

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ASUSTeK COMPUTER INC.; ASUS GLOBAL PTE. LTD.;  
DELL TECHNOLOGIES INC.; DELL INC.; AND HP INC.,  
Petitioners

v.

LiTL LLC,  
Patent Owner

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Case IPR2024-00532  
U.S. Patent No. 8,289,688

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**PETITION FOR *INTER PARTES* REVIEW OF  
U.S. PATENT NO. 8,289,688  
CLAIMS 1-10 and 23**

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Patent Trial and Appeal Board  
U.S. Patent and Trademark Office  
P. O. Box 1450  
Alexandria, VA 22313-1450

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## **OTHER AUTHORITIES**

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## APPENDIX OF EXHIBITS

| Exhibit No. | Title                                                                                                           | Abbreviation          |
|-------------|-----------------------------------------------------------------------------------------------------------------|-----------------------|
| 1001        | U.S. Patent No. 8,289,688                                                                                       | The '688 Patent       |
| 1002        | File History of U.S. Patent Appl. No. 12/170,939 (which issued as the '688 Patent)                              | The '688 File History |
| 1003        | U.S. Patent Appl. Pub. No. 2009/0244832 A1 (which issued as the '688 Patent)                                    |                       |
| 1004        | Declaration of Andrew Wolfe, Ph.D. in support of the Petition for <i>Inter Partes</i> Review of the '688 Patent | Wolfe Decl.           |
| 1005        | U.S. Patent No. 6,771,494                                                                                       | Shimano               |
| 1006        | U.S. Patent Appl. Pub. No. 2006/0264243 A1                                                                      | Aarras                |
| 1007        | U.S. Patent No. 7,061,472                                                                                       | Schweizer             |
| 1008        | U.S. Patent No. 6,343,006                                                                                       | Moscovitch            |
| 1009        | <i>Ex Parte</i> Reexamination No. 90/015,035: 7/5/2022 Order Granting Reexamination                             |                       |
| 1010        | <i>Ex Parte</i> Reexamination No. 90/015,035: 12/28/2022 Non-Final Office Action                                |                       |
| 1011        | <i>Ex Parte</i> Reexamination No. 90/015,035: 5/18/2023 Final Office Action                                     |                       |
| 1012        | <i>Ex Parte</i> Reexamination No. 90/015,035: 8/21/2023 Advisory Action                                         |                       |
| 1013        | <i>Ex Parte</i> Reexamination No. 90/015,035: 11/14/2023 LiTL Appeal Brief                                      | LiTL Appeal Brief     |

| <b>Exhibit No.</b> | <b>Title</b>                                                                               | <b>Abbreviation</b> |
|--------------------|--------------------------------------------------------------------------------------------|---------------------|
| 1014               | U.S. Patent No. 6,154,359                                                                  | Kamikakai           |
| 1015               | U.S. Patent No. 6,918,159                                                                  | Choi                |
| 1016               | U.S. Patent Appl. Pub. No. 2005/0134717 A1                                                 | Misawa              |
| 1017               | PCT Patent Pub. No. WO 95/24007                                                            | Lane                |
| 1018               | U.S. Patent Appl. Pub. No. 2006/0034042 A1                                                 | Hisano              |
| 1019               | U.S. Patent No. 7,791,594                                                                  | Dunko               |
| 1020               | U.S. Patent No. 7,978,176                                                                  | Forstall            |
| 1021               | U.S. Patent Appl. Pub. No. 2004/0212602 A1                                                 | Nako                |
| 1022               | September 30, 2023 Judicial Caseload Profile, District of Delaware Page                    |                     |
| 1023               | <i>LiTL v. HP</i> ,<br>D. Del. case no. 1:23-cv-00120-RGA:<br>1/29/2024 Docket Report      |                     |
| 1024               | <i>LiTL v. Dell</i> ,<br>D. Del. case no. 1:23-cv-00121-RGA:<br>1/29/2024 Docket Report    |                     |
| 1025               | <i>LiTL v. AsusTek</i> ,<br>D. Del. case no. 1:23-cv-00122-RGA:<br>1/29/2024 Docket Report |                     |
| 1026               | District Court Case Scheduling Order                                                       |                     |
| 1027               | Delaware Default ESI Rules                                                                 |                     |

## 37 C.F.R. § 42.8 Mandatory Notices

### 1. Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))

The real parties-in-interest are Petitioners ASUSTeK Computer Inc., ASUS Global Pte. Ltd., Dell Inc., Dell Technologies Inc., and HP, Inc. No unnamed entity is funding, controlling, or directing this Petition or has the opportunity to control or direct this Petition or Petitioners' participation in any resulting *inter partes* review. Petitioners are not barred by operation of estoppel to submit this Petition for *inter partes* review.

### 2. Related Matters (37 C.F.R. § 42.8(b)(2))

Petitioners identify the following pending district court actions involving U.S. Patent No. 8,289,688 (“the ’688 Patent”):

|   |                                                                    |                   |         |
|---|--------------------------------------------------------------------|-------------------|---------|
| a | <i>LiTL LLC v. HP Inc.</i>                                         | 1:23-cv-00120-RGA | D. Del. |
| b | <i>LiTL LLC v. Dell Technologies Inc. and Dell Inc.</i>            | 1:23-cv-00121-RGA | D. Del. |
| c | <i>LiTL LLC v. ASUSTeK Computer Inc. and ASUS Global Pte. Ltd.</i> | 1:23-cv-00122-RGA | D. Del. |

Petitioners also identify the following administrative matters that involve the ’688 Patent which would not affect, or be affected by, a decision in this proceeding.

|   |                                                                                                                                  |
|---|----------------------------------------------------------------------------------------------------------------------------------|
| d | <i>Inter Partes</i> Review IPR2021-00681 (not instituted)                                                                        |
| e | <i>Ex Parte</i> Reexamination control no. 90/015,035 (involving other claims of the ’688 Patent not challenged in this Petition) |

### 3. Lead and Back-Up Counsel (37 C.F.R. § 42.8(b)(3))

|                           |                                                                                                                                                                                                                                                                                                          |
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<sup>1</sup> For purposes of this IPR, the Petitioner parties have designated a lead counsel as a commitment to act as a single entity in the proceeding. Counsel for each party will coordinate and act through the designated lead counsel. This designation is not a representation of an attorney-client relationship.

|                 |                                                                                                                                                                                                                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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|                 | <p>Daniel Callaway (Reg. No. 74,267)</p> <p>FARELLA BRAUN + MARTEL LLP<br/>One Bush Street, Suite 900<br/>San Francisco, California 94104</p> <p>Tel.: 415-954-4400<br/>Fax.: 415-954-4480</p> <p>E-mail: <a href="mailto:dcallaway@fbm.com">dcallaway@fbm.com</a></p>                                |

**4. Service Information (37 C.F.R. § 42.8(b)(4))**

Service information for lead and backup counsel is provided above in the designation of lead and backup counsel.

Petitioners consent to electronic service at the respective e-mail addresses listed above for lead and back-up counsel, provided that all above e-mail addresses are included in the e-mails by which documents are served electronically.

## I. INTRODUCTION

Petitioners ASUSTeK Computer Inc., ASUS Global Pte. Ltd., Dell Inc., Dell Technologies Inc., and HP Inc. request *inter partes* review of Claims 1-10 and 23 of U.S. Patent No. 8,289,688 (“the ’688 Patent”), assigned to LiTL, Inc.

The ’688 Patent centers on a concept well-known in the prior art: adjusting the display orientation — such that content is displayed the correct way up relative to a user — based on the relative spatial orientations of the screen and the base of a portable computer rotatably connected by a hinge that opens far enough for the user to deploy the portable computer in an easel mode, putting the hinge at the apex of a lambda  $\Lambda$  (or an inverted V) shape where the screen and the keyboard both face outward, one of several configurations or “display modes” in which the user can deploy the portable computer. Thus, it is no surprise that the Patent Office has twice rejected in an *ex parte* reexamination all claims of the ’688 Patent not challenged here as obvious over the same prior art cited herein; this petition seeks likewise to dispose of the claims not addressed in the reexamination.

All challenged claims depend directly or indirectly on Claim 1, which LiTL limited to having a uni-axial (or single-pivot) hinge during prosecution to overcome prior art disclosing a dual axis (or dual-pivot) hinge. However, this limitation does not confer patentability because a person of ordinary skill in the art as of the earliest priority date claimed by the ’688 Patent (“POSA”) would have known that a simpler

single-pivot hinge could be substituted for a double-pivot hinge. The dependent claims similarly recite language that read on well-known features and functions that a POSA would have been motivated to implement on a portable computer capable of being deployed in multiple display modes. Thus, this petition presents compelling evidence of the unpatentability of the challenged claims.

## **II. GROUNDS FOR STANDING**

Pursuant to 37 C.F.R. § 42.104(a), Petitioners certify that the '688 Patent is available for *inter partes* review, and that Petitioners are not barred or estopped from requesting an *inter partes* review of the challenged claims on the grounds identified below. The Office is authorized to charge all fees due for this proceeding to Deposit Account No. 50-2075.

## **III. IDENTIFICATION OF CHALLENGE**

Pursuant to 37 C.F.R. § 42.104(b), Petitioners request *inter partes* review and cancellation of Claims 1-10 and 23 of the '688 Patent, pursuant to the following statement of precise relief requested:

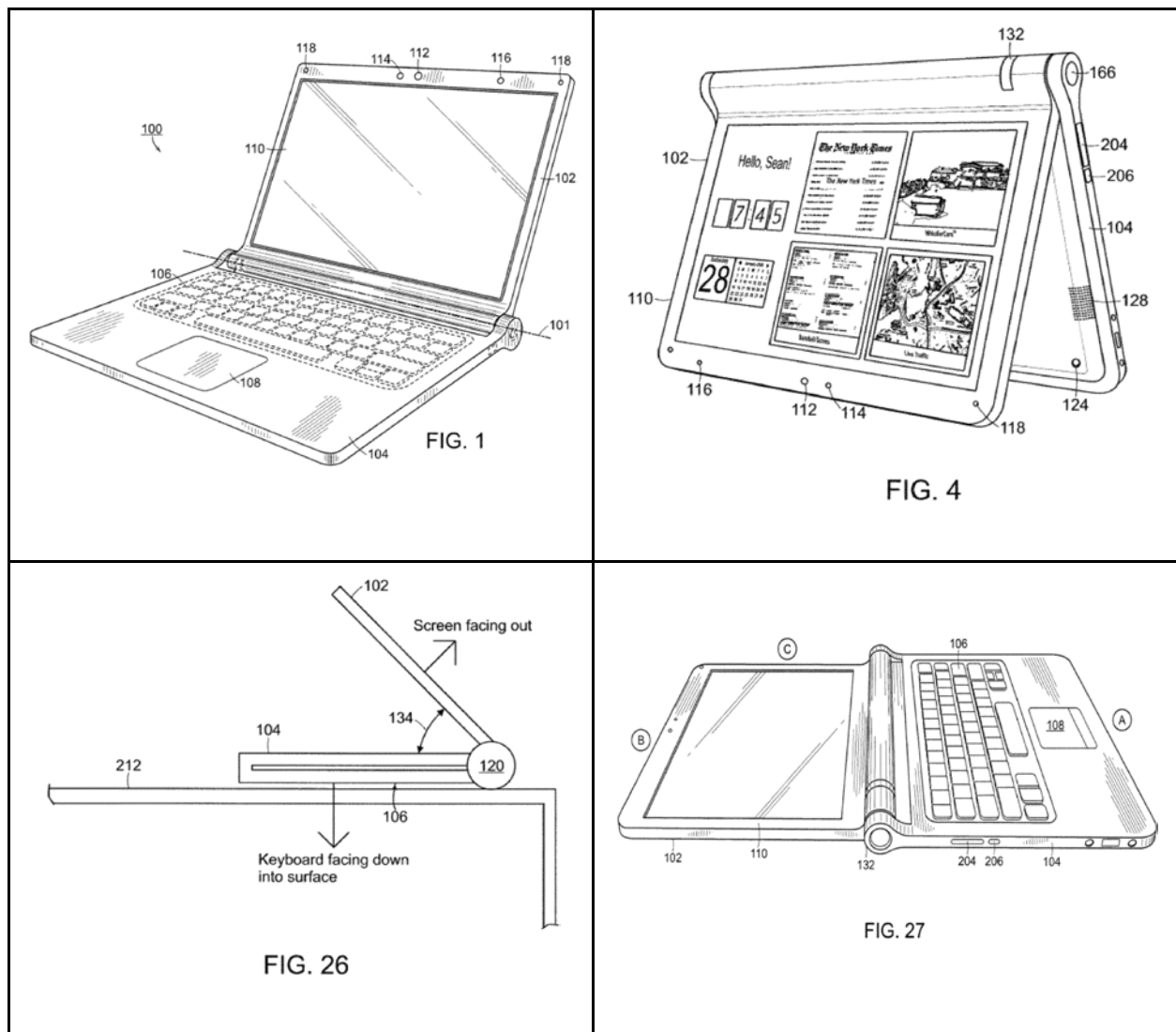
| <b>Ground</b> | <b>Claim(s)</b> | <b>Basis*</b> | <b>Prior Art References</b>                                                                      |
|---------------|-----------------|---------------|--------------------------------------------------------------------------------------------------|
| I             | 1-3 & 5-7       | § 103         | WO 95/24007 “Lane” (Exh. 1017)<br>U.S. 2005/0134717 A1 “Misawa” (Exh. 1016)                      |
| II            | 3-7 & 23        | § 103         | WO 95/24007 “Lane”<br>U.S. 2006/0034042 A1 “Hisano” (Exh. 1018)<br>U.S. 2005/0134717 A1 “Misawa” |

| <b>Ground</b> | <b>Claim(s)</b> | <b>Basis*</b> | <b>Prior Art References</b>                                                                                          |
|---------------|-----------------|---------------|----------------------------------------------------------------------------------------------------------------------|
| III           | 8-9             | § 103         | WO 95/24007 “Lane”<br>U.S. 2005/0134717 A1 “Misawa”<br>U.S. 7,791,594 B2 “Dunko” (Exh. 1019)                         |
| IV            | 8-9             | § 103         | WO 95/24007 “Lane”<br>U.S. 2006/0034042 A1 “Hisano”<br>U.S. 2005/0134717 A1 “Misawa”<br>U.S. 7,791,594 B2 “Dunko”    |
| V             | 8-9             | § 103         | WO 95/24007 “Lane”<br>U.S. 2005/0134717 A1 “Misawa”<br>U.S. 7,978,176 B2 “Forstall” (Exh. 1020)                      |
| VI            | 8-9             | § 103         | WO 95/24007 “Lane”<br>U.S. 2006/0034042 A1 “Hisano”<br>U.S. 2005/0134717 A1 “Misawa”<br>U.S. 7,978,176 B2 “Forstall” |
| VII           | 10              | § 103         | WO 95/24007 “Lane”<br>U.S. 2005/0134717 A1 “Misawa”<br>U.S. 2004/0212602 A1 “Nako” (Exh. 1021)                       |

\* All pre-AIA § 103.

#### IV. OVERVIEW OF THE '688 PATENT

The '688 Patent, Portable Computer with Multiple Display Configurations, claims an earliest priority date of April 1, 2008. (Exh. 1001.) It describes portable computers that can be deployed by users in multiple configurations or display modes, including: a laptop mode (Fig. 1), an easel mode (Fig. 4), a frame mode (Fig. 26), and a flat mode (Fig. 27).



In each display mode, the relative spatial orientations of the screen and the base of the portable computer are different, and the display orientation (*i.e.*, the orientation of content visually presented on the screen) would be adjusted based on the display mode or by the user. (*Id.* at 2:42-44.)

The '688 Patent mentions “an orientation (or mode) sensor that is configured to detect whether the portable computer is in the laptop mode or the easel mode, and to adjust the display accordingly.” (*Id.* at 8:17-20.) The sensor “may be used to determine a precise relative orientation of the base component 104 with respect to the display component 102, or vice versa, for example, to determine whether the device is in the laptop mode, easel mode, or some point in between the two modes.” (*Id.* at 8:26-31.) Or the sensor may be used to detect the angle 134 between display component 102 and base component 104. (*Id.* at 8:49-61; Figs. 5 & 6A-6C.)

The orientation sensor may include “an accelerometer whose output is fed to the computer operating system ... which then triggers a display inversion [*i.e.*, a 180° rotation of the display orientation] as appropriate.” (*Id.* at 8:31-34.) The sensor “may be incorporated into the base component 104, ... or into the display component [102].” (*Id.* at 8:20-23.) The latter “may provide more robust detection.” (*Id.* at 8:23-26.) Alternatively, the sensor may be incorporated into the hinge assembly and used to detect and translate the movement of the hinge assembly into information

about the relative orientation of the display component 102 and the base component 104, for example, the angle 134 between the two components. (*Id.* at 9:36-41.)

The figures in the '688 Patent depict a single-pivot hinge between the display component 102 and the base component 104. (*Id.* at Figs. 1-5, 7A-7B, 8-10, 15-18, and 23-27.) However, the '688 Patent also mentions that the hinge assembly of the portable computer may comprise multiple parallel axes. (*Id.* at 2:49-54.)

## **V. CLAIM CONSTRUCTION**

### **A. Legal Standard**

In an *inter partes* review, a patent claim “shall be construed [under *Phillips*], in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” (37 C.F.R. § 42.100; see also *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*).) Claim terms need only be construed to the extent necessary to resolve the controversy. (*Toyota Motor Corp. v. CellPort Systems, Inc.*, IPR2015-00633, Paper 11 (Institution Decision) at 16, PTAB 8/14/2015.) The Board does not need to determine the outer bounds of the claims in this proceeding because the prior

art discloses a preferred embodiment squarely within the scope of the claims.<sup>2</sup> Claim terms not listed below should be given their plain and ordinary meaning.

**B. Person of Ordinary Skill in the Art**

A person of ordinary skill in the art at the time of the '688 Patent ("POSA") would have had a bachelor's degree (or equivalent) in electrical engineering, computer engineering, computer science, or a comparable subject, and two to three years of work experience in the design and architecture of laptop computers and other portable electronic devices. Alternatively, a POSA would have had an advanced degree (or equivalent) in electrical engineering, computer engineering, computer science, or a comparable subject and one year of post-graduate research or work experience in the design and architecture of laptop computers and other portable electronic devices. A POSA would have been familiar with the structural hardware aspects of laptop computers and other portable electronic devices, as well as designs of user interfaces employed and displayed by computer operating systems and their organization of content and functionality. A POSA could have acquired similar skills and knowledge by other means. (Exh. 1004, ¶ 25.)

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<sup>2</sup> Petitioners reserve the right to present other claim construction arguments in the related district court actions as relevant and necessary in those proceedings, and to challenge the validity of the claims under § 112.

### C. Claim Terms

1. “... the hinge assembly defines a single longitudinal axis running along an interface between the display component and the base,”

Claim 1 was twice amended during prosecution to overcome Aarras (Exh. 1006) as follows:

| Original 7/10/2008                                                                                                                          | Amended 11/3/2010                                                                                                                                                              | Amended 4/29/2011                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| wherein the display component is rotatable about a longitudinal axis running along an interface between the display component and the base; | wherein the display component <u>and the base</u> <del>are</del> is rotatable about a longitudinal axis running along an interface between the display component and the base; | <u>wherein the hinge assembly defines a single longitudinal axis running along an interface between the display component and the base,</u>                                                       |
|                                                                                                                                             |                                                                                                                                                                                | <u>and</u> wherein the display component and the base are rotatable about a <u>the</u> single longitudinal axis <del>running along an interface between the display component and the base;</del> |
| Exh. 1002 at 26.                                                                                                                            | Exh. 1002 at 190.                                                                                                                                                              | Exh. 1002 at 311.                                                                                                                                                                                 |

Original claim 1 was rejected under § 102(b) citing Aarras. (Exh. 1002 at 158, ¶¶ 3-4.) To distinguish the first amended claim 1 from Aarras, LiTL argued that “Aarras teaches a dual axis hinge about which the two sections of the portable electronic device rotate.” (*Id.* at 197 (emphasis added).) The Examiner maintained the same rejection and explained:

The fact that the hinge 16 in Aarras has two axes of rotation is immaterial in this instance because either axis

can be “the longitudinal axis” as claimed in applicant’s Claim 1. Also, since an “axis” is an arbitrary point or line in space about which something rotates, it is not necessary associated with any of the physical parts of the portable computer. All that the claim requires is for the display component and base to rotate “about a longitudinal axis running along an interface between the display component and the base.” Either of the axes of rotation disclosed in Aarras satisfies this limitation.

(*Id.* at 269-270, ¶¶ 38-39; *see also* Exh. 1006, Figs. 1-3.) The subsequent Interview Summary notes:

The examiner agrees that more specifically claiming the longitudinal axis of rotation in Claims 1 and 13 would help to distinguish those claims from the Aarras reference.

(*Id.* at 294.) Thereafter, LiTL amended Claim 1 again to recite a single longitudinal axis that (a) is defined by the hinge assembly and (b) runs along an interface between the display component and the base, and distinguished Claim 1 from the “dual axis hinge” of Aarras again. (*Id.* at 318.)

Thus, “the hinge assembly defines a single longitudinal axis running along an interface between the display component and the base” is a single-axis hinge, also referred to a single-pivot hinge. (Exh. 1004, ¶ 140.)

**2. “... a mode sensor which detects a current display mode of the portable computer;”**

Claim 4 recites “a mode sensor which detects a current display mode of the portable computer.” According to the ’688 Patent, a mode sensor detects the current display orientation of the portable computer by determining the orientation of the display component relative to the base component.

... the portable computer 100 includes an orientation (or mode) sensor that is configured to detect whether the portable computer is in the laptop mode or the easel mode, and to adjust the display accordingly. ... The orientation sensor may be used to determine a precise relative orientation of the base component 104 with respect to the display component 102, or vice versa, for example, to determine whether the device is in the laptop mode, easel mode, or some point in between the two modes. In one example, the orientation sensor includes an accelerometer ... to detect a configuration of the portable computer 100 (e.g., laptop mode or easel mode), particularly, to detect an orientation of the display component 102 relative to the base component 104.

(Exh. 1001, 8:17-20; 8:26-44.)

The '688 Patent further explains that one example of determining the orientation of the display component relative to the base component is to determine the angle between the two components.

... when the portable computer 100 is in the easel mode, the base 104 is disposed at an angle 134 to the display component 102. ... As discussed above, in one example, the orientation sensor (not shown) may be used to detect, either approximately or precisely, the angle 134 and to provide the information to the computer operating system.

(Exh. 1001, 8:49-61.)

... the orientation sensor may be incorporated into the hinge assembly 138 and may be used to detect movement of the hinge assembly, and to translate that movement into an information about the relative orientation of the display component 102 and the base component 104 (for example, a size of the angle 134).

(Exh. 1001, 9:36-41.)

Thus, this limitation should be construed as “a mode sensor that determines the current relative orientation of the display component to the base component”, which covers a sensor that determines the angle between the two components. (Exh. 1004, ¶ 171.)

3. **“... at least one integrated hardware control, ... wherein the integrated navigation hardware can be operated by a user to control features and manipulate content displayed on the portable computer,”**

Claim 23 recites “at least one integrated hardware control, ..., and wherein the integrated navigation hardware can be operated by a user to control features and manipulate content displayed on the portable computer.”

The '688 Patent describes integrated navigation hardware controls for “a user to easily and comfortable control various features and functions of the portable computer, and to manipulate content displayed on the portable computer.” (Exh. 1001, 10:54-58.) One example of such integrated navigation hardware controls is:

... a scroll wheel 132 that allows a user to control, adjust and/or select various functionality of the portable computer. ... [T]he the scroll wheel 132 may be used to provide “hardware navigation” through information, such as menus, icons, etc., displayed on the display screen 110.

(*Id.* at 10:58-64; Fig. 17.) The '688 Patent further notes that:

Navigation is conventionally performed using a mouse, touch pad or trackball, as known to those skilled in the art. ... navigation may be performed using either conventional tools, such as a touchpad 108, trackball (not shown) or peripheral, for example, a mouse, that is connected to the portable computer 100 via a port 164, or the scroll wheel 132, or a combination thereof.

(*Id.* at 11:2-10.)

A POSA would have understood mice, track pads, and trackballs as other examples of hardware that can be used to navigate through menus, icons and other content displayed on screen. (Exh. 1004, ¶ 215.) Thus, a POSA would have understood the '688 Patent to distinguish between integrated (i.e., built in) hardware and peripheral (i.e., attached via a port) hardware, and that touch pads and trackballs are other examples of “integrated navigation hardware controls.” (*Id.*)

Thus, the above claim limitations should be construed as “built-in navigation hardware control which can be operated by a user to control features and manipulate content displayed on the portable computer.” (*Id.* at ¶ 216.)

## **VI. SCOPE & CONTENT OF THE PRIOR ART AS OF THE EARLIEST PRIORITY DATE OF THE '688 PATENT**

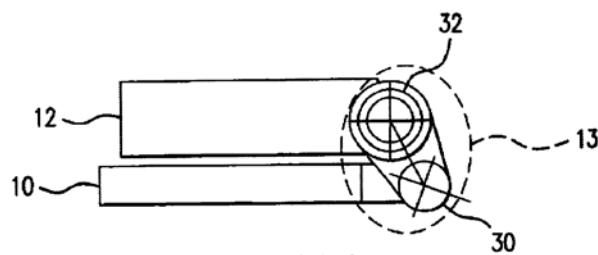
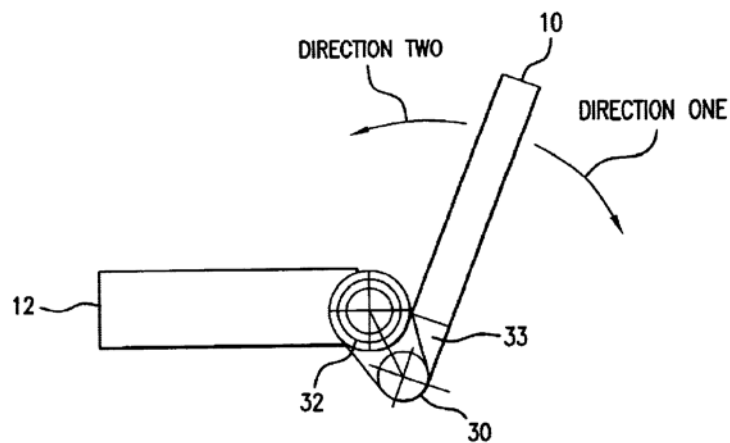
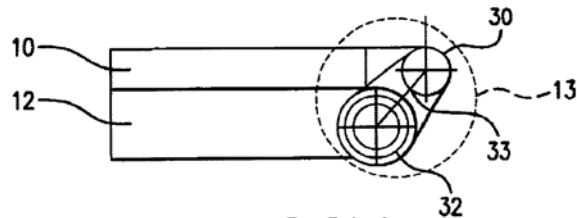
### **A. Hinges and Display Modes**

#### **1. Shimano (Exh. 1005)**

The '688 Patent cites Shimano as an example of “a hybrid tablet-type portable computer that is capable of operating either as a normal laptop computer receiving user input via a keyboard (‘laptop mode’), or as a tablet computer receiving user input via a touch screen.” (Exh. 1001, 1:37-41 (describing Exh. 1005).)

Shimano discloses a dual-pivot hinge assembly 13 coupling the display unit 10 and the base unit 12 of the portable computer. (Exh. 1005, 4:45-47.) The hinge assembly 13 comprises A hinge 32, B hinge 30, and an armature 33. (*Id.* at 4:52-

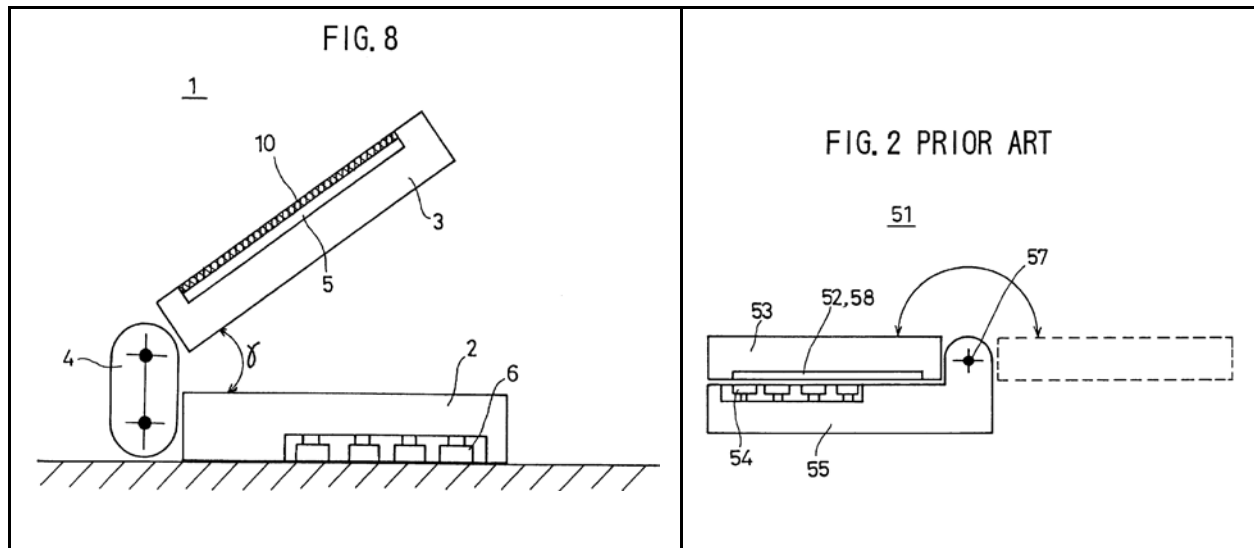
55.) The B hinge couples the display unit 10 to the armature 33; the A hinge couples the base unit 12 to the armature 33. (*Id.* at 4:55-60; Figs. 2(a)-2(c).)



As shown in Figs. 2(a)-2(c), the dual-pivot hinge assembly 13 enables the display unit 10 to be rotated 360° relative to the base 12, such that the back of the display unit 10 can be folded flat against the bottom of the base unit 12 to deploy the portable computer in a tablet mode, as illustrated in Figs. 2(c).

## 2. Kamikakai (Exh. 1014)

U.S. Patent No. 6,154,359 (“Kamikakai”) teaches a portable computer with a similar dual-pivot hinge. (Exh. 1014, Figs. 5-8.) The dual-pivot hinge allows the display part 3 to be rotated from the main body 2 to an angle in the “range of 270° to 360°.” (*Id.* at 6:28-31.)



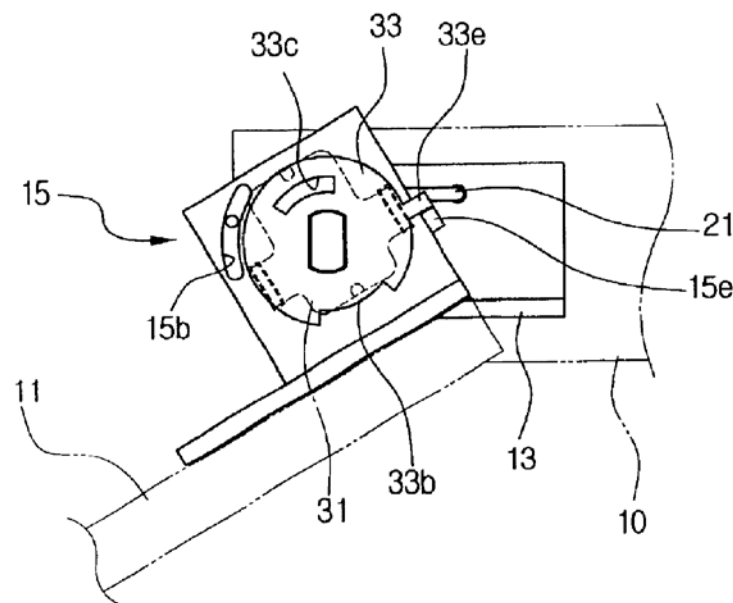
Kamikakai depicts an exemplary “prior art” or “conventional” portable computer having a single-pivot hinge in Figs. 1-2a and identifies the shortcoming of the depicted single-pivot hinge as its inability to let the display part 53 open beyond 180° from the main body 55 of a portable computer. (Exh. 1014, 6:19-23.)

## 3. Choi (Exh. 1015)

U.S. Patent No. 6,918,159 (“Choi”) discloses a single-pivot hinge for a laptop computer. (Exh. 1015, 1:11-24; Figs. 2-7.) Choi teaches a hinge mechanism which, upon the release of a locking device, automatically opens the display panel 11 by a

predetermined angle (e.g., 45°) from the body 10. (*Id.* at 5:59-62; Fig. 5.) The hinge mechanism thereafter allows a user to further open the display panel 11 to an adjustable angle beyond 45°. (*Id.* at 6:21-25 & 6:32-39.) A locking projection 15e engages locking portion 33e to restrict the maximum opening angle of the hinge mechanism to about 210°. (*Id.* at 6:26-29; Fig. 7.)

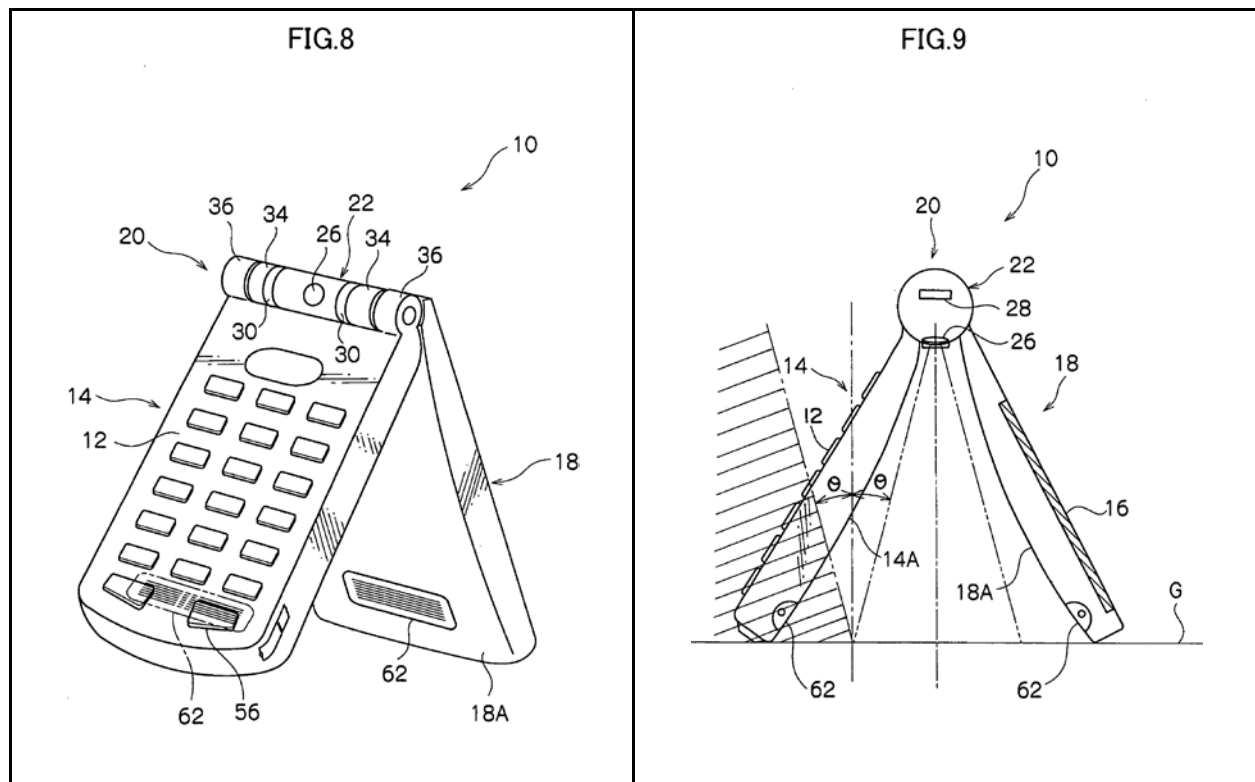
**FIG. 7**



#### **4. Misawa (Exh. 1016)**

U.S. Patent Appl. Pub. No. 2005/0134717 A1 (“Misawa”) discloses a mobile phone comprising a first casing body 14 (with a keypad 12) and a second casing body 18 (with a screen 16) “joined by a uni-axial hinge portion” which can open “by more than 180°.” (Exh. 1016, Abstract; Fig. 1.)

As shown in Figs. 8-9, the hinge 20 “is opened by 300° from the closed state,” where cams within the hinge 20 maintains the opening angle, such that the first casing body 14 and second casing body 18 form an inverted “V” on a surface G to hold a camera unit 22 (disposed inline with the axis of the hinge 20) above the surface G. (*Id.* at [0054].)



A POSA would have recognized that the hinge 20 depicted in Fig. 9 can open beyond the stated 300° (but less than 360°) if one was not concerned about blocking the lens 26 of the inline camera unit 22. (Exh. 1004, ¶ 110.)

## 5. Single-Pivot vs. Dual-Pivot Hinges

Thus, a POSA would have recognized that a single-pivot hinge allows the display to open well beyond 180° relative to the base. (Exh. 1004, ¶ 111.)

A POSA would have understood that the maximum opening angle for a single-pivot hinge depends on the structure of the hinge, including factors such as the hinge diameter relative to the respective thicknesses of the display and the base, whether their respective cross-sections taper toward the hinge, and the distance and location of the hinge axis relative to main bodies of the display and the base. (*Id.* at ¶ 112.)

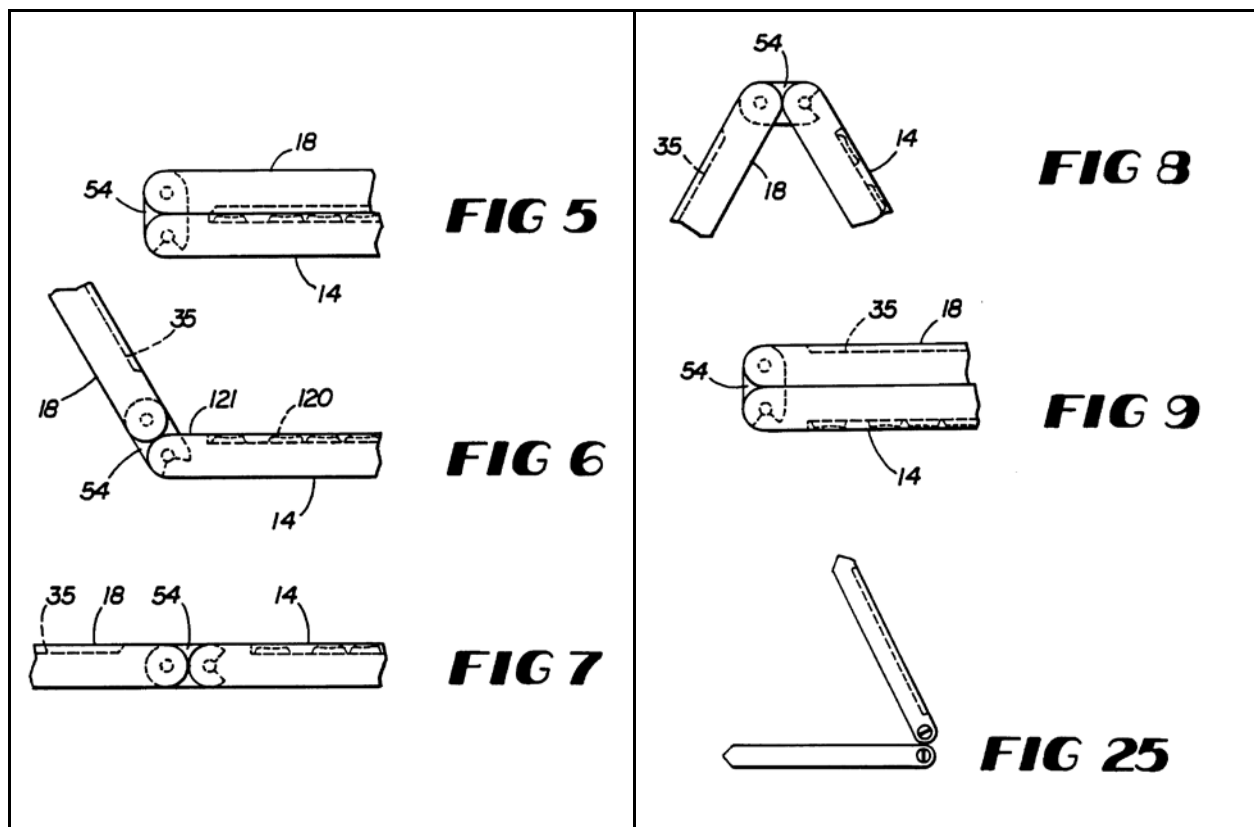
As Misawa noted, a “bi-axial” or dual-pivot hinge is necessarily more mechanically complex than a “uni-axial” or single-pivot hinge. (Exh. 1016, [0009].) Thus, a POSA would have known that a single-pivot hinge would be likely more reliable over the countless opening and closing cycles during the service life of a portable computer, and less expensive than a dual-pivot hinge. (Exh. 1004, ¶ 113.)

However, a POSA would have recognized that the use of a dual-pivot hinge would make it easier to design a portable computer having a display that can rotate far enough to fold flat against the bottom of the base to deploy the portable computer in a tablet mode, and would result in a more compact hinge to improve portability of such a portable computer. Thus, the selection between a single-pivot hinge and a double-pivot hinge by a POSA would have been a design choice that largely turned on whether there was a need or desire to enable the portable computer to be deployed in a tablet mode. (*Id.* at ¶ 114.)

## B. Sensors and Display Orientations

### 1. Lane (Exh. 1017)

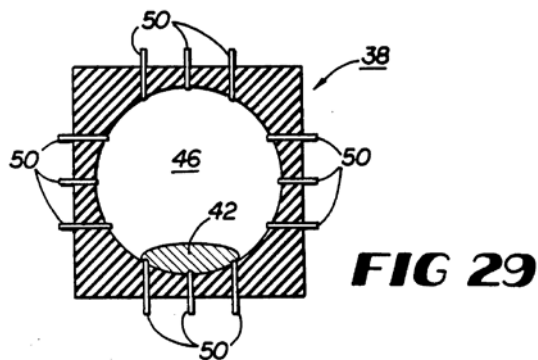
PCT Patent Pub. No. WO 95/24007 (“Lane”) discloses a portable computer 10 comprising a first module 14 (with a keyboard 36) and a second module 18 (with a display 35). (Exh. 1017, 5:4-6; Fig. 1.) The two modules 14 and 18 are connected by a dual-pivot hinge 54 that enables the portable computer 10 to be opened from a closed position (Fig. 5) to a laptop mode (Fig. 6), a flat mode (Fig. 7), an easel mode (Fig. 8), a tablet mode (Fig. 9), or a frame mode (Fig. 25).



Lane also discloses an orientation sensor 38 to detect the spatial orientation of a module:

Mechanism 38 includes a moveable conductor 42 (such as liquid mercury) in a spherical cavity 46 having contacts 50 spaced about its periphery. Conductor 42 responds via gravitational forces to spatial reorientation of mechanism 38 by moving relative to contacts 50 (to contact at least one contact 50 to close its respective circuit). Including mechanism 38 as a component of either first or second modules 14 or 18 would thus permit it to indicate the spatial orientation of that module.

(Exh. 1017, 5:25-35; Fig. 29.) A POSA would have understood mechanism 38 to be an orientation sensor because it “responds via gravitational forces to spatial reorientation” in a measurable way. (Exh. 1004, ¶ 116.)



Lane also provides examples of functionalities enabled by the inclusion of an orientation sensor 38:

Doing so would also allow mechanism 38 to assist device 10 (and its associated software) in determining, for example, whether the information to appear on visual display 35 should be in “landscape” or “portrait” position as the visual display 35 is spatially configured, ..., or

whether to render keys 36 of first module 14 inoperable when unused.

(Exh. 1017, 5:35-6:6.)

As discussed above, Lane teaches that the display 35 is housed within the second module 18 of the portable computer 10. (Exh. 1017, 5:4-6; Fig. 1.) Thus, a POSA would have understood that Lane teaches adjusting the display orientation between “landscape” and “portrait” based on the input from an orientation sensor 38 incorporated within the second module 18. (Exh. 1004, ¶ 118.)

A POSA would have further recognized that Lane does not suggest that the display orientation adjustment is limited to switching between the “landscape” and “portrait” orientations referenced in the first example. Rather, common sense would have informed a POSA to configure the portable computer 10 to adjust the display orientation properly relative to a user according to the spatial orientation of the second module 18 (which houses the display 35), especially in view of Lane’s express disclosure of an easel mode. Thus, a POSA would have recognized that the display orientation in the easel mode (Fig. 8) would be inverted (i.e., rotated 180°) compared to the display orientation in the laptop mode (Fig. 6). (Exh. 1004, ¶ 119.)

As discussed above, Lane teaches that the keyboard 36 is housed within the first module 14 of the portable computer 10. (Exh. 1017, 5:4-6; Fig. 1.) Thus, a POSA would have understood that Lane teaches disabling the keyboard 36 when it

is unused — e.g., tablet mode (Fig. 9) or frame mode (Fig. 25) — based on the input from an orientation sensor 38 incorporated within the first module 14. (Exh. 1004, ¶ 120.)

A POSA would have recognized that the display orientation adjustment and the keyboard lockout functionalities taught in Lane are not mutually exclusive. Rather, a POSA would have realized that it would be advantageous for a portable computer — especially one capable of the variety of display modes taught in Lane — to provide both functionalities. Thus, a POSA would have incorporated a spatial orientation sensor 38 in each of the first and second modules 14 and 18. (Exh. 1004, ¶ 121.)

While not expressly stated in Lane, a POSA would also have realized that including an orientation sensor 38 in each of the first and second modules 14 and 18 enables the portable computer 10 to determine the angle between the two modules. The angle of each module relative to the ground is measured by its own orientation sensor 38, and the respective orientation angles of the two modules can be used to calculate the angle between them. (Exh. 1004, ¶ 122.)

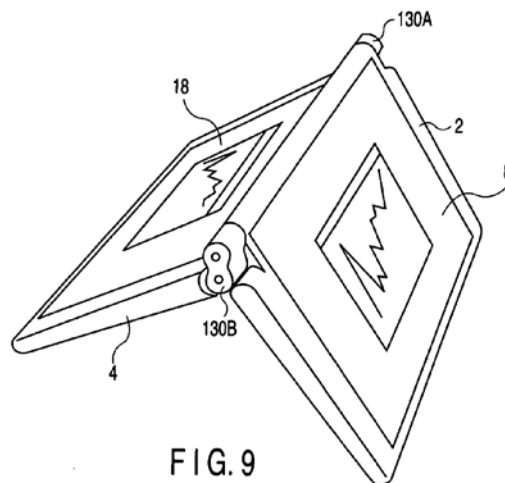
## **2. Hisano (Exh. 1018)**

U.S. Patent Appl. Pub. No. 2006/0034042 A1 (“Hisano”) discloses a portable computer comprising a first housing 2 and a second housing 4, each with its own LCD panel (8 and 18, respectively). (Exh. 1018, Fig. 1.) An LCD panel (e.g., 18 in

Fig. 1) may display a virtual keyboard 20 to receive touch input. (*Id.* at [0058]; Fig. 1.) A pair of dual-pivot hinges (i.e., “two-rotating-shaft hinges”) 130A and 130B join the two housings 2 and 4. (*Id.* at [0098]; Fig. 9.)

The portable computer of Hisano can be deployed in a laptop mode, where “[t]he user can operate the personal computer on one of the LCD panels 8 and 18 while checking the state of the operation on the other LCD panel.” (Exh. 1018, [0098]; Fig. 1.)

In Fig. 9, the hinges 130A and 130B further open to deploy the portable computer in an easel mode, where the maximum opening angle between the two housings 2 and 4 is “at least 180°; for example, 270°” to “form the character  $\Lambda$  (capital lambda)” such that “LCD panels 8 and 18 both face outward.” (*Id.*) In the easel mode, the portable computer “can be used for ... presentations for a small number of people, [where] the operator views information including detailed data relating to the presentation, while the viewers see only slides.” (Exh. 1018, [0099].)



In connection with the transition between laptop mode and easel mode, Hisano teaches inverting the display orientation — i.e., switching between a first display orientation, where the edge of the screen closer to the hinges is the top of the display, and a second display orientation, where the edge of the screen farther from the hinges is the top of the display — based upon the opening angle of the hinges 130A and 130B. (*Id.*)

Hisano also teaches incorporating an orientation 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.” (*Id.*) Based on the input from the orientation sensor, an LCD panel that is “almost parallel to the desk surface is switched to the input interface 133,” e.g., virtual keyboard 20, whereas an LCD panel that is “standing from the desk surface is switched to the display surface.” (*Id.* at [0100].)

As noted above, the hinges 130A and 130B have a “maximum opening angle [of] for example, 270°” in the easel mode. (*Id.* at [0098].) Given the range of rotation between the two housings 2 and 4 to enable the deployment of the portable computer from closed mode to laptop mode and further to easel mode, i.e., 0°-270°, a POSA would have recognized that the spatial orientation of one housing does not determine the spatial orientation of the other housing. Thus, a POSA would have further recognized that Hisano teaches the incorporation of an orientation sensor in

each of the two housings 2 and 4 to detect whether an LCD panel is “almost parallel to the desk surface” and switch it to the input interface, and whether an LCD panel is “standing from the desk surface” and switch it to the display surface. (Exh. 1004, ¶ 127.)

As discussed above, a POSA would have recognized that incorporating an orientation sensor in each of the first and second housings 2 and 4 would enable the portable computer to determine the opening angle of the hinges 130A and 130B. (Exh. 1004, ¶ 128.)

Hisano also teaches rotating the content displayed on LCD panels 8 and 18 between landscape and portrait display orientations based on the input from an orientation sensor.

The LCD panels 8 and 18 may be arranged either vertically or horizontally in parallel. Preferably, the personal computer comprises a sensor that senses gravity so that information displayed on the screen including the virtual keyboard can be appropriately rotated depending on the sensed direction. This enables images to be always displayed in the correct direction with respect to the user.

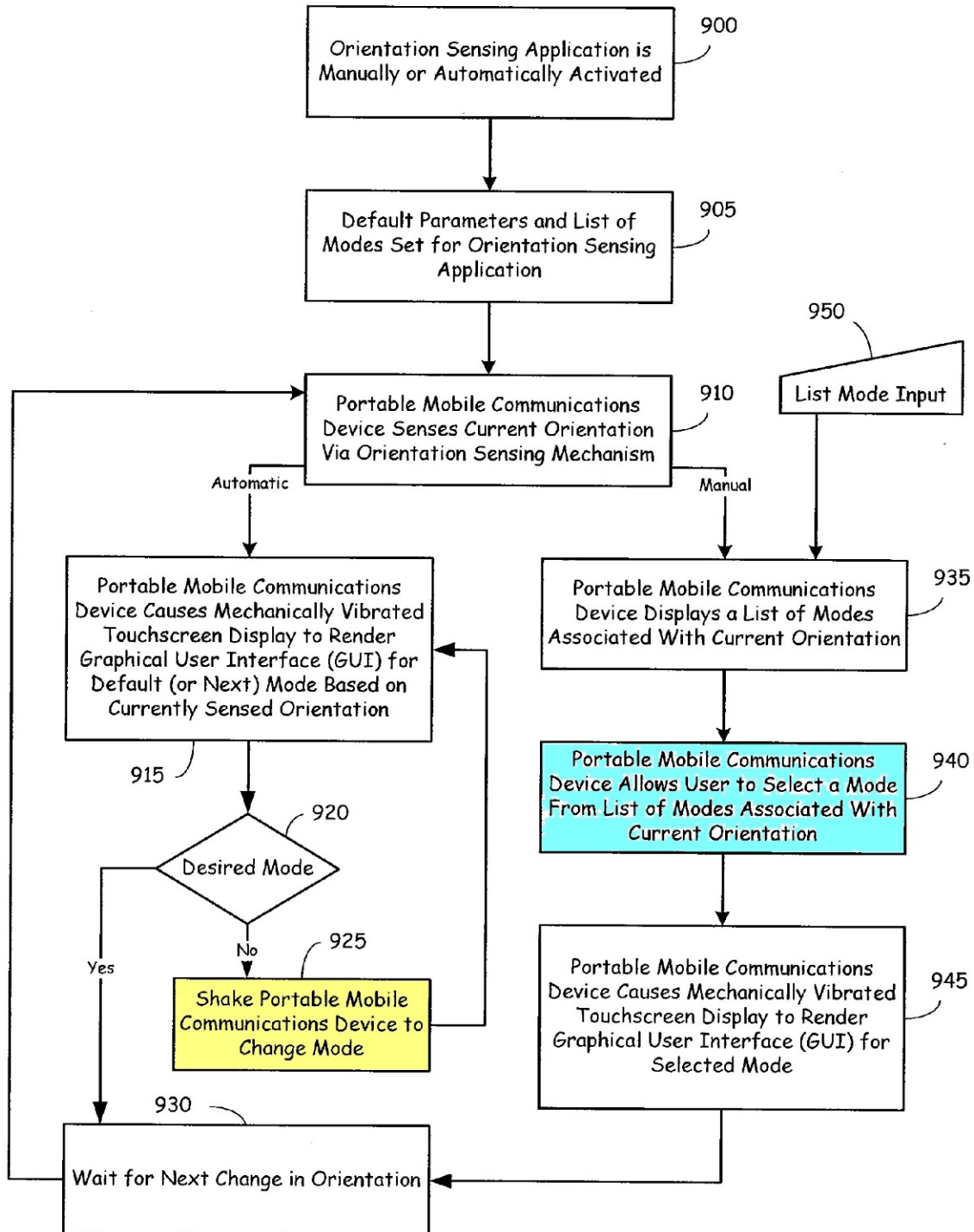
(Exh. 1018, [0103].)

## **C. User Override or Selection of Display Orientation**

### **1. Dunko (Exh. 1019)**

U.S. Patent No. 7,791,594 (“Dunko”) discloses a portable communications device 100 having an orientation sensing mechanism 110 (e.g., an accelerometer or a gyroscopic device) and an orientation sensing application 130. (Exh. 1019, 3:49-59; Fig. 1.) The orientation sensing application 130 operates in either automatic or manual mode. (*Id.* at 5:65-6:1.) In the automatic mode, the user can override the default display orientation determined by the sensor by shaking the device or pressing a preconfigured virtual button on its surface. (*Id.* at 6:7-24; Fig. 9.) In the manual mode, the user can cycle through all available display orientations via the same input. (*Id.* at 6:34-40; Fig. 9.)

FIGURE 9



## 2. Forstall (Exh. 1020)

U.S. Patent No. 7,978,176 (“Forstall”) discloses a portable device with a screen for which the display orientation is determined by one or more accelerometers, which a user can override via a user gesture. (Exh. 1020, 2:17; 20:28-30; Figs. 5A-5C.)

Figure 5A

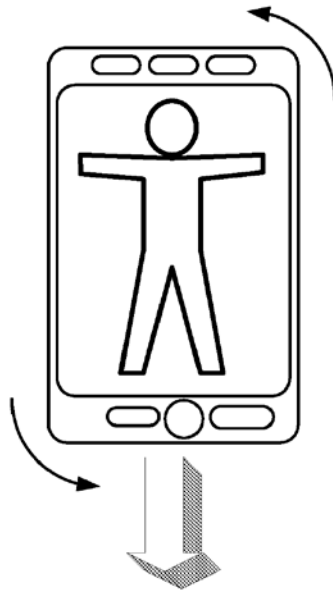


Figure 5B

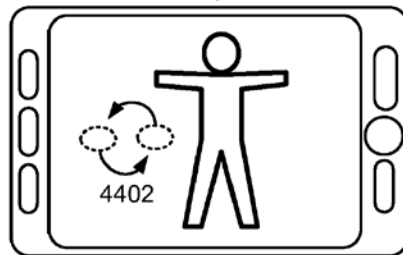
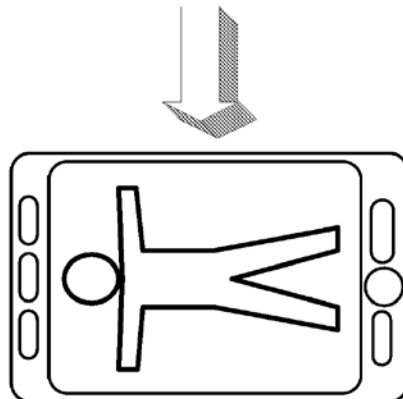


Figure 5C



## **VII. THE CHALLENGED CLAIMS ARE UNPATENTABLE**

### **A. Claim 1 Would Have Been Obvious in View of: [Ground I] Lane and Misawa**

#### **1. Motivation to Combine Lane and Misawa**

Both Lane and Misawa disclose portable electronic devices that can be deployed in multiple configurations. These portable electronic devices each has a base and a display component pivotably coupled by a hinge assembly. A POSA designing a hinge assembly for a portable computer would not have constrained oneself to only prior art portable computers, but would have also considered other prior art portable electronic devices. (Exh. 1004, ¶ 130.)

Lane discloses a double-pivot hinge 54, whereas Misawa discloses a single-pivot hinge 20. A POSA would have recognized that (a) a single-pivot hinge is less mechanically complex than a dual-pivot hinge, and thus less expensive and likely more reliable over the service life of a portable computer; and (b) a dual-pivot hinge is generally unnecessary except to allow the display component to rotate far enough to fold flat against the bottom of the base to deploy the portable computer in tablet mode. Thus, a POSA would have been motivated and able to adapt the portable computer 10 of Lane to use a single-pivot hinge like the hinge 20 taught in Misawa. (Exh. 1004, ¶¶ 113-114 & 131.)

2. **[Preamble] 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:**

To the extent that the preamble of Claim 1 is limiting, Lane discloses a “reconfigurable portable computer.” (Exh. 1017, 1:3-5; Fig. 1.) The portable computer 10 of Lane can be deployed in a closed mode. (*Id.* at 5:17-18 (“nominally ‘closed’ position”); Figs. 2 & 5.) It can also be deployed in a laptop mode in which both its display 35 and its keyboard 36 are accessible. (*Id.* at 5:15-17; Fig. 1.) It can also be deployed in an easel mode, in which its second module 18 (with the display 35) has opened from, or rotated relative to, its first module 14 (with the keyboard 36) by more than 270°, such that only the display 35 is accessible. (*Id.* at 8:12-15; Fig. 8.)

3. **[Element 1.a] a single display component including a display screen;**

The portable computer 10 in Lane has a second module 18 with a visual display 35. (Exh. 1017, 5:4-6; Fig. 1.)

4. **[Element 1.b] a base including a keyboard;**

The portable computer 10 in Lane has a first module 14 with a keyboard 36. (Exh. 1017, 5:4-6; Fig. 1.)

5. **[Element 1.c.i] a hinge assembly at least partially housed within the base and the display component configured to pivotably couple the display component to the base,**

In Lane, the hinge 54 of the portable computer 10 is partially housed within its first module 14 (having a keyboard 36) and its second module (having a display 35). (Exh. 1017, Fig. 1.) Likewise, the hinge 20 of the mobile phone 10 in Misawa is partially housed within its first casing body 14 (having a keypad 12) and its second casing body 18 (having a screen 16). (Exh. 1016, Fig. 1.)

As discussed above in Section VII.A.1, a POSA would have been motivated and able to adapt the portable computer 10 of Lane to use a single-pivot hinge like the hinge 20 taught in Misawa. The resulting hinge of the modified portable computer would pivotably couple and be partially housed within its first module 14 (having a keyboard 36) and its second module (having a display 35). (Exh. 1004, ¶ 139.)

6. **[Element 1.c.ii] wherein the hinge assembly defines a single longitudinal axis running along an interface between the display component and the base,**

As discussed above in Section V.C.1, the prosecution history limits this claim limitation to a single-axis hinge, also referred to a single-pivot hinge. (Exh. 1004, ¶ 140.)

The single-pivot hinge 20 of Misawa defines a single axis — i.e., the common cylindrical axis of its components — that runs along the interface between the first

casing body 14 and second casing body 18. (Exh. 1016, Figs. 2 & 4.) In the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa, the hinge would define a “single longitudinal axis”. (Exh. 1004, ¶ 141.)

**7. [Element 1.c.iii] and wherein the display component and the base are rotatable about the single longitudinal axis;**

In Misawa, the second casing body 18 and the first casing body 14 of the mobile phone 10 are rotatable about the single axis defined by its single-pivot hinge 20. (Exh. 1016, Fig. 12.)

In the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa, the display component and base of the computer would likewise be rotatable about the single longitudinal axis defined by the hinge. (Exh. 1004, ¶ 143.)

**8. [Element 1.d] wherein, in the closed mode, the display screen is disposed substantially against the base;**

The portable computer 10 of Lane can be deployed in a closed mode, wherein its second module 18 (with a display 35) is disposed substantially against its first module 14 (with a keyboard 36). (Exh. 1017, 7:32-8:2; Fig. 5.)

The portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa could likewise be deployed in a closed mode, wherein its display screen would be disposed substantially against its base. (Exh. 1004, ¶ 145.)

9. **[Element 1.e.i] 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,**

The portable computer 10 of Lane can be deployed in a laptop mode by a user opening the hinge 54 up to about 180°. “Fig. 6 ... illustrates second module 18 rotated about axis 62 to form an obtuse angle relative to first module 14.” (Exh. 1017, 8:2-5 (emphasis added); Figs. 1 & 6.)

The portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa could likewise be deployed in a laptop mode by opening the hinge up to about 180°. (Exh. 1004, ¶ 147.)

10. **[Element 1.e.ii] 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;**

The portable computer 10 of Lane can be deployed in a laptop mode in which both its display 35 and its keyboard 36 are accessible. (Exh. 1017, 5:15-17; Figs. 1 & 6.)

11. **[Element 1.f] 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**

The portable computer 10 of Lane can be deployed in an easel mode, in which its second module 18 (with the display 35) has opened from, or rotated relative to,

its first module 14 (with the keyboard 36) by more than 270°. (Exh. 1017, 8:12-15; Fig. 8.)

The portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa could likewise be deployed in an easel mode by opening the hinge up beyond 180°. (Exh. 1004, ¶ 150.) For example, as shown in Figs. 8-9, the hinge 20 of the mobile phone 10 in Misawa “is opened by 300° from the closed state” such that its first casing body 14 and second casing body 18 form an inverted “V”. (Exh. 1016, [0054].)

12. **[Element 1.g] wherein in the easel mode the single display component is oriented facing the operator with the keyboard oriented away from the operator.**

Lane notes that the easel mode is “useful particularly when only visual display 35 need[s] to be accessible” to a user. (Exh. 1017, 8:12-15; Fig. 8.)

**B. Claim 2 Would Have Been Obvious in View of:  
[Ground I] Lane and Misawa**

1. **[Preamble] The portable computer of claim 1,**

See Section VII.A above.

2. **[Element 2.a] wherein the single display component is rotatable about the single longitudinal axis up to approximately 320 degrees from the closed mode.**

In Misawa, the hinge 20 of the mobile phone 10 “is opened by 300° from the closed state” such that its first and second casing bodies 14 and 18 form an inverted “V”. (Exh. 1016, [0054]; Figs. 8-9.)

A POSA would have recognized that the hinge 20 depicted in Fig. 9 can open beyond the stated 300° (but less than 360°) if one was not concerned about blocking the lens 26 of the inline camera unit 22. (Exh. 1004, ¶ 154.) In Lane, the camera 34 is mounted within the left bezel of the second module 18 which also houses the display 35. (Exh. 1017, Fig. 1.) Thus, a POSA would have had no concern about blocking the lens of the camera 34 of the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa when opening its hinge beyond 300°. (Exh. 1004, ¶ 155.)

A POSA would also have understood that the maximum opening angle of a single-pivot hinge is a basic engineering design choice that depends on the structure of the hinge, including factors such as the hinge diameter relative to the respective thicknesses of the display and the base, whether their respective cross-sections taper toward the hinge, and the distance and location of the hinge axis relative to main bodies of the display and the base. (Exh. 1004, ¶ 156.) For example, to increase the maximum opening angle of a single-pivot hinge for a portable computer, a POSA would have known to increase (a) the hinge diameter relative to the respective thicknesses of the display and the base, and/or (b) the distance of the hinge axis from the main bodies of the display and the base. (*Id.* at ¶ 157.) Thus, it would have been well within the capability of a POSA to design and implement a single-pivot hinge for the portable computer 10 of Lane to open to 320°. (*Id.*)

**C. Claim 3 Would Have Been Obvious in View of:**  
**[Ground I] Lane and Misawa; or**  
**[Ground II] Lane, Hisano, and Misawa**

**1. Motivation to Combine Hisano with Lane and Misawa**

Both Lane and Hisano are directed to a portable computer comprising two housings joined by a dual-pivot hinge. Each reference discloses a portable computer that can be deployed in both a laptop mode and an easel mode. (Exh. 1004, (¶¶ 115 & 123-124.) Both references disclose — or at least clearly suggest — including an orientation sensor in each of the two housings of the portable computer. (*Id.* at ¶¶ 117-121 & 127.) Based on the structural similarities between the respective portable computers of Lane and Hisano, a POSA would have recognized that the teachings in one reference would apply to the other. (*Id.* at ¶ 158.) A POSA would also have been capable of applying the teachings in Hisano to the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa. (*Id.*)

**2. [Preamble] The portable computer of claim 1,**

See Section VII.A above.

3. **[Element 3.a] further comprising a display orientation module that displays content on the display screen in one of a plurality of content orientations relative to the single longitudinal axis.**

a. **[Ground I] Lane and Misawa**

Lane discloses a portable computer 10 having “associated software” that determines, based on input from its spatial orientation sensor 38, “whether the information to appear on visual display 35 should be in ‘landscape’ or ‘portrait’ position as the visual display 35 is spatially configured.” (Exh. 1017, 5:32-6:5.)

A POSA would have recognized that Lane does not suggest that the display orientation adjustment is limited to switching between the “landscape” and “portrait” orientations. Rather, common sense would have informed a POSA to configure the portable computer 10 to adjust the display orientation properly relative to a user according to the spatial orientation of the second module 18 which houses the display 35, especially in view of Lane’s express disclosure of an easel mode (Fig. 8). Thus, a POSA would have understood Lane to suggest a third display orientation for the easel mode which would be inverted (i.e., rotated 180°) relative to the display orientation in the laptop mode (Fig. 6). (Exh. 1004, ¶¶ 119 & 161.)

Thus, the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa would have a display orientation module that displays content on the display 35 in multiple display orientations relative to the

single longitudinal axis, including: (a) landscape, (b) portrait, and (c) inverted relative to landscape. (Exh. 1004, ¶ 162.)

**b. [Ground II] Lane, Hisano, and Misawa**

Section VII.C.3.a above is incorporated by reference.

Both Lane and Hisano teach switching between landscape and portrait display orientations. (Exh. 1004, ¶¶ 117 & 129.)

To the extent that LiTL contends that Lane does not teach or suggest an inverted display orientation for the easel mode, Hisano expressly does so. (Exh. 1004, ¶ 164.) In connection with the transition between laptop mode and easel mode, Hisano teaches inverting the display orientation — i.e., switching between a first display orientation, where the edge of the screen closer to the hinges is the top of the display, and a second display orientation, where the edge of the screen farther from the hinges is the top of the display — based upon a change in the display mode as reflected by the opening angle of the hinges 130A and 130B or by the relative orientations of the two housings 2 and 4. (Exh. 1018, [0098]-[0100]; Exh. 1004, ¶ 165.)

A POSA would have recognized that the display orientation module of the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa can incorporate Hisano's teachings regarding inverting the display orientation, such that it could display content on the display 35 in multiple

display orientations relative to the single longitudinal axis, including: (a) landscape, (b) portrait, and (c) inverted relative to landscape. (Exh. 1004, ¶ 167.)

**D. Claim 4 Would Have Been Obvious in View of:**  
**[Ground II] Lane, Hisano, and Misawa**

**1. [Preamble] The portable computer of claim 3,**

See Section VII.C above.

**2. [Element 4.a] further comprising a mode sensor which detects a current display mode of the portable computer; and**

As discussed above in Section V.C.2, this limitation should be construed as “a mode sensor that determines the current relative orientation of the display component to the base component”, which covers a sensor that determines the angle between the two components.

Hisano teaches switching the display orientations of the LCD panels 8 and 18 based on the relative spatial orientation of the two housings 2 and 4, including the opening angle of hinges 130A and 130B between the two housings. (Exh. 1004, ¶ 172.)

The portable computer of Hisano has two touchscreen displays, LCD panels 8 and 18, respectively installed within housings 2 and 4, which are joined by hinges 130A and 130B. (Exh. 1018, Fig. 9.) Hisano teaches inverting (i.e., rotating by 180°) the display orientation of an LCD panel based on the opening angle of the hinges 130A and 130B in connection with the transition between the laptop mode

and easel mode. (*Id.* at [0099]; Exh. 1004, ¶ 125.) Thus, Hisano teaches a mode sensor that determines the current relative orientation of the display component to the base component by determining the opening angle of its two hinges. (Exh. 1004, ¶ 174.)

Hisano also teaches inverting the display orientation of an LCD panel based on the input of an orientation sensor in the corresponding housing. (Exh. 1004, ¶¶ 126-127.) The orientation sensor in each housing (2 or 4) detects whether the corresponding LCD panel (8 or 18, respectively) is either:

- “almost parallel to the desk surface,” and switches that LCD panel “to the input interface 133,” or
- “standing from the desk surface,” and switches that LCD panel “to the display surface.” (Exh. 1018, [0100]; Exh. 1004, ¶ 175.)

A POSA would have recognized that the portable computer can detect a laptop mode (e.g., Fig. 10) when the orientation sensors indicate that one LCD panel is “almost parallel to the desk surface” while the other LCD panel is “standing from the desk surface,” so that a user can operate the portable computer on the former while checking the state of the operation on the latter. (Exh. 1018, [0100] & [0098]; Exh. 1004, ¶ 176.)

A POSA would have recognized that the portable computer can also detect an easel mode (e.g., Fig. 9) when the orientation sensors indicate that both LCD panels

are “standing from the desk surface,” so that it “can be used for ... presentations for a small number of people, [where] the operator views information including detailed data relating to the presentation, while the viewers see only slides.” (Exh. 1018, [0100] & [0098]; Exh. 1004, ¶ 177.)

Thus, Hisano also teaches a mode sensor that determines the current relative orientation of the display component to the base component via the input from the orientation sensors incorporated in each component.

3. **[Element 4.b] wherein the display orientation module displays content on the display screen in the one of the plurality of content orientations dependent on the current display mode detected by the mode sensor.**

As discussed above, Hisano teaches inverting the display orientation of an LCD panel based on the opening angle of the hinges 130A and 130B joining the two housings 2 and 4 of the portable computer in connection with its transition between the laptop mode and easel mode. (Exh. 1018, [0098]-[0099].)

Thus, Hisano teaches the display of content on the LCD panel in one of at least two display orientations, e.g., landscape (in laptop mode) and inverted (in easel mode, based on the display mode of the portable computer as determined by the opening angle of its hinges 130A and 130B. (Exh. 1004, ¶ 179.)

As discussed above in Section VII.D.2, the portable computer of Hisano also detects its display mode based on orientation sensors incorporated in each of its two housings 2 and 4, which provide information on the relative spatial orientation of the

two housings. (Exh. 1004, ¶ 180.) The goal of adjusting display orientation based on the input of these orientation sensors is “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,” so as “to always provide a fixed input and display environment for the user regardless of the installation of the personal computer.” (Exh. 1018, [0099]-[0100].) Thus, a POSA would have also understood that the portable computer of Hisano is capable of switching between at least two display orientations (i.e., landscape and inverted) based on the current display mode. (Exh. 1004, ¶ 180.)

**E. Claim 5 Would Have Been Obvious in View of:**

**[Ground I] Lane and Misawa; or**

**[Ground II] Lane, Hisano, and Misawa**

**1. [Preamble] The portable computer of claim 3,**

See Section VII.C above.

**2. [Element 5.a] wherein the display orientation module is configured to display 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.**

As discussed above in Sections VII.C.3, a portable computer according to either (a) the combination of Lane and Misawa or (b) the combination of Lane, Hisano, and Misawa would have a display orientation module that displays content

on the display 35 in (1) a landscape display orientation when deployed in the laptop mode and (2) an inverted (relative to landscape) display orientation when deployed in the easel mode. (Exh. 1004, ¶ 182.)

**F. Claim 6 Would Have Been Obvious in View of:**  
**[Ground I] Lane and Misawa; or**  
**[Ground II] Lane, Hisano, and Misawa**

**1. [Preamble] The portable computer of claim 5,**

See Section VII.E above.

**2. [Element 6.a] wherein the second content orientation is 180 degrees relative to the first orientation.**

With respect to the two display orientations discussed above in Section VII.E.2, the latter is rotated 180° relative to the former. (Exh. 1004, ¶ 184.)

**G. Claim 7 Would Have Been Obvious in View of:**  
**[Ground I] Lane and Misawa; or**  
**[Ground II] Lane, Hisano, and Misawa**

**1. [Preamble] The portable computer of claim 3,**

See Section VII.C above.

**2. [Element 7.a] wherein the plurality of display modes further comprises a flat mode in which the single display component is disposed at an angle of approximately 180 degrees, measured about the single longitudinal axis, relative to the base.**

Lane discloses a flat mode for the portable computer 10 “in which second module 18 has been rotated approximately 180° relative to first module 14 to expose visual display 35.” (Exh. 1017, 8:9-12; Fig. 7.) Hisano likewise discloses a flat

mode. (Exh. 1018, [0087]; Fig. 8.) The single-pivot hinge 20 of Misawa can open to 180°, deploying the mobile phone 10 in “a state in which the second casing body 18 has opened a further 30° to 180° (another rotation position).” (Exh. 1016, [0053]; Figs. 2 & 12.)

**a. [Ground I] Lane and Misawa**

Thus, the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa can be deployed in a flat mode in which its second module 18 (having display 35) is disposed at an angle of 180° relative to its first module 14, as measured about the single longitudinal axis defined by its hinge. (Exh. 1004, ¶ 188.)

**b. [Ground II] Lane, Hisano, and Misawa**

Likewise, the portable computer 10 of Lane modified to implement a single-pivot hinge like the hinge 20 of Misawa and further incorporating Hisano’s teachings on adjusting display orientation can be deployed in a flat mode in which its second module 18 (having display 35) is disposed at an angle of 180° relative to its first module 14, as measured about the single longitudinal axis defined by its hinge. (Exh. 1004, ¶ 189.)

**H. Claim 8 Would Have Been Obvious in View of:**  
**[Ground III] Lane, Misawa, and Dunko;**  
**[Ground IV] Lane, Hisano, Misawa, and Dunko;**  
**[Ground V] Lane, Misawa, and Forstall;**  
**[Ground VI] Lane, Hisano, Misawa, and Forstall**

**1. Motivation to Combine Either Dunko or Forstall with Lane, Hisano, and Misawa**

As discussed above, each of Lane and Hisano discloses an orientation sensor that detects the direction of gravity, and changes the display orientation based on the input from the orientation sensor such that content is displayed the correct way up, i.e., the top of the displayed content is further from the ground than the bottom of the displayed content. (Exh. 1017, 5:25-6:5; Exh. 1018, [0090]-[0100]; Exh. 1004, ¶ 190.)

Each reference also discloses a portable computer that can be deployed in a flat mode, where the display is substantially parallel to the ground. (Exh. 1017, 8:9-12; Fig. 7; Exh. 1018, [0087]; Fig. 8.) A POSA would have recognized that when the display is substantially parallel to the ground, the orientation sensor may be unable to determine the correct way up. (Exh. 1004, ¶ 191.) Thus, a POSA would have also realized that it would be advantageous to enable a user to select the display orientation when the portable computer is deployed in the flat mode, depending on the use case. (*Id.*)

For example, the user may view the screen while using the keyboard housed in the base, in which case the top of the content displayed should be further away

from the keyboard, resulting in the same display orientation (i.e., landscape) as the laptop mode. (Exh. 1004, ¶ 192.)

In another example, the user may review a document one full page at a time, in which case the portrait display orientation may be advantageous to use more of the screen to display the document at a higher zoom level. (Exh. 1004, ¶ 193.)

In yet another example, the user may use the keyboard while showing the screen to a viewer sitting across from the user, in which case the inverted display orientation may be advantageous to accommodate the viewer, resulting in the same display orientation (i.e., inverted) as the easel mode. (Exh. 1004, ¶ 194.)

Thus, a POSA would have been motivated to add a user-selectable display orientation function — for example, as suggested by Dunko or Forstall — to the portable computer taught by (a) the combination of Lane and Misawa, and (b) the combination of Lane, Hisano, and Misawa, when it is deployed in a flat mode, as discussed in further detail below in Section VII.H.4.

**2. [Preamble] The portable computer of claim 7,**

See Section VII.G above.

**3. [Element 8.a] wherein the plurality of content orientations comprises a first content orientation relative to the single longitudinal axis, a second content orientation relative to the single longitudinal axis, and a third content orientation relative to the single longitudinal axis; and**

See Sections VII.C.3 and VII.H.1 above.

4. **[Element 8.b] wherein, in the flat mode, the content displayed on the display screen is configurable among the first, second and third content orientations responsive to a user input.**

As discussed above, Lane discloses a portable computer 10 having “associated software” that determines, based on input from its spatial orientation sensor 38, the proper display orientation for the content visually presented on its display. A POSA would have been motivated and able to add a user-selectable display orientation function to such software. (Exh. 1004, ¶ 198.)

A POSA designing a user-selectable display orientation function to a portable computer would not have constrained oneself to only prior art portable computers, but would have also considered other prior art portable electronic devices. (Exh. 1004, ¶ 201.) For example, Dunko notes that its disclosure is “described in the context of fully functioning computers and computer systems.” (Exh. 1019, 7:4-6.) Forstall notes that “some of the user interfaces and associated processes [disclosed therein] may be applied to other devices, such as personal computers and laptop computers.” (Exh. 1020, 8:20-26.)

- a. **[Ground III] Lane, Misawa, and Dunko;  
[Ground IV] Lane, Hisano, Misawa, and Dunko**

Dunko discloses a portable mobile communications device 100 having an orientation sensing mechanism 110 (e.g., an accelerometer or a gyroscopic device) and an orientation sensing application 130. (Exh. 1019, 3:49-59; Fig. 1.) The

orientation sensing application 130 operates in either automatic or manual mode. (*Id.* at 5:65-6:1.) In the automatic mode, the user can override the default display orientation determined by the sensor by shaking the device or pressing a preconfigured virtual button on its surface. (*Id.* at 6:7-24; Fig. 9.) In the manual mode, the user can cycle through all available display orientations via the same input. (*Id.* at 6:34-40; Fig. 9.) (See also Exh. 1004, ¶ 199.)

**b. [Ground V] Lane, Misawa, and Forstall;  
[Ground VI] Lane, Hisano, Misawa, and Forstall**

Forstall also discloses a portable device with a screen for which the display orientation is determined by one or more accelerometers, which a user can override via a user gesture. (Exh. 1020, 2:17; 20:28-30; Fig. 5B.) (See also Exh. 1004, ¶ 200.)

**I. Claim 9 Would Have Been Obvious in View of:  
[Ground III] Lane, Misawa, and Dunko;  
[Ground IV] Lane, Hisano, Misawa, and Dunko;  
[Ground V] Lane, Misawa, and Forstall;  
[Ground VI] Lane, Hisano, Misawa, and Forstall**

**1. [Preamble] The portable computer of claim 8,**

See Section VII.H above.

**2. [Element 9.a] wherein the second content orientation is 90 degrees relative to the first content orientation; and**

As discussed above in Sections VII.C.3, a portable computer according to either (a) the combination of Lane and Misawa or (b) the combination of Lane, Hisano, and Misawa would have a display orientation module that displays content

on the display 35 in three display orientations relative to the single longitudinal axis, including: (a) landscape, (b) portrait, and (c) inverted relative to landscape. The portrait display orientation is 90° relative to the landscape display orientation. (Exh. 1004, ¶¶ 203-204.)

**3. [Element 9.b] wherein the third content orientation is 180 degrees relative to the first content orientation.**

As discussed above in Sections VII.C.3, a portable computer according to either (a) the combination of Lane and Misawa or (b) the combination of Lane, Hisano, and Misawa would have a display orientation module that displays content on the display 35 in three display orientations relative to the single longitudinal axis, including: (a) landscape, (b) portrait, and (c) inverted relative to landscape. The inverted display orientation is 180° relative to the landscape display orientation. (Exh. 1004, ¶¶ 205-206.)

**J. Claim 10 Would Have Been Obvious in View of:  
[Ground VII] Lane, Misawa, and Nako**

**1. Motivation to Combine Nako with Lane and Misawa**

A POSA would have known that portable computers are generally equipped with rubber feet or strips on the underside of the base to deter them from sliding when placed on a desk or another surface. (Exh. 1004, ¶ 207.) A POSA would have further recognized that the rubber feet or strips underneath the base may not contact the desk (sufficiently or at all) when a portable computer is deployed in an easel

mode, in which the reduced contact area between the edges of its housings and the desk makes it even more prone to sliding. (*Id.* at ¶ 208.) Thus, a POSA would have been motivated to modify the housing edges contacting the desk to reduce sliding when the portable computer is deployed in an easel mode, as taught by Nako, discussed in further detail below in Section VII.J.3.b. (*Id.*)

**2. [Preamble] The portable computer of claim 1,**

See Section VII.A above.

**3. [Element 10.a] further comprising: a foot disposed along at least a portion of the base and configured to support the portable computer when in the easel mode.**

According to the '688 Patent, “a cushioning strip 130 disposed along an edge of the base 104 opposite to the [hinge] between the display component 102 and the base [104], ... which may comprise rubber, a polymer, or another suitable material, may serve as a ‘foot’ when the portable computer is configured into the easel mode.” (Exh. 1001, 7:37-43; Fig. 3.)

U.S. Patent Appl. Pub. No. 2004/0212602 A1 (“Nako”) discloses a portable display device having two flat displays 4A and 4B joined by a hinge 51 having an axis 53. (Exh. 1021, [0134]; Fig. 19.) The device may be deployed in an easel mode, where “flat displays 4A and 4B are stood on a flat surface for use.” (*Id.* at [0192]; Fig. 46.) Nako teaches that the respective edges of the two flat displays 4A and 4B which are “in contact with the flat surface” are “coated with a material having a great

friction coefficient such as a rubber 120 for preventing slipping of the display device.” (*Id.*)

**K. Claim 23 Would Have Been Obvious in View of:  
[Ground II] Lane, Hisano, and Misawa**

**1. [Preamble] The portable computer of claim 1,**

See Section VII.A above.

**2. [Element 23.a] further comprising at least one integrated navigation hardware control,**

As discussed above in Section V.C.4, this limitation should be construed together with Element 23.c (see Section VII.K.4 below) as “built-in navigation hardware control which can be operated by a user to control features and manipulate content displayed on the portable computer.” (Exh. 1004, ¶¶ 214-216.)

As discussed above in Section VII.C.1, a POSA would have been motivated to combine Hisano with Lane and Misawa. The display 35 of the portable computer 10 in Lane can receive pen-based input. (Exh. 1017, 3:7-14; 8:15-19; Fig. 9.) Hisano discloses built-in touch LCD panels 8 and 18 by which a user can control features and manipulate content displayed on screen. (Exh. 1018, e.g., [0059]; [0065]-[0067].) A POSA would have been motivated to further substitute the pen-based display 35 of Lane with a touch LCD panel to improve the portable computer’s ease of use. (Exh. 1004, ¶ 218.)

Thus, the portable computer taught by the combination of Hisano with Lane and Misawa would have a built-in navigation hardware control (i.e., a touch screen) by which a user can control features and manipulate content displayed on screen. (Exh. 1004, ¶ 219.)

3. **[Element 23.b] wherein at least one of the at least one integrated navigation hardware control is accessible in at least the laptop and easel modes,**

The touch screen of the portable computer taught by the combination of Hisano with Lane and Misawa would be accessible in both the laptop and easel modes. (Exh. 1017, Fig. 6 (laptop mode) and Fig. 8 (easel mode); Exh. 1004, ¶ 220.)

4. **[Element 23.c] and wherein the integrated navigation hardware can be operated by a user to control features and manipulate content displayed on the portable computer,**

See Section VII.K.2 above.

5. **[Element 23.d] including any mode wherein the keyboard is inaccessible or oriented away from the user.**

The touch screen of the portable computer taught by the combination of Hisano with Lane and Misawa would be accessible in both the easel and frame modes. (Exh. 1017, Fig. 8 (easel mode) and Fig. 25 (frame mode); Exh. 1004, ¶ 222.)

## **VIII. DISCRETIONARY DENIAL IS NOT WARRANTED**

### **A. Discretionary Denial Under Section 314(a) is Not Warranted**

Discretionary denial is not warranted under *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB 3/20/2020) (precedential) (“Fintiv”), pursuant to the Interim Procedure for Discretionary Denial in AIA Post-Grant Proceedings with Parallel District Court Litigation dated June 21, 2022 (“Interim Guidance”) and recent Board decisions applying the Interim Guidance.

#### **1. Fintiv Factor #1: No Request for Stay**

In the related district court actions pending in the District of Delaware, neither LiTL nor Petitioners has requested a stay (Exhs. 1023-1025), so this factor is neutral. *Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 (“*Sand Revolution II*”) at 7 (PTAB 6/16/2020) (informative) (the Board “will not attempt to predict” how the district court will proceed if a stay has not been requested by either party).

#### **2. Fintiv Factor #2: Later District Court Trial Date**

“[W]hen considering the proximity of the district court’s trial date to the date when the PTAB final written decision will be due, the PTAB will consider the median time from filing to disposition of the civil trial for the district in which the parallel litigation resides.” Interim Guidance at 3. In the latest available Judicial

Caseload Profile dated September 30, 2023,<sup>3</sup> the page for the District of Delaware indicates a median time of 37.8 months from filing to trial. (Exh. 1022.) All three related district court actions were filed on February 1, 2023. (Exh. 1023 at 4; Exh. 1024 at 5; Exh. 1025 at 4.) Thus, the statistic “predicts” a prospective trial date in late March 2026. The district court has recently issued a scheduling order scheduling trials for the related district court actions in the first quarter of 2026. (Exh. 1026 at 16.) Whereas, the due date for a final written decision here is approximately August 2025. Thus, this factor weighs against discretionary denial.

### **3. *Fintiv* Factor #3: Little Investment in the District Court Actions**

The district court and the parties have invested very little in the related district court actions to date. LiTL has not served infringement contentions, and Petitioners have not served invalidity contentions; these contentions are not due until April 1, 2024 and May 1, 2024, respectively. (Exh. 1026 at 8 (required disclosures pursuant to Delaware Default ESI Rules 4(c) and 4(d)); Exh. 1027 at 4-5 (Rules 4(c) and 4(d) correspond respectively to infringement and invalidity contentions).) The parties have not yet undertaken substantial discovery, no claim construction exchange has taken place, and a Markman hearing will not be held until October 10, 2024. (Exh. 1026 at 11-13.) Nor has the district court issued any other substantive orders related

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<sup>3</sup> [https://www.uscourts.gov/sites/default/files/fcms\\_na\\_distprofile0930.2023.pdf](https://www.uscourts.gov/sites/default/files/fcms_na_distprofile0930.2023.pdf)

to the '688 Patent. (Exhs. 1023-1025.) Thus, this factor also weighs against discretionary denial.

**4. *Fintiv* Factor #4: No Overlap in Issues**

As discussed above in Section VIII.A.2, the anticipated final written decision in this proceeding will issue several months before the prospective trial date in the district court. Thus, estoppel under 35 U.S.C. § 315(e) will mitigate the risk of any adjudication of overlapping issues at least to the extent of a stipulation of the type discussed in *Sand Revolution II*. Thus, this factor weighs at least marginally against discretionary denial. *Sand Revolution II* at 11-12, n. 5.

**5. *Fintiv* Factor #5: Same Parties**

LiTL is the plaintiff in all three related district court actions, and Petitioners are the respective defendants in those cases. (Exhs. 1023-1025.) Thus, this factor weighs against discretionary denial. *Samsung Elecs. Co., Ltd. v. Staton Techiya, LLC*, IPR2022-00302, Paper 13 at 18-19 (PTAB 7/11/2022); *CrowdStrike, Inc. v. Open Text Inc.*, IPR2023-00289, Paper 7 at 16 (PTAB 7/21/2023).

**6. *Fintiv* Factor #6: Compelling Evidence of Unpatentability Mandates Institution Under the Interim Guidance**

Petitioners have set forth compelling evidence of the unpatentability of the challenged claims. This conclusion is bolstered by the fact that all other claims of the '688 Patent have already been rejected under § 103 in a final office action in *ex parte* reexamination no. 90/015,035 ("EPR"), except for Claim 29, which LiTL had

disclaimed in its preliminary response to a prior *inter partes* review by Lenovo.<sup>4</sup> (Exh. 1002 at 486 & 494 fn. 1; Exh. 1011 at 4.) The rejections in the EPR cite the same prior art cited herein to challenge Claims 1-10 and 23. (Exh. 1011 at 2.) In response to the final rejection, LiTL cancelled Claims 12-16, 20, and 24-26. (Exh. 1012 at 2.) “[W]here the PTAB determines that the information presented at the institution stage presents a compelling unpatentability challenge, that determination alone demonstrates that the PTAB should not discretionarily deny institution under *Fintiv*.” (Interim Guidance at 4-5; *Vizio, Inc. v. Maxell, Ltd.*, IPR2022-01458, Paper 8 at 62 (PTAB 4/11/2023) (declining to exercise discretionary denial despite *Fintiv*

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<sup>4</sup> In IPR2021-00681, Lenovo requested review of Claims 1-9 and 11-32 of the ’688 Patent, citing Shimura in all § 103 grounds. (Exh. 1002 at 494.) The Board denied institution without reaching the applicability of the cited references because “[t]he structure of the petition creates a lack of clarity” that “begins with the labyrinthine way Petitioner chooses to present its unpatentability arguments.” (*Id.* at 500.) “[T]he Petition provides deficient arguments that fail to explain Petitioner’s positions fully. Where the Petition provides some explanation, it does so only through a web of internal cross-references that require the reader to engage in extensive analysis just to decipher what is being argued, much less evaluate the merits of that argument.” (*Id.* at 507.)

factors 1-5 all weighing in favor thereof because petitioner presented a compelling, meritorious challenge to patentability).)

In sum, not a single *Fintiv* factor weighs in favor of a discretionary denial, whereas *Fintiv* factors #2 through #5 all weigh against a discretionary denial. And, under *Fintiv* factor #6, the compelling evidence of the unpatentability presented by Petitioners here further warrants institution.

**B. Discretionary Denial Under Section 325(d) is Not Warranted**

Under the two-part framework set forth in *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8-9 (PTAB 2/13/2020), the Board should not exercise its § 325(d) discretion to deny institution.

Under the first part of this framework, although the same art was previously presented to the Office (as discussed above for *Fintiv* factor #6), the same art was previously presented against other claims of the '688 Patent. Thus, the concerns of duplicative efforts and due deference to prior evaluations by the Office underlying Section 325(d) do not arise from instituting this petition as to the claims challenged herein.

Moreover, the second part of this framework — which requires a challenger to show a material error regarding patentability by the examiner in view of six non-exclusive *Becton, Dickinson* factors (*id.* at 8) — must be understood in view of the cited *Becton, Dickinson* decision. In *Becton, Dickinson*, the petitioner challenged a

patent citing the same art that the Office had considered during its initial examination and allowed the patent. (*Id.* at 9-10; *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 16-17 (PTAB 12/15/2017).) Thus, the “material error” requirement makes sense as a prerequisite to allow a subsequent challenge to the patent in an *inter partes* review based on the same art. Conversely, imposing that requirement makes no sense here, which involves the polar opposite: Petitioners challenge the ’688 Patent citing the same art that the Office had considered during a reexamination and rejected the other claims of the ’688 Patent. As discussed above (for *Fintiv* factor #6), those rejections based on the same art should instead bolster Petitioners’ challenge to the ’688 Patent.

## **IX. CONCLUSION**

For the foregoing reasons, Petitioners respectfully request *inter partes* review and cancellation of Claims 1-10 and 23 of the ’688 Patent.

Respectfully submitted,

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## CERTIFICATE OF COMPLIANCE

I, the undersigned, hereby certify that the above Petition for *Inter Partes* Review complies with the type-volume limitations of 37 C.F.R. § 42.24(a)(1)(i). Exclusive of the portions exempted by 37 C.F.R. § 42.24(a)(1), this Petition, including footnotes, contains 11,684 words as counted by the word count function of Microsoft Word.

Dated: January 31, 2024

By: /Raymond K. Chan/  
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## CERTIFICATE OF SERVICE

I, the undersigned, hereby certify that a copy of the above Petition for *Inter Partes* Review of U.S. Patent No. 8,289,688, along with all exhibits supporting and filed with the Petition, were served on January 31, 2024 via electronic means, as agreed by the Patent Owner, at the following email addresses:

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