.

1. **Combination of Shimura, Tsuji, Tonouchi, and Ryuuzaki (hereafter "Shimura-Tsuji-Tonouchi-Ryuuzaki combination")**

For all the reasons set forth in VI.B.2 above, a POSITA would have been motivated to combine Tonouchi with Shimura and Tsuji. EX-1011, ¶¶206-214.

A POSITA would have also been motivated to combine Shimura, Tsuji, and Tonouchi with Ryuuzaki for several reasons. *Id.*, ¶¶276-277. Shimura, Tsuji, and Tonouchi are directed toward portable computer systems that can be used in various display modes. VI.B.2; EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶30-34, 45-55, FIGs. 1, 5-8; EX-1006, ¶¶25, 31. Power switches and volume controls were not explicitly disclosed in Shimura, Tsuji, or Tonouchi. However, at the Critical Date, a power switch and a volume control were standard components of a portable computer. EX-1011, ¶276. It was also common to place these well-known and common components on a base of a portable computer, such as those explicitly disclosed in Ryuuzaki. *Id;* EX-1017, 8. Thus, a POSITA would have been motivated to incorporate the well-known standard power switch and volume control of Ryuuzaki into the base (101) of the Shimura-Tsuji-Tonouchi Computer to arrive at the "Shimura-Tsuji-Tonouchi-Ryuuzaki Computer" capable of turning the computer on and off with the power switch and controlling the volume with the volume control. EX-1011, ¶276.

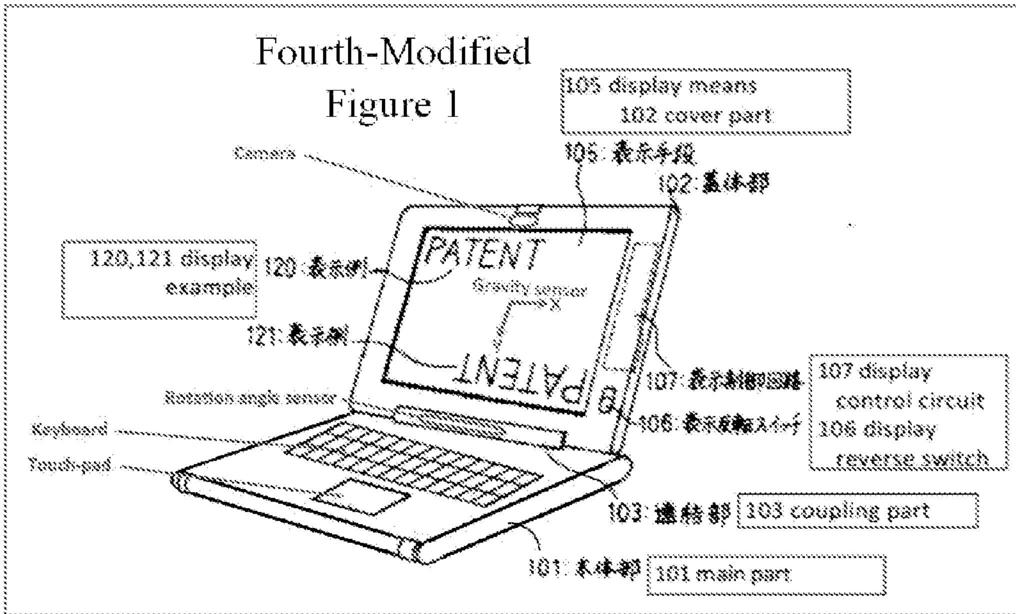
The Shimura-Tsuji-Tonouchi-Ryuuzaki Computer includes other well-known portable computer components. *Id.*, ¶281. For example, Ryuuzaki discloses speakers installed on the portable computer. While Ryuuzaki provides explicit disclosure of the speakers installed on a display component, it would have been an obvious design choice for a POSITA to implement the speakers in a base (101), as this was well-known. *Id.*; EX-1045; EX-1046; EX-1047; EX-1048; EX-1049.

2. **Combination of Shimura, Tsuji, Tonouchi, Ryuuzaki, and Kawai (hereafter "Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai combination")**

For all the reasons set forth in VI.D.1 above, a POSITA would have been motivated to combine Ryuuzaki with Shimura, Tsuji, and Tonouchi. EX-1011, ¶¶276-277.

A POSITA would have also been motivated to combine Kawai with Shimura, Tsuji, Tonouchi, and Ryuuzaki for several reasons. *Id.*, ¶¶279-280. Kawai, Shimura, Tsuji, and Tonouchi are patent documents directed toward portable computer systems that can be used in various display modes. VI.B.2; EX-1004, ¶¶10-17, Figures 1, 3, 4, 5; EX-1005, ¶¶34, 51, FIGs. 1, 5-8; EX-1006, ¶¶25, 31; EX-1010, ¶¶38-40, FIGs. 6(a), 6(b), 7(a), 7(b). While a camera was not explicitly disclosed in Shimura, Tsuji, Tonouchi, or Ryuuzaki, it was a well-known and common component of a portable computer at the Critical Date. EX-1039, ¶¶5, 31, VIII.B.7; EX-1049, 4-11. Placing the common component (e.g., camera 86) on a display component of a portable computer was well-known. EX-1008, ¶43, FIGs. 7(a), 7(b); EX-1011, ¶279.

Integrating such a camera into a display component of a portable computer was well-known at the Critical Date. It would have been obvious to a POSITA to include such a well-known common component into the Shimura-Hisano-Tonouchi-Ryuuzaki Computer to arrive at the "Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai" Computer. The Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai Computer is illustrated in Fourth-Modified Figure 1 of Shimura below. EX-1011, ¶280.



3. **Claim 11**

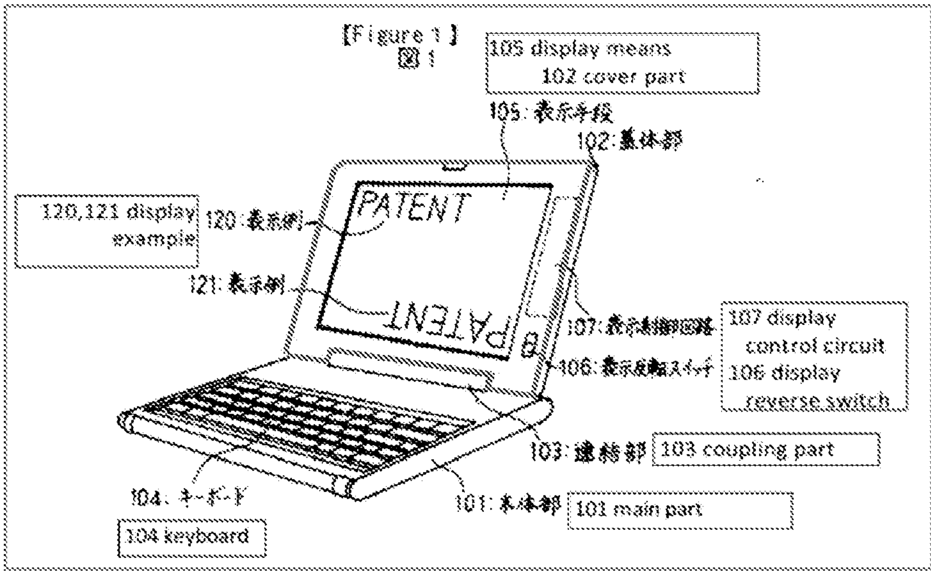
a. Limitation [11pre]

Shimura discloses [11pre]. *See* VI.A.1; VIII.B.3.a; VIII.B.6.a; VIII.B.6.b; EX-1011, ¶281.

b. Limitation [11a]

Shimura discloses [11a]. *See* VI.A.1; VIII.B.3.b; EX-1011, ¶¶282-283.

Shimura discloses a front part (red in Figure 1 below) of a cover part 102, which is understood to be a surface of the display component. EX-1004, ¶¶6, 7, 11; EX-1011, ¶283.



c. Limitation [11b1]

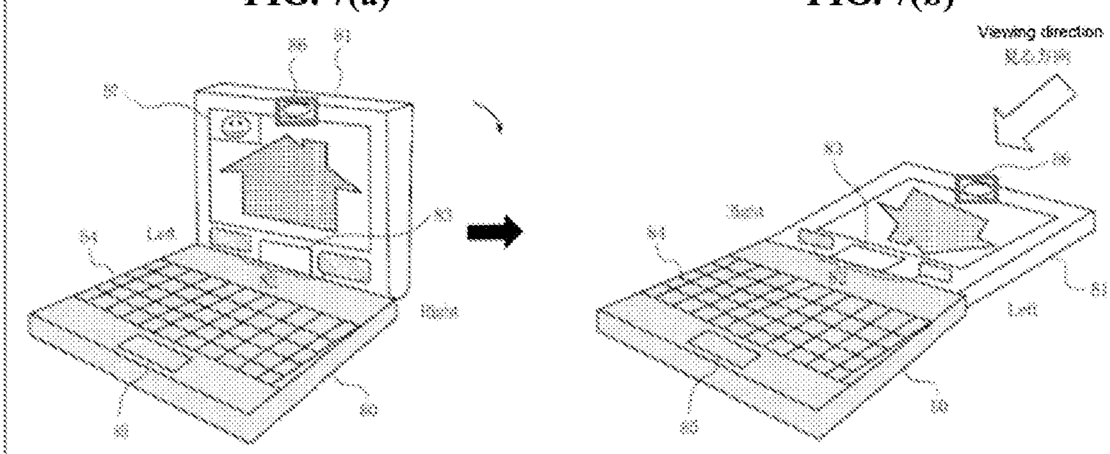
The Shimura-Tsuji combination discloses [11b1] and renders it obvious. *See* VI.B.1; VIII.B.3.b; VIII.D.3.b; EX-1011, ¶284.

d. Limitation [11b2]

Kawai discloses [11b2]. VI.A.6; EX-1011, ¶¶285-286.

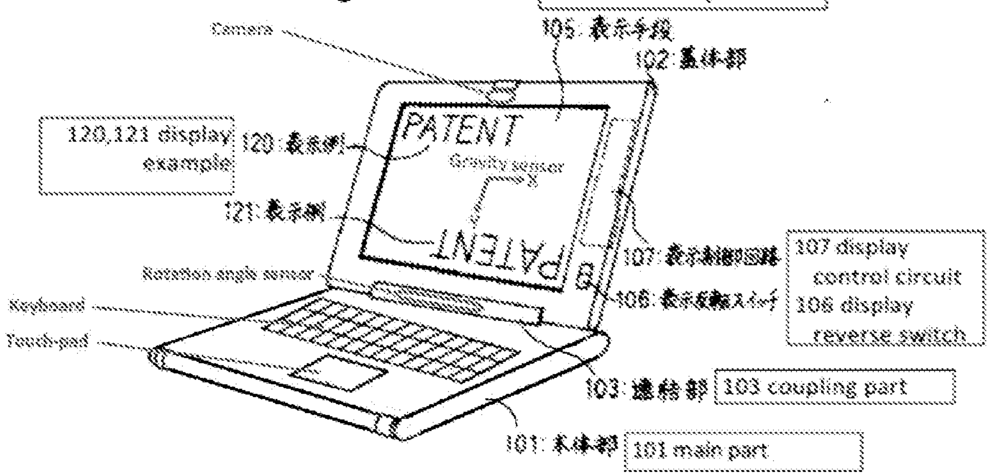
Kawai discloses a camera 86 (red) installed on the liquid crystal panel 81, as illustrated in FIGs. 7(a) and 7(b) below. EX-1010, ¶43.

FIG. 7(a) **FIG. 7(b)**



Incorporating such a well-known component into the display component (102) of the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai Computer, as illustrated in Fourth-Modified Figure 1 of Shimura below, would have been obvious to a POSITA. VI.D.2; EX-1011, ¶286.

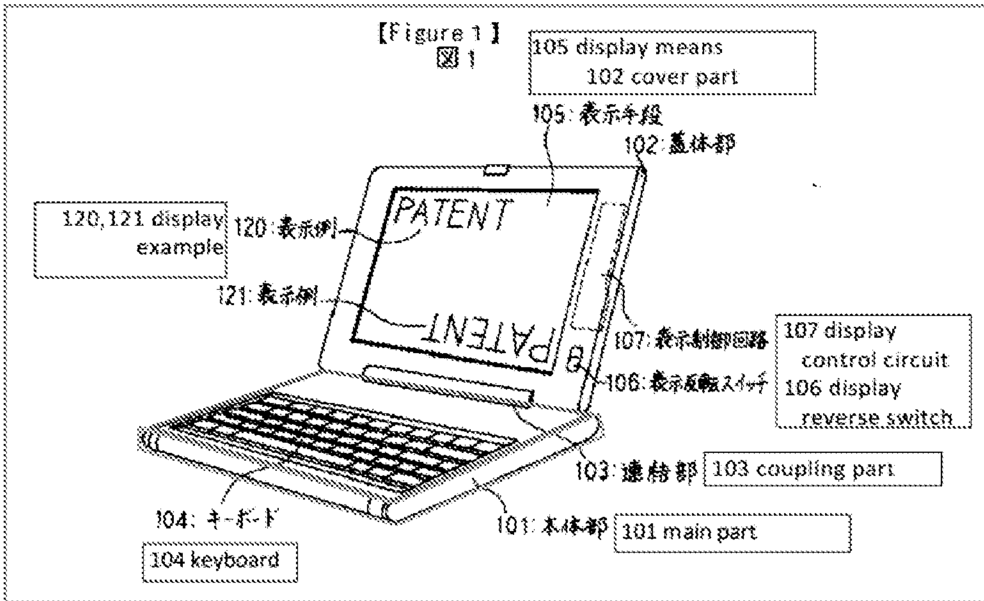
Fourth-Modified Figure 1



e. Limitation [11b3]

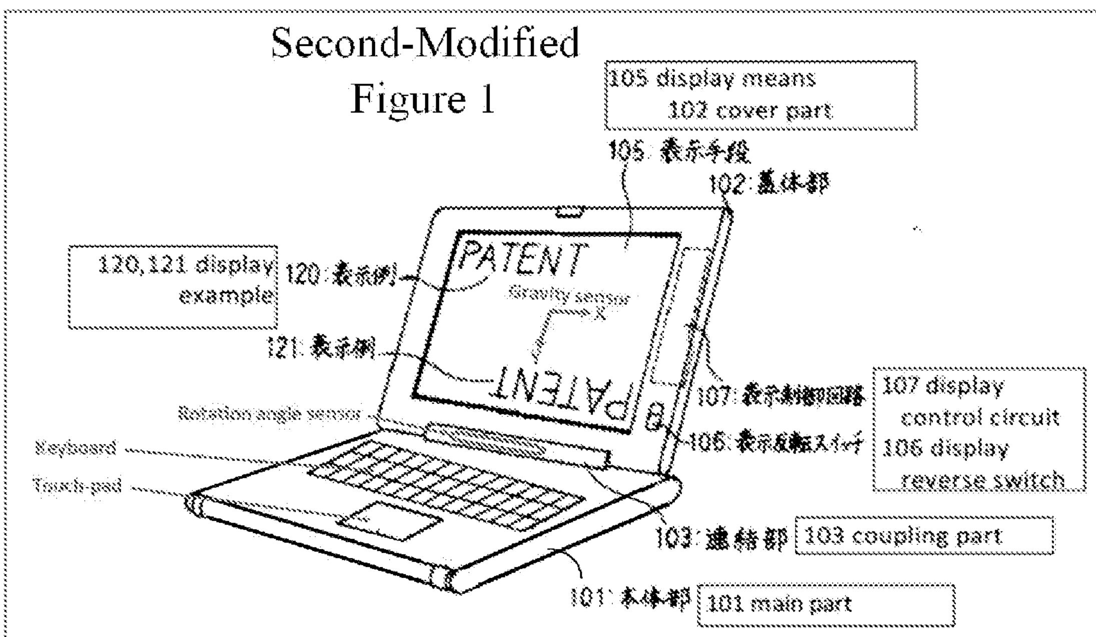
Shimura discloses [11b3]. VI.A.1; EX-1011, ¶¶287-288.

Shimura discloses a surface on the base (101) where the keyboard (104) is disposed (red in Figure 1 below) and a second surface (blue).



f. Limitation [11b4]

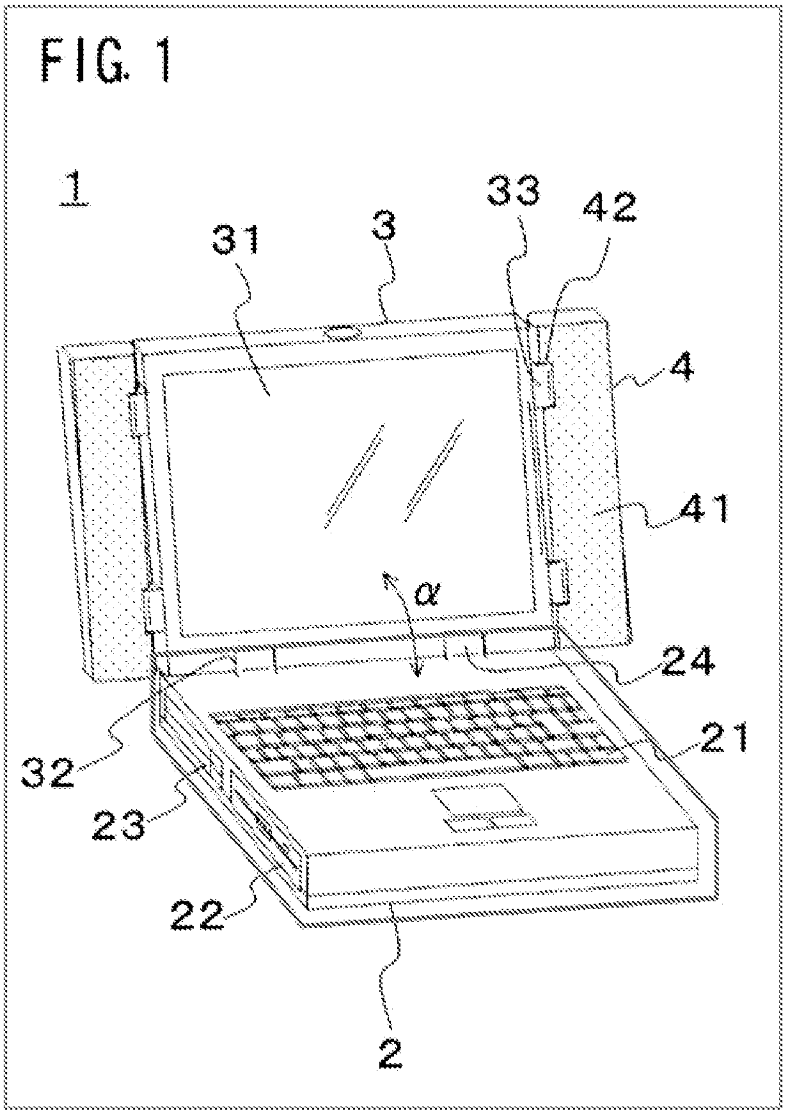
The Shimura-Tsuji-Tonouchi combination discloses [11b4] and renders it obvious. *See* VI.B.2; VIII.B.3.c; Second-Modified Figure 1 of Shimura below; EX-1011, ¶289.



g. Limitation [11b5]

Ryuuzaki discloses [11b5]. VI.A.5; EX-1011, ¶¶290-291.

Ryuuzaki discloses a power switch "provided on the lateral side edges of the first casing 2 [red in FIG. 1 below]." EX-1011, ¶291.



Incorporating such a well-known common component in a portable computer, especially when there is express disclosure from Ryuuzaki as to where the power button is located, would have been obvious to a POSITA. VI.D.1; EX-1011, ¶291.

h. Limitation [11b6]

Tsuji discloses [11b6]. VI.A.2; EX-1011, ¶¶292-293.

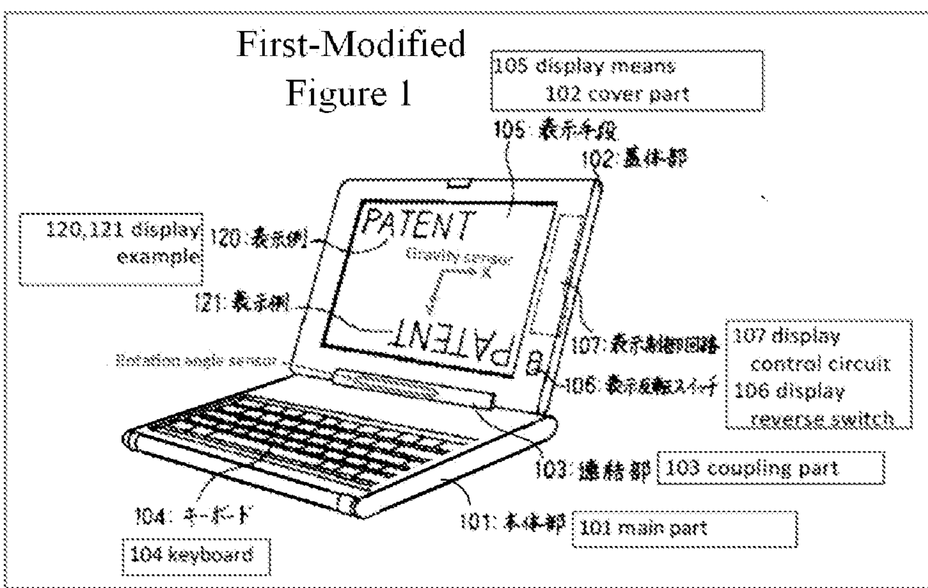
Tsuji discloses that the computer main body 11 includes a CPU (central processing unit). EX-1005, ¶30. Incorporating such a well-known common component in a portable computer, especially when there is express disclosure from Tsuji as to where the CPU is located, would have been obvious to a POSITA. VI.B.1; EX-1011, ¶293.

i. Limitation [11c]

Shimura discloses [11c]. *See* VI.A.1; VIII.B.3.d; VIII.D.3.b; VIII.D.3.e; EX-1011, ¶294.

j. Limitation [11d]

The Shimura-Tsuji combination discloses [11d] and renders it obvious. *See* VI.B.1; VIII.B.3.h; First-Modified Figure 1 of Shimura below; EX-1011, ¶295.



First-Modified Figure 1

k. Limitation [11e1]

The Shimura-Tsuji combination discloses [11e1] and renders it obvious. The Shimura-Tsuji Computer discloses the function and corresponding structure of the means-plus-function limitation "display manager" recited in [11e1], or its equivalents. *See* VI.B.1; VIII.B.3.f; VIII.B.5, VIII.B.6.b; EX-1011, ¶296.

a. Limitation [11e2]

The Shimura-Tsuji combination discloses [11e2] and renders it obvious. The Shimura-Tsuji Computer discloses the function and corresponding structure of the means-plus-function limitation "display manager" recited in [11e2], or its equivalents. See VI.B.1; VIII.B.3.f; VIII.B.5; VIII.B.6.a; VIII.B.6.b; EX-1011, ¶¶297-299.

b. Limitation [11e3]

The Shimura-Tsuji combination discloses [11e3] and renders it obvious. The Shimura-Tsuji Computer discloses the function and corresponding structure of the means-plus-function limitation "display manager" recited in [11e3], or its equivalents. *See* VI.B.1; VIII.B.3.f; VIII.B.5; VIII.B.6.a; VIII.B.6.b; VIII.D.3.a; EX-1011, ¶300.

c. Limitation [11e4]

The Shimura-Tsuji-Tonouchi combination discloses [11e4] and renders it obvious. The Shimura-Tsuji Computer discloses the function and corresponding structure of the means-plus-function limitation "display manager" recited in [11e4], or its equivalents. *See* VI.B.2; VIII.B.3.g; EX-1011, ¶¶301-302.

Accordingly, the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai combination renders obvious Claim 11. VI.D.2; EX-1011, ¶¶281-302.

4. **<u>Claim 12</u>**

Shimura discloses the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai combination renders the claim obvious. *See* VI.A.1; VI.D.2; VIII.B.6.a; VIII.B.6.b; EX-1011, ¶303.

5. **<u>Claim 13</u>**

Tsuji discloses the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai combination renders the claim obvious. *See* VI.A.2; VI.D.2; VIII.B.7; EX-1011, ¶304.

6. **<u>Claim 14</u>**

Shimura discloses the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai combination renders the claim obvious. *See* VI.A.1; VI.D.2; VIII.B.9; EX-1011, ¶305.

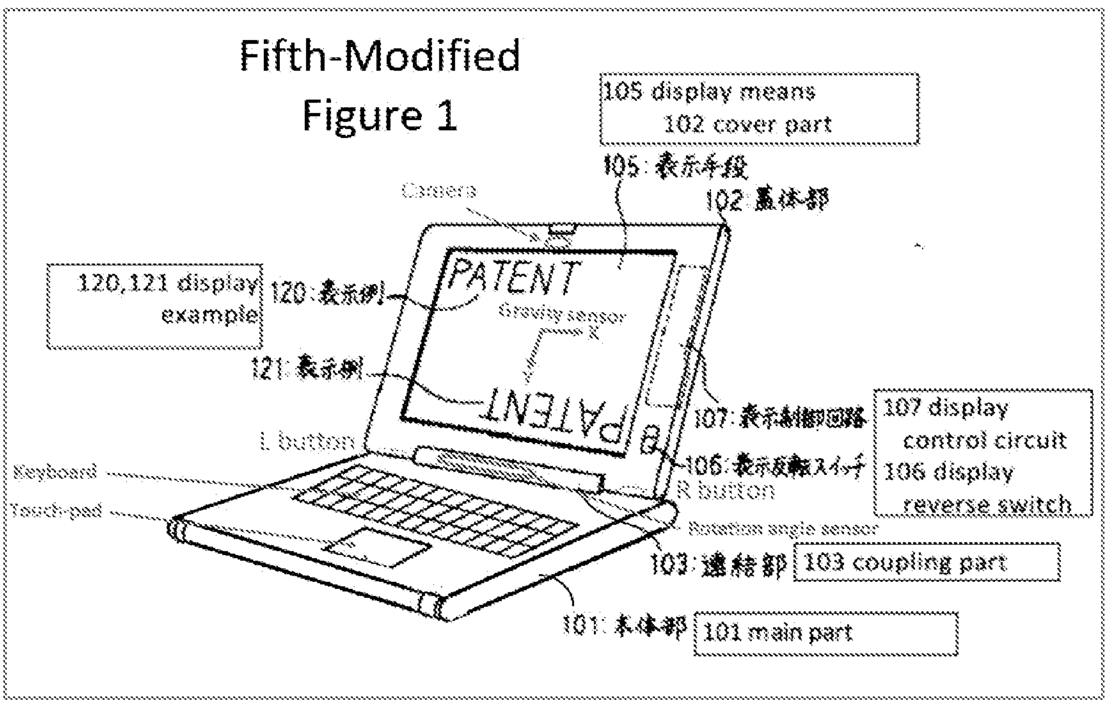
7. **<u>Claim 15</u>**

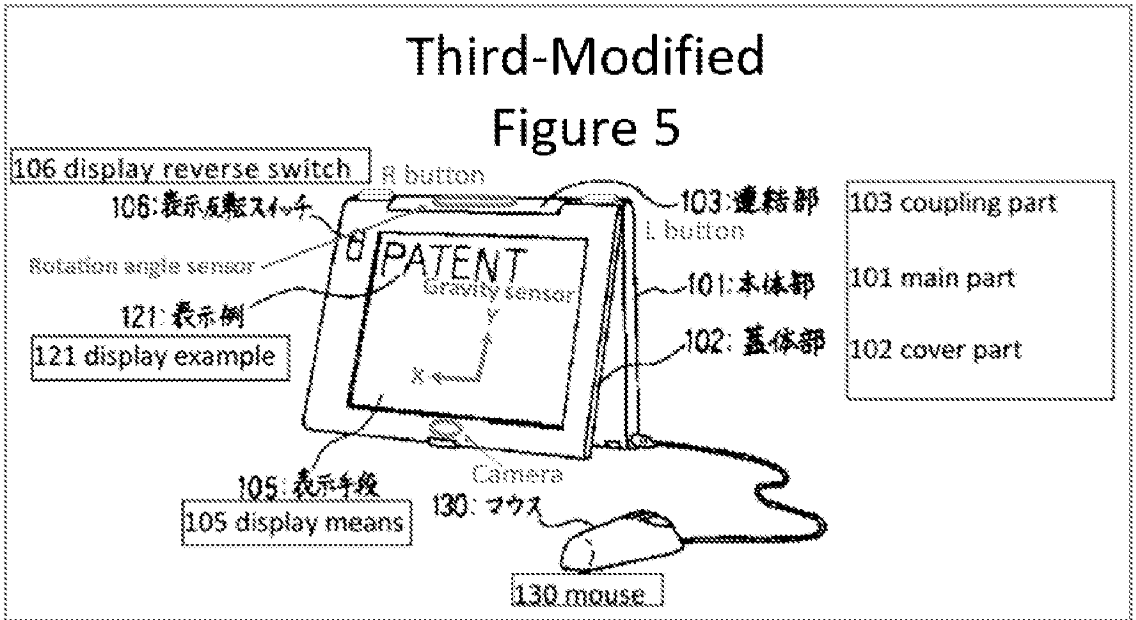
Shimura and Tsuji each disclose the additional limitation of this claim, and the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai combination renders the claim obvious. *See* VI.A.1; VI.A.2; VI.D.2; VIII.B.8; EX-1011, ¶306.

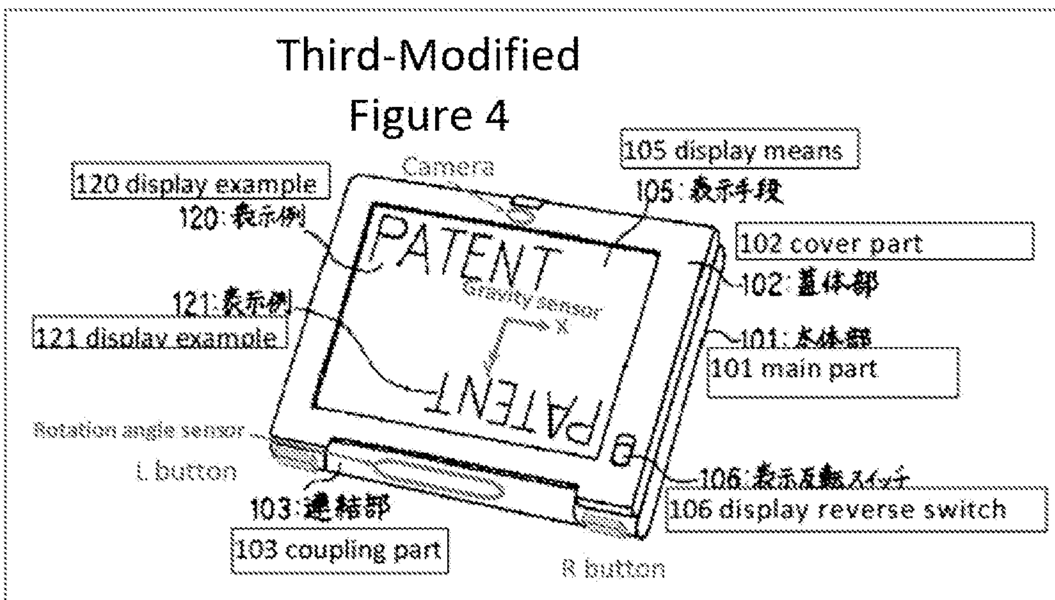
8. **<u>Claim 16</u>**

The Shimura-Tsuji combination discloses the additional limitation of this claim and renders it obvious, and the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai combination renders the claim obvious. *See* VI.B.1; VI.D.2; VIII.C.3; EX-1011, ¶¶307-308.

The R and L buttons programmed to be the desktop button or the Start menu button are located on the second surface (i.e., the lateral surface) of the base (101) of the Shimura-Tsuji-Tonouchi-Ryuuzaki-Kawai Computer, as illustrated below in Fifth-Modified Figure 1, Third-Modified Figure 5, and Third-Modified Figure 4 of Shimura. *See* VI.D.2; VIII.B.7; EX-1011, ¶308.







9. **Claim 20**

a. Limitation [20pre]

Shimura discloses [20pre]. *See* VI.A.1; VIII.B.3.a; VIII.B.6.a; VIII.B.6.b; EX-1011, ¶309.

b. Limitation [20a]

Shimura discloses [20a]. *See* VI.A.1; VIII.D.3.b; EX-1011, ¶310.