

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG ELECTRONICS
AMERICA, INC.,

Petitioners,

v.

KEYLESS LICENSING LLC,

Patent Owner.

Case No. IPR2025-00529
U.S. Patent No. 11,503,144

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,503,144**

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Ex. 1005	Prosecution File History of U.S. Application No. 14/146,125
Ex. 1006	Prosecution File History of U.S. Application No. 10/553,575
Ex. 1007	U.S. Provisional Application No. 60/463,844
Ex. 1008	U.S. Provisional Application No. 60/466,594
Ex. 1009	U.S. Provisional Application No. 60/468,028
Ex. 1010	U.S. Provisional Application No. 60/474,447
Ex. 1011	U.S. Provisional Application No. 60/475,533
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Ex. 1021	European Patent Application Pub. No. 1229428 to Pensjo, filed on February 2, 2001, and published on July 8, 2002 (“ <i>Pensjo</i> ”)
Ex. 1022	RESERVED
Ex. 1023	International Patent Application Pub. No. 2004/070871 to Wedel et al., filed on February 4, 2004, and published on August 19, 2004 (“ <i>Wedel</i> ”)
Ex. 1024	Japanese Patent Application Pub. No. 2000-151774 to Yamaguchi, filed on November 9, 1998, and published on May 30, 2000 (“ <i>Yamaguchi</i> ”), including certified English translation and certification
Ex. 1025	U.S. Patent No. 5,848,356 to Jambhekar et al., filed on October 2, 1995, and issued on December 8, 1998 (“ <i>Jambhekar</i> ”)
Ex. 1026	French Patent Application Pub. No. 2830093 to Benoit et al., filed on September 25, 2001, and published on March 28, 2003 (“ <i>Benoit</i> ”), including certified English translation and certification
Ex. 1027	United Kingdom Patent Application Pub. No. 2331204 to Kobayashi, filed on November 5, 1998, and published on May 12, 1999 (“ <i>Kobayashi</i> ”)
Ex. 1028	German Patent Application Pub. No. 10122229 to Dutta, filed on May 8, 2001, and published on December 13, 2001 (“ <i>Dutta</i> ”), including certified English translation and certification
Ex. 1029	U.S. Patent Application Pub. No. 2003/0022701 to Gupta, filed July 25, 2001, and published on January 30, 2003 (“ <i>Gupta</i> ”)
Ex. 1030	U.S. Patent No. 5,537,608 to Beatty et al., filed on June 2, 1995, and issued on July 16, 1996 (“ <i>Beatty</i> ”)
Ex. 1031	European Patent Application Pub. No. 0651544A2 to Allard et al., filed on October 28, 1994, and published on May 3, 1995 (“ <i>Allard</i> ”)
Ex. 1032	U.S. Patent Application Pub. No. 2002/0067346 to Mouton, filed on September 21, 2001, and published on June 6, 2002 (“ <i>Mouton</i> ”)

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Ex. 1033	U.S. Patent No. 6,751,487 to Rydbeck et al., filed on February 8, 2000, and issued on June 15, 2004 (“ <i>Rydbeck</i> ”)
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Ex. 1035	U.S. Design Patent No. D284,759 to Nagele, filed on October 25, 1983, and issued on July 22, 1986 (“ <i>Nagele</i> ”)
Ex. 1036	U.S. Patent Application Pub. No. 2003/0048257 to Mattila, filed on September 6, 2001, and published on March 13, 2003 (“ <i>Mattila</i> ”)
Ex. 1037	U.S. Patent Application Pub. No. 2001/0044281 to Peterzell et al., filed on June 15, 1998, and published on November 22, 2001 (“ <i>Peterzell</i> ”)
Ex. 1038	European Patent Application Pub. No. 1379101 to Erixon et al., filed on July 1, 2002, and published on January 7, 2004 (“ <i>Erixon</i> ”)
Ex. 1039	European Patent Application Pub. No. 0399176 to Tattari, filed on March 28, 1990, and published on November 28, 1990 (“ <i>Tattari</i> ”)
Ex. 1040	U.S. Patent Application No. 14/146,125 to Ghassabian, filed on January 2, 2014
Ex. 1041	U.S. Patent Application No. 10/553,575 to Ghassabian, filed on October 17, 2005
Ex. 1042	International Patent Application No. PCT/US2004/012082 to Ghassabian, filed on April 19, 2004
Ex. 1043	<i>Keyless Licensing LLC v. Samsung Electronics Co., Ltd. et al.</i> , Case No. 2:24-cv-00464-JRG, Plaintiff’s Infringement Contentions Cover Pleading (E.D. Tex. Jan. 5, 2023)
Ex. 1044	<i>Keyless Licensing LLC v. Samsung Electronics Co., Ltd. et al.</i> , Case No. 2:24-cv-00464-JRG, Plaintiff’s Infringement Contentions Claim Chart for U.S. Patent No. 11,503,144 (E.D. Tex. Oct. 9, 2024)
Ex. 1045	“Sony Ericsson P800 User’s Manual,” Federal Communications Commission (FCC) ID: PY77130501 – Sony Ericsson’s Application for

Exhibit	Description
	Equipment Authorization, Exhibit 8, published on October 15, 2002
Ex. 1046	“Microsoft Lumia 640 LTE – Full phone specifications,” first available on March 4, 2015, Wayback Machine URL: https://web.archive.org/web/20150304170913/https://www.gsmarena.com/microsoft_lumia_640_lte-7055.php
Ex. 1047	U.S. Patent Application No. 60/449,701, filed on February 24, 2003.
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Ex. 1050	RESERVED
Ex. 1051	U.S. Patent Application Pub. No. 2004/0204125 to Messel et al., filed on March 13, 2002, and published on October 14, 2004 (“ <i>Messel</i> ”)
Ex. 1052	Bernhard Konrad and Martin Ashauer, <i>Demystifying Piezoresistive Pressure Sensors</i> , Sensors Magazine, July 1999, Vol. 16, No. 7: 12-25.

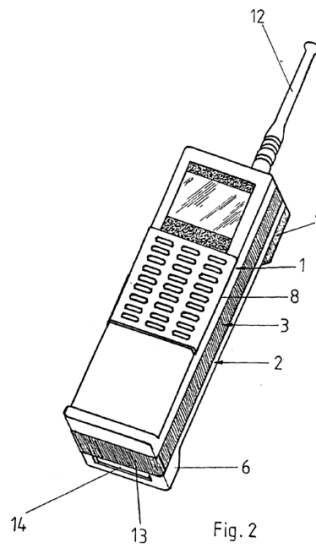
I. PRELIMINARY STATEMENT

Petitioners Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc., request IPR of claims 1-5 and 7-20 of U.S. Patent No. 11,503,144, assigned to Patent Owner Keyless Licensing LLC (“Keyless”). The patent relates to a data entry method for small electronic devices. Ex. 1001, 1:31-35, 1:66-2:3, 7:25-32. The claims of the ’144 patent recite a variety of dimensional and touchscreen features, all of which were well known at the time of the invention. For example, the claims recite a “mobile phone device [that] does not include a physical key on the front surface” (claim 1), a “front surface ... [that] does not have a physical button” (claim 9), and a “display unit occupying practically the entire surface of the front surface” (claim 15). But these and the other features recited in the claims were all known to persons having ordinary skill in the art (“POSITAs”).

Years before the earliest claimed priority date of the ’144 patent, the mobile device industry moved towards larger touch-based screens while removing physical buttons from the front surface in favor of a virtual interface. And many prior-art mobile devices, like *Pensjo*, already included pocket-sized designs with large touchscreen displays and buttonless front surfaces. Therefore, the claimed features of the ’144 patent were either taught or obvious over the prior art. Petitioners request that the Board institute IPR and cancel all challenged claims.

II. STATE OF THE ART

Early mobile phones (e.g., *Tattari*, below, dated 1990) were thick, bulky, and had small screens. Bederson, ¶¶69-71. Long before the alleged invention of the '144 patent, phone makers realized the benefits of moving away from these bulky designs and creating phones that were “thin,” have “touch sensitive display unit[s]” that “practically occup[y] the entire front surface,” and lack “components ... noticeably extended out from [the phone’s] housing,” as claimed in the '144 patent. Ex. 1001, 104:61, 104:64-65, 104:19, 104:23-28, 106:7-9.

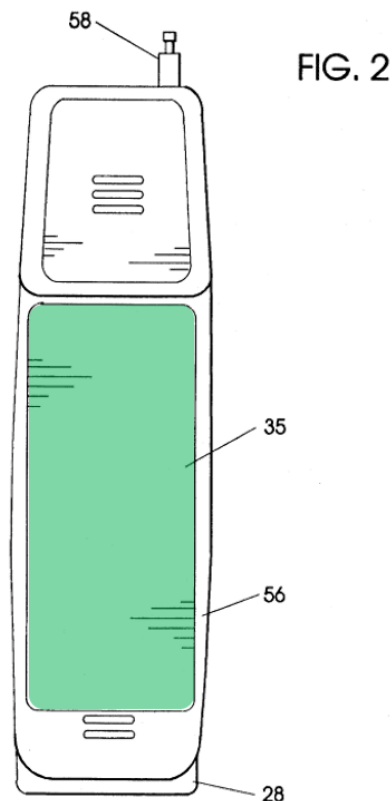


Tattari, Fig. 2.

As early as 1992, mobile-phone hardware and software became ripe for providing “display and user interface facilities necessary to execute many of the personal organizer applications found on personal computers.” *Beatty*, 1:15-18.

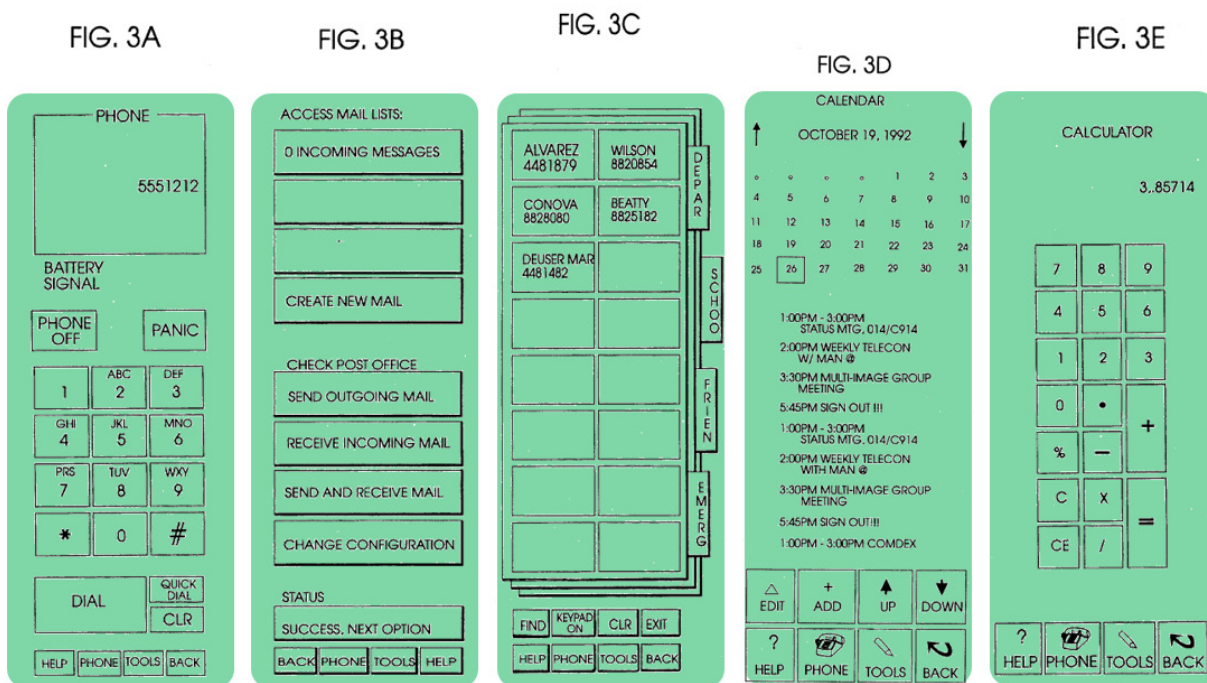
IBM revealed a handset “that integrates the functionality of a personal computer

with the communication possibilities of a cellular telephone to provide an apparatus with sophisticated computing as well as communication functions.” *Id.*, 1:31-35. The front of the IBM phone’s housing 56 is integrated with a speaker 52, a microphone 54, and a user interface 35 featuring a touch overlay 26. *Id.*, 3:51-55. “User interface 35 extends through the housing 56 so that touch overlay 26 is exposed and accessible to the user.” *Id.*, 3:53-55. The components of the phone are “integrate[d] ... into a portable, lightweight package which fits in the user’s hand or pocket.” *Id.*, 3:60-64.



Id., Fig. 2.

User interface 35 can display various applications, e.g., “a phone emulation application,” “an electronic mail application,” “an address book simulation application,” “a calendar application,” “a calculator application,” etc. *Id.*, 4:11-28. It also provides “virtual keys,” such as “PHONE” and “TOOLS,” so that “the user may select an application for execution.” *Id.*, 4:36-41.

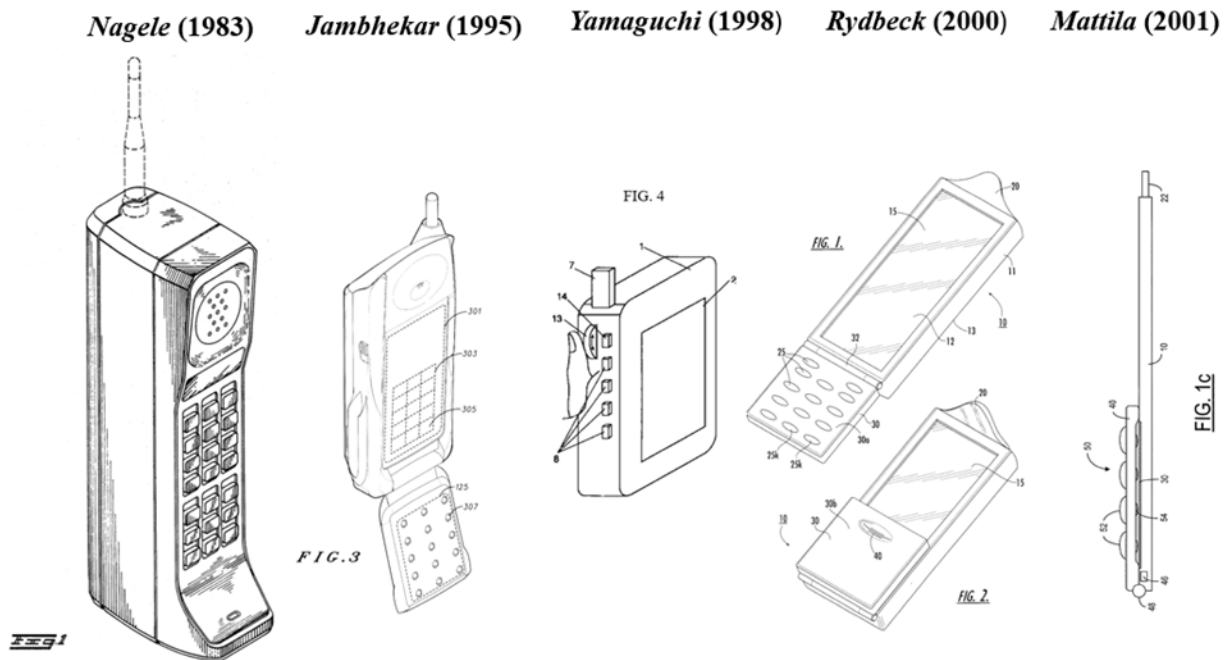


Id., Figs. 3A-3E.

A. Miniaturization and Portability

Phone makers continued to make phones smaller and thinner. *Dutta*, ¶[0002] (“A goal in the ongoing further development of portable terminals consists in continuously reducing its dimensions to make its transport as comfortable as possible.”); *Yamaguchi*, ¶[0007] (“a demand for a size such that the device can fit

in a clothing pocket or the like from the perspective of making the device ‘easily portable anywhere’”); Ex. 1023, 1:17-19 (“Still today, mobile phones are getting smaller and smaller and the size is generally considered to be an important factor for the end customer.”); Bederson, ¶72. “In only a couple of decades”—still before the earliest claimed priority date of the ’144 patent—“the dimensions of the communication terminals have gone from briefcase size to the pocket size phones.” *Wedel*, 1:14-17; Bederson, ¶72. The figures in *Nagele* (Fig. 1), *Jambhekar* (Fig. 3), *Yamaguchi* (Fig. 4), *Rydbeck* (Figs. 1-2), and *Mattila* (Fig. 1c), respectively reproduced below, show this progression through the year 2001.



The development in electronics made it possible to miniaturize the components of the terminals. Bederson, ¶73; *Wedel*, 1:19-21. Benefiting from the advancement in component miniaturization and integration, mobile phones before

the '144 patent were capable of “rendering a very slim profile.” *Erixon*, [0012]; *see also Peterzell*, ¶¶[0027] (“[A] very thin, low-profile rectangular prismatic cell battery is used.”), [0030] (“thinner lithium polymer batteries[] ... no thicker than most of the components within the phone casing”). As early as 1998, five years before the '144 patent, *Yamaguchi* disclosed a phone thickness of just 15mm. *Yamaguchi*, ¶¶[0009], [0015].

B. Full-Length Touchscreen and Buttonless Design

As mobile phones became “smaller, miniaturized, or ‘pocket-sized,’” this put strain on the phone’s display and keyboard. *Rydbeck*, 1:11-19. There was a “need for a small communications device that merges the functions of a personal digital assistant and a telephone, cellular or otherwise, while still providing a display that is large enough for practical information viewing and a keypad that is easy to use.” *Gupta*, ¶[0004]. For example, *Gupta* describes a “buttonless . . . wireless radiotelephone for use in a cellular system.” *Id.*, ¶[0019]. The device has “a full-length touchscreen display” that “can display a keypad” in replacement of “a fixed keypad.” *Id.*, ¶¶[0051], [0017]. Thus, it “does not ... [require] a physical button or switch.” *Id.*, ¶[0020].

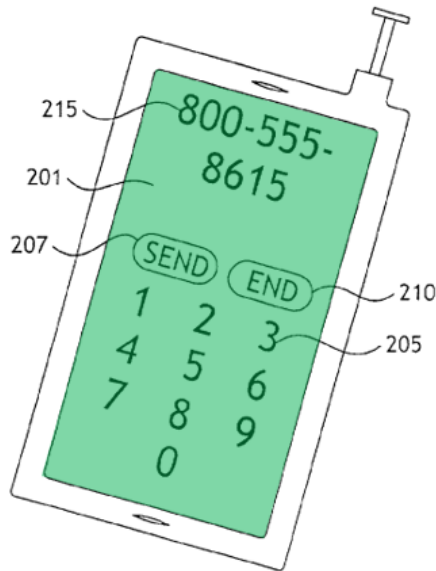


Fig. 2

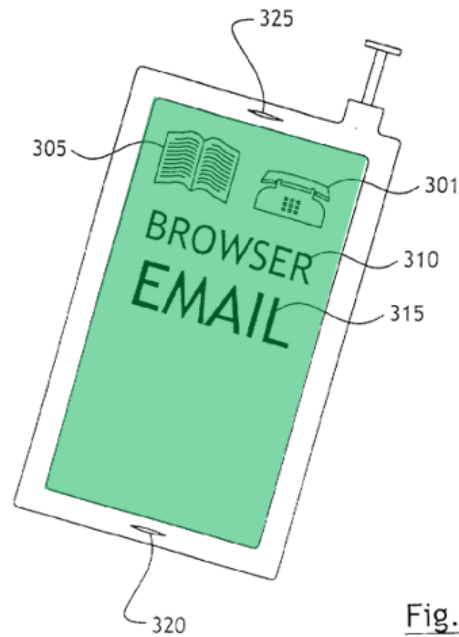
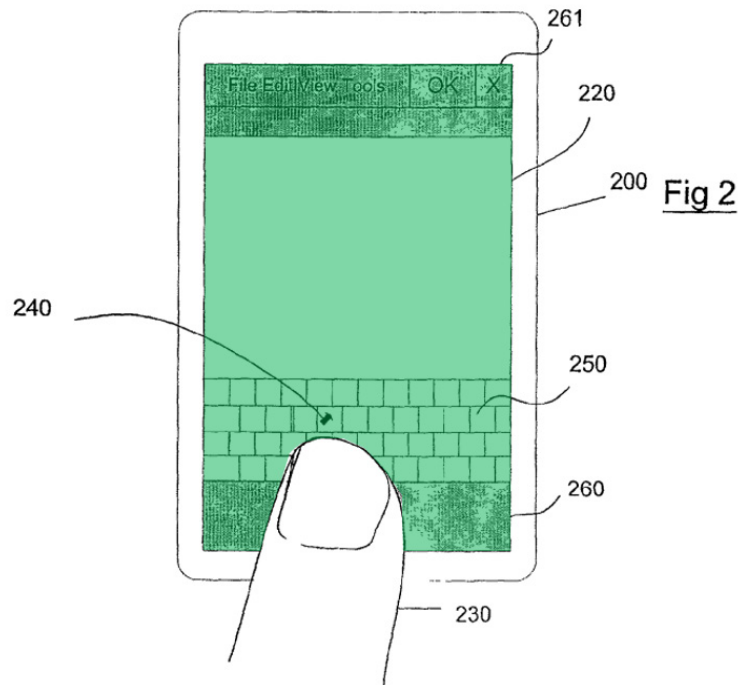


Fig. 3

Id., Figs. 2-3 (annotated).

Similarly, *Mouton* describes a mobile phone with “a touch sensitive display 220” that spans almost the phone’s entire front surface and is large enough to simultaneously display both a virtual keyboard and the entered data. *Mouton*, ¶[0022]; Figs. 2-3; *see also id.*, Abstract, ¶[0001].



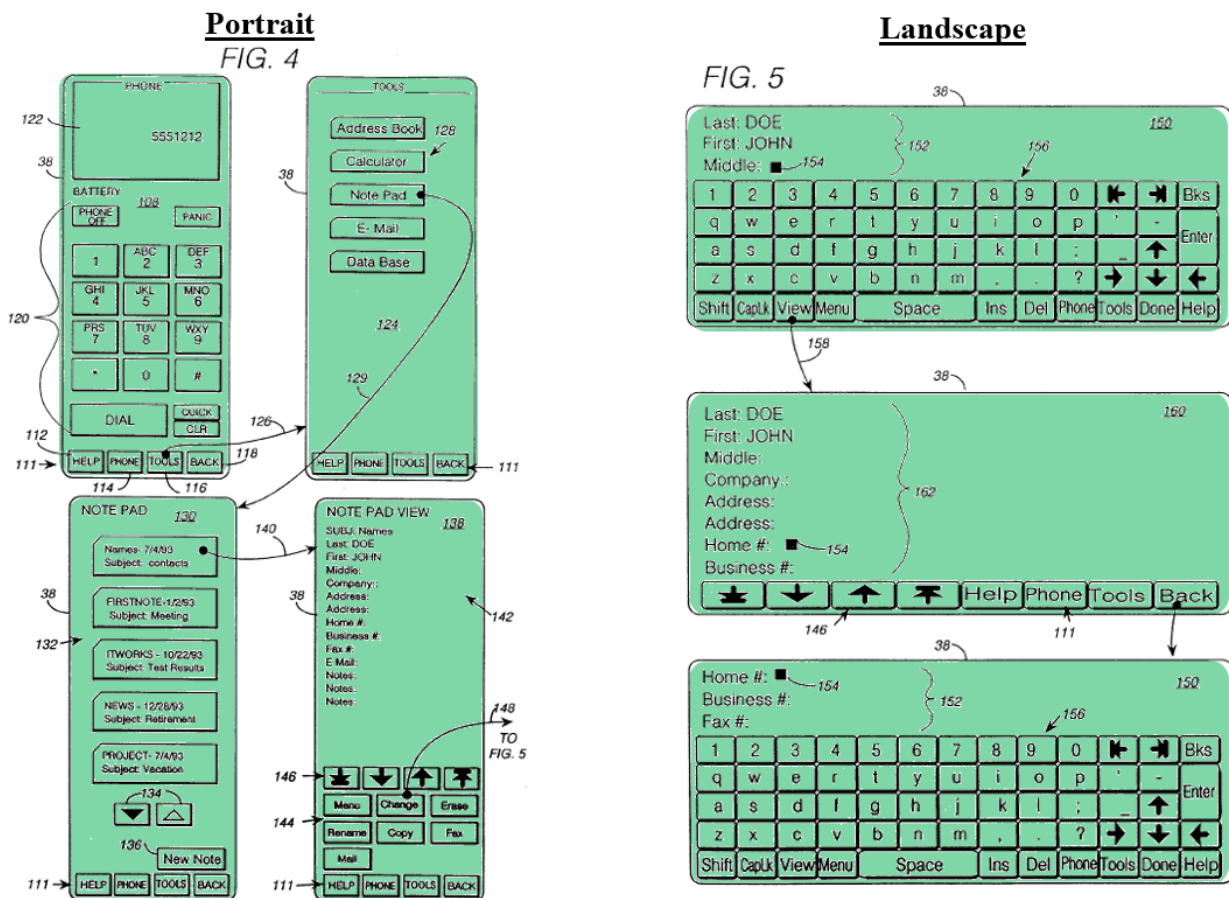
Mouton, Fig. 2 (annotated).

The buttonless design and large touchscreen further reduce the phones' sizes, thereby mutually reinforcing the known design objectives of miniaturization and portability. *Bederson*, ¶¶74-76.

C. Versatile Display and Virtual Keyboard

In addition to the above hardware improvements, the display and input software had also been customized to better use the limited real estate of the shrinking mobile phones. *Bederson*, ¶77. For example, *Allard* discloses a mobile phone **touchscreen** that can switch between portrait and landscape orientations. *Allard*, 7:37-40. The portrait view is used for navigating between different applications and could render a simulated cellular phone keyboard 120 for use with

a phone application (*id.*, 6:46-7:40, Fig. 4), whereas the landscape view is used for editing messages and can display a full “qwerty” keyboard 156 that is collapsable to expand the area for data displaying (*id.*, 7:41-8:38, Fig. 5). A user can select specific virtual keys displayed on the **touchscreen** to switch the portrait/landscape view and collapse/restore the virtual keyboard. *Id.*, 7:34-40, 8:9-17, 8:39-9:10.

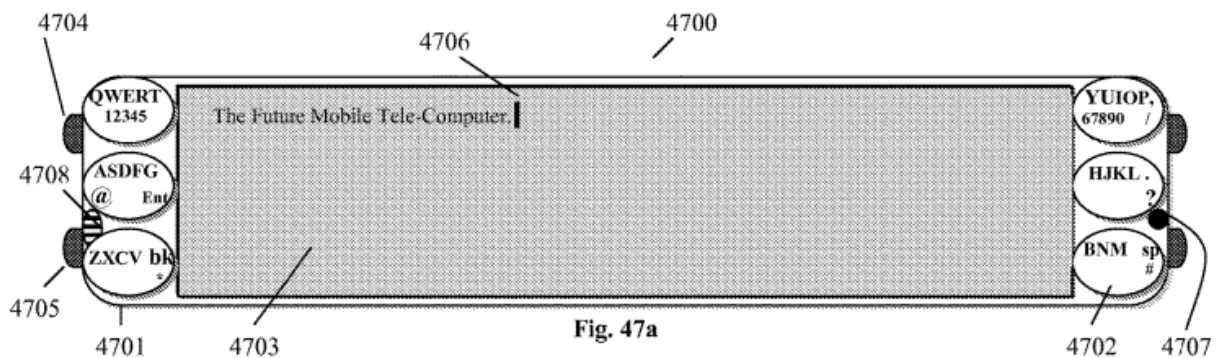


Id., Figs. 4-5 (annotated).

III. THE '144 PATENT

A. Alleged Invention

The '144 patent purports to provide a data entry method for small electronic devices. Ex. 1001, 1:31-35, 1:66-2:3, 7:25-32. For example, Figure 47a shows a mobile phone 4700 “having two rows of keys 4701, 4702.” *Id.*, 69:42-46. “Use of few keys (e.g., [.] in two rows only) for data entry[] permits to integrate a wide display 4703 within said device.” *Id.*, 69:51-53. The phone includes a “microphone 4707 and ... a speaker 4708,” “[t]he distance between ... [which] may correspond to the distance between mouth and ear of a user.” *Id.*, 70:20-24. It “may also have other buttons such as the buttons 4704, 4705 for functions such as scrolling the document to upward/downward, to left/right, navigating a cursor 4706 within said display 4703, send/end functions, etc.” *Id.*, 69:56-61.



Id., Fig. 47a.

In another embodiment, Figure 68a shows an electronic device 6810 in which “a large display 6811 substantially covers the surface of at least one side of said electronic device.” *Id.*, 98:2-6.

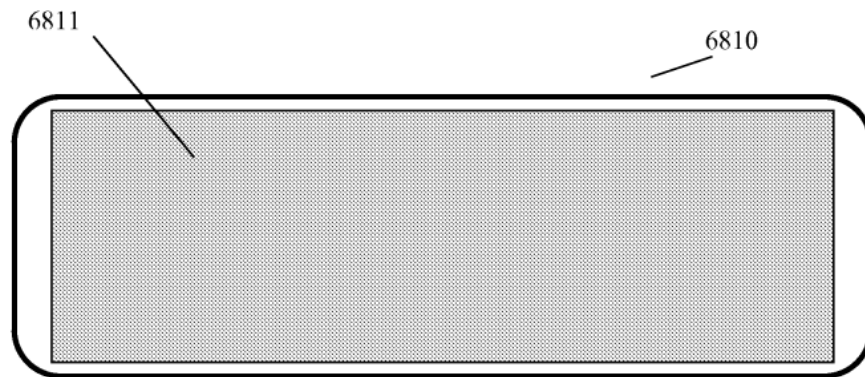


Fig. 68a

Id., Fig. 68a.

In another embodiment, Figure 14 shows “a mobile phone 1400” with “[a] plurality of different icons 1411-1414 representing different applications ... displayed on the screen 1402 of said device.” *Id.*, 18:24-27. A user can open an application by selecting the corresponding icon. *Id.*, 18:27-34.

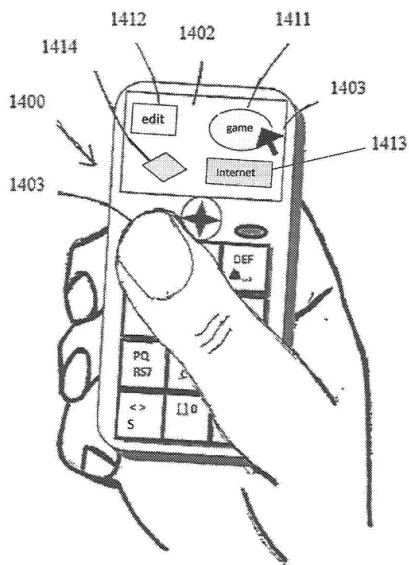


Fig. 14

Id., Fig. 14.

B. Prosecution History

During prosecution, to overcome the Examiner's prior-art rejections, the applicant amended the claims to add the limitations now recited in the issued claims, and argued:

[T]he cited prior art, Kubes, describes a mobile phone device ... wherein the antenna of the device is significantly extended out from the housing of the device, making it difficult to use in different positions (e.g., landscape position) and very cumbersome for portability. In addition, Kubes describes that the device has a standard 12-key keypad (having the digit keys 0 to 9), which confirms that Kubes'[s] device was adapted/designed to be used in portrait position only, like any other mobile handset at the time of Kubes'[s] invention. Note that Kubes'[s] device is also very thick, which again confirms

that the device was designed for use with one hand in vertical/portrait position only.

Ex. 1004, 362. But, the above features and benefits relied on by the applicant to gain allowance were well known in the art (*see* Section II) and taught by the references cited in this Petition (*see* Section VI), none of which was present before the Examiner.

C. Priority Date

The '144 patent asserts priority to various provisional applications filed between April 18, 2003, and March 26, 2004. Exs. 1007-1020. Petitioner has challenged the priority date of certain claims in a concurrently filed petition. *See* IPR2025-00528. Other than for an additional argument on claim 8 (*see* Section VI.A.6.a), the entitlement of the claims to Keyless's alleged priority date is not relevant to this Petition because all the references relied upon herein would be prior art even assuming Keyless's earliest claimed date.

D. Claim Construction

The Board construes claims per *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Claims must be construed only to the extent necessary to resolve a controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor*

Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017). Here, no terms need construction to resolve the controversy in this forum.¹

IV. STATEMENT OF PRECISE RELIEF REQUESTED

A. Prior Art

The earliest claimed priority date for the '144 patent is April 18, 2003. Even assuming that date is correct (which Petitioners challenge elsewhere, *see supra* Section III.C), the references relied upon in this Petition qualify as prior art under pre-AIA 35 U.S.C. § 102(a), (b), and/or (e).²

Ex. 1021	<i>Pensjo</i> , European Patent Application Publication No. 1229428, published on July 8, 2002, is prior art under 35 U.S.C. § 102(a).
Ex. 1025	<i>Jambhekar</i> , U.S. Patent No. 5,848,356, issued on December 8, 1998, is

¹ Petitioners reserve the right to argue in an appropriate forum that certain limitations in the challenged claims are indefinite. Petitioners also reserve the right to challenge the priority date here and/or in other proceedings.

² For simplicity, Petitioners reference the pre-AIA version of 35 U.S.C. § 102. That said, for the reasons discussed in Ground 1A, claim 8 is not entitled to priority before January 22, 2017, and the AIA applies, making all the references also prior art under AIA 35 U.S.C. § 102(a)(1) and/or (a)(2).

	prior art under 35 U.S.C. § 102(a) and/or (b).
Ex. 1026	<i>Benoit</i> , French Patent Application Publication No. 2830093, published on March 28, 2003, is prior art under 35 U.S.C. § 102(a).
Ex. 1027	<i>Kobayashi</i> , United Kingdom Patent Application Publication No. 2331204, published on May 12, 1999, is prior art under 35 U.S.C. § 102(a) and/or (b).

None of the asserted prior art was ever submitted during prosecution (the applicant submitted no prior art), and the references do not appear on the face of the '144 patent. Ex. 1001, 1-2.

B. Grounds of Unpatentability

Claims 1-5 and 7-20 are unpatentable in view of the following grounds:

Ground	Claims	Statutory Basis	Prior Art
1A³	1, 2, 7, 8	35 U.S.C. § 103	<i>Pensjo</i>
2A	3, 4, 15-19	35 U.S.C. § 103	<i>Pensjo</i> in view of <i>Benoit</i>

³ For clarity, Petitioners use the “A” nomenclature to distinguish the Grounds in this Petition from the Grounds in related petition IPR2025-00528, which are identified with “B”.

Ground	Claims	Statutory Basis	Prior Art
3A	5, 9-11, 14	35 U.S.C. § 103	<i>Pensjo</i> in view of <i>Kobayashi</i> and <i>Jambhekar</i>
4A	12, 13	35 U.S.C. § 103	<i>Pensjo</i> in view of <i>Kobayashi</i> , <i>Jambhekar</i> , and <i>Benoit</i>
5A	20	35 U.S.C. § 103	<i>Pensjo</i> in view of <i>Benoit</i> , <i>Kobayashi</i> , and <i>Jambhekar</i>

V. LEVEL OF ORDINARY SKILL

A person having ordinary skill in the art would have had at least a bachelor's degree in electrical engineering, computer science, or a similar field and two to three years of experience designing or analyzing mobile devices and designing graphical user interfaces using touchscreens. Additional relevant work experience can compensate for less education, and vice versa. *Bederson*, ¶¶92-93.

VI. CLAIMS 1-5 AND 7-20 ARE UNPATENTABLE OVER THE PRIOR ART

A. Ground 1A: Claims 1, 2, 7, and 8 Are Obvious over *Pensjo*

1. Overview of *Pensjo*

Pensjo is directed to “a portable touch screen device, such as a PDA (Personal Digital Assistant) or a smart phone.” *Pensjo*, ¶[0001]; *Bederson*, ¶¶95-

99. *Pensjo* discloses “an exemplary mobile telephone 301 comprising a touch screen display 303.” *Pensjo*, ¶[0010]. The device may include a “pen” or “stylus.” *Id.*, *passim*. The mobile phone has a large “touch screen display” that displays a user interface in both “landscape” and “portrait.” *Id.*, ¶¶[0010]-[0011]; *see also id.*, Figs. 3-4 (shown below).

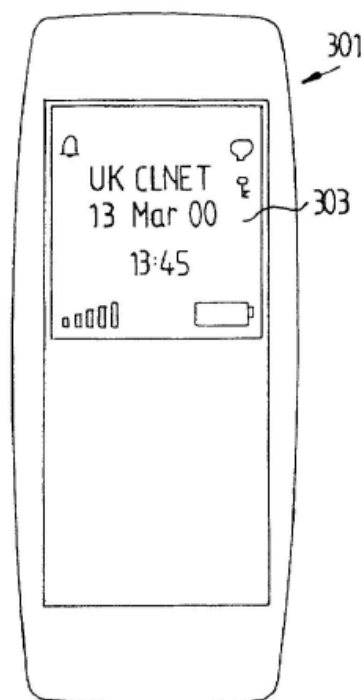


FIG. 3

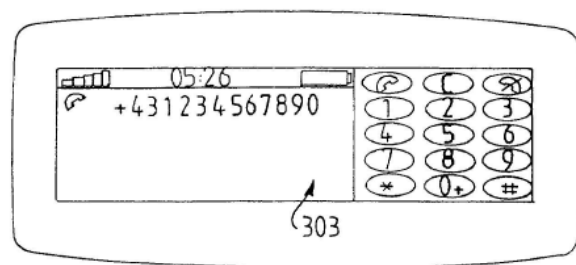
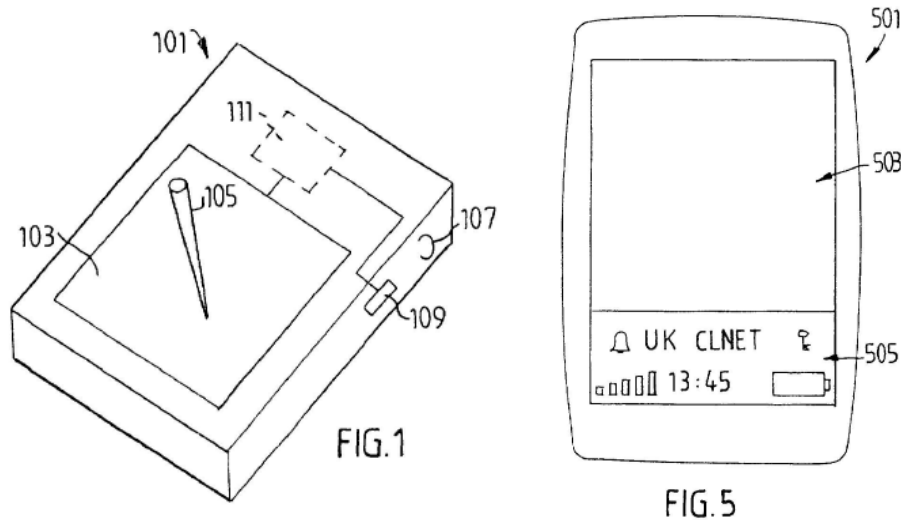


FIG. 4

Pensjo discloses that a variety of “applications [may be] used by the device.” *Id.*, ¶[0014]. The phone may have “a telephone application” where “removal of the pen may trigger the appearance of a display layout including a numeric keyboard for entering a telephone number.” *Id.* It may also have “an e-mail application”

where “an alphanumeric keyboard[] . . . can be used for input of alphanumeric characters.” *Id.*

The mobile phone device of *Pensjo* has a form factor to fit within a “pocket” (*id.*, ¶[0013]), which is consistent with its “mobile,” “portable,” and “hand-held” nature (*id.*, ¶¶[0002], [0007]-[0008], [0010]-[0011]). *Pensjo* discloses exemplary form factors of the electronic device. *See, e.g., id.*, Figs. 1, 5 (shown below).



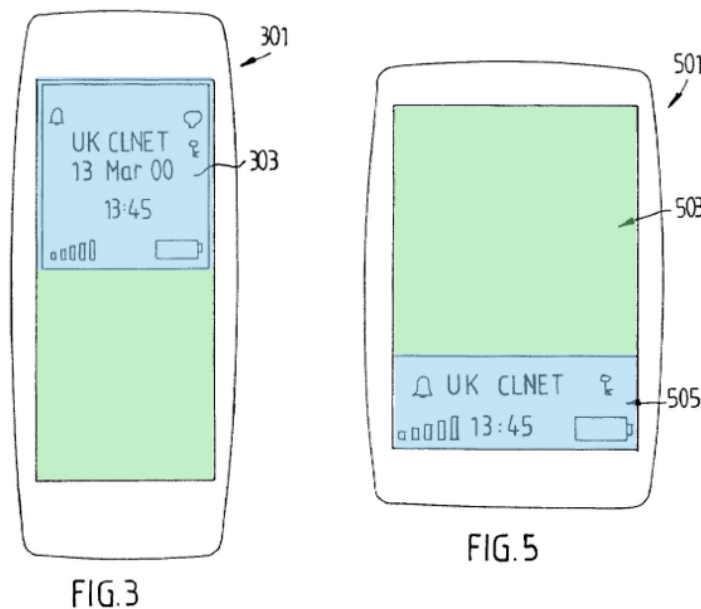
Pensjo discusses hardware of the mobile phone, including its “control unit 111” that controls “the screen display 103.” *Id.*, ¶[0009]. The control unit and screen display may permit an “active state in which the screen display 103 is responsive to input by touching.” *Id.* According to *Pensjo*, “[t]he screen may in this mode display various input keys, buttons[,] or symbols, such as an alphanumeric keyboard.” *Id.*

Pensjo is analogous art at least because it is in the same field of endeavor as the '144 patent—a mobile device with a touchscreen. *Compare id.*, Abstract, ¶¶[0001], [0004]-[0007], *with* Ex. 1001, Claims 1, 9, 15; Bederson, ¶100; *In re Bigio*, 381 F.3d 1320, 1325-26 (Fed. Cir. 2004). *Pensjo* is also reasonably pertinent to the particular problem the patent at issue is concerned with because it deals with technologies relating to information input with a touch sensitive device. *Compare Pensjo*, Abstract, ¶¶[0001], [0004]-[0009], Figs. 1-5, *with* Ex. 1001, Abstract, 1:66-2:19, 25:42-54, Claims 1, 9, 15; Bederson, ¶100.

2. Reasons to Modify *Pensjo* Based on Its Teachings and the Knowledge of a Person Having Ordinary Skill in the Art

It would have been obvious to a POSITA at the time of the alleged invention to modify *Pensjo* based on its own teachings and the knowledge of a POSITA. Bederson, ¶¶115-126. *Pensjo* depicts several form factors and configurations in Figures 1 and 3-5. A POSITA would have known that the example form factors and features disclosed in *Pensjo* are complementary, interchangeable, and otherwise modifiable. Bederson, ¶117. A POSITA would have recognized this because *Pensjo* discloses similar devices, each of which is “mobile,” “portable,” and “hand-held.” *Pensjo*, ¶¶[0002], [0007]-[0008], [0010]-[0011]. *Pensjo* discloses that all the devices are phones. *Id.*, ¶¶[0001], [0007], [0009] (device of Figure 1 “displaying incoming calls”), [0010]-[0011] (device of Figures 3, 4 is a “mobile

telephone”), [0012]-[0014] (device displays “telephone numbers” and uses a “telephone application”). Each of the devices is also configured to use the same hardware, including a “pen” or “stylus.” *Id.*, *passim*. Even displayed icons and features, such as battery percentage, network signal strength, and cell carrier, are depicted in similar fashion across the devices.



Bederson, ¶117 (annotating *Pensjo*, Figs. 3, 5). Each of the devices also depicts changes in relative dimensions. *Pensjo* affirms the modifiability and interchangeability of the devices, saying that “[v]arious alternatives, modifications[,] and equivalents may be used without departing from the spirit of the invention.” *Pensjo*, ¶[0015].

The disclosure of *Pensjo* therefore teaches and suggests to a POSITA that the devices are amenable to modification, and a POSITA would have been motivated to modify, interchange, and otherwise adjust the features and form factors of the devices shown and described in *Pensjo*. See, e.g., *Bos. Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009) (“Combining two embodiments disclosed adjacent to each other in a prior art patent does not require a leap of inventiveness.”). As another example, a POSITA would find that the teachings could be predictably interchanged by, for example, simple substitution, at least because of the predictability of the art in changing the dimensions of mobile phones and the known interchangeability of the various elements in *Pensjo*. Bederson, ¶118.

As one illustration, considering the variety of different form factors disclosed in *Pensjo* (see, e.g., *Pensjo*, Figs. 1, 3-5), a POSITA would have found it obvious to modify the length, width, and thickness of the phones in *Pensjo*. A POSITA would have been motivated to adjust the dimensions of *Pensjo*’s phones to improve their portability and ability to fit in a user’s hand or pocket, both of which were considerations contemplated by *Pensjo*. *Id.*, ¶¶[0002], [0007]-[0008], [0010]-[0011], [0013]; Bederson, ¶119.

One obvious modification, for example, would have been using a thin profile as shown in Figure 1 of *Pensjo* with the phone of Figure 3, which does not

expressly disclose a profile. Bederson, ¶120. A POSITA would have been motivated to make the phone of Figure 3 thin (to the extent that it was not already) to allow the phone to fit more comfortably in a user’s hand and pocket. *Id.* *Pensjo* further suggests a thin phone by noting its ability to fit within a “pocket.” *Pensjo*, ¶[0013].

In addition to the teachings from *Pensjo* itself, a POSITA would have found it obvious to modify the dimensions of *Pensjo* based on the knowledge of a POSITA. It was well known in the art to make a phone housing thin. Bederson, ¶121; see Section II. *Yamaguchi*, for example, teaches a mobile phone that is approximately 75mm in width and 15mm in depth, thus having a thickness that is about 20 percent of the width. *Yamaguchi*, ¶¶[0034], [0036]. *Yamaguchi* notes “a demand for a size such that the device can fit in a clothing pocket or the like from the perspective of making the device ‘easily portable anywhere.’” *Id.*, ¶[0007].

Mobile devices disclosed after *Yamaguchi*—but still prior to the ’144 patent’s alleged priority date—continued to emphasize the importance of decreasing the thickness of mobile devices, thus creating a motivation to decrease below a thickness that is 20 percent of the width. For example, *Dutta* teaches that it was a “goal” to “continuously reduc[e] [a mobile device’s] dimensions to make its transport as comfortable as possible.” *Dutta*, ¶[0002]. The motivation to slim mobile devices existed in tandem with the known motivation to maximize the

mobile device's screen size, which would serve to maintain a width of already pocket-sized devices while slimming them down. *See* Bederson, ¶122; *see also* Section II.

Another obvious modification to the phone dimensions would involve changing its height-to-width ratio. *Pensjo* depicts several embodiments varying in height and width: Figure 3 depicts a height that is approximately double its width (e.g., *Pensjo*, Fig. 3); and Figures 1 and 5 depict slightly wider phones (e.g., *id.*, Figs. 1, 5). Thus, *Pensjo* contemplated such dimensional modifications, and they would have been obvious to a POSITA. Therefore, even if *Pensjo*'s Figure 3 did not already disclose a width of the device that is approximately half of the device's length, a POSITA would have found this feature obvious. These relative dimensions were well known to POSITAs at the time of the alleged invention. *See, e.g.*, Bederson, ¶123; *Rydbeck*, 4:39-43 (teaching that “pocket[-]” or “palm”-sized mobile devices “[t]ypically[] ... are less than about 8-10 inches in length and less than about 4 inches in width”); *Yamaguchi*, ¶¶[0034], [0036] (teaching a mobile phone 100-150mm in length, 60-75mm in width, and 15-25mm in depth); Ex. 1045, 188 (disclosing a rectangular, touchscreen mobile device has 117mm in length and 59mm in width, i.e., a 50.4% width/length ratio); *see also* Ex. 1045, 9, 123; Bederson, ¶123.

A variety of different rationales show why dimensional changes to the phones of *Pensjo* and alterations to its exterior features would have been obvious to a POSITA. Bederson, ¶124. A POSITA would have considered such dimensional changes to *Pensjo* obvious because they involved (A) combining prior-art elements (e.g., *Pensjo*'s mobile phone depicted in Figure 3) according to known methods to yield predictable results (e.g., modified dimensions and external features as shown in *Pensjo*'s Fig. 1 and Fig. 5 or knowledge of a POSITA); (B) use of a known technique (e.g., modifying dimensions and external features of mobile devices as shown in *Pensjo*'s Fig. 1 and Fig. 5 or knowledge of a POSITA) to improve similar devices (e.g., *Pensjo*'s mobile phone depicted in Figure 3) in the same way; (C) applying a known technique (e.g., modifying dimensions and external features of mobile devices as shown in *Pensjo*'s Fig. 1 and Fig. 5 or knowledge of a POSITA) to a known device (e.g., *Pensjo*'s mobile phone depicted in Figure 3) ready for improvement to yield predictable results; and/or (D) a teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the dimensions of the mobile phone disclosed by *Pensjo*. *Id.*

A POSITA would have a reasonable expectation of success in modifying the dimensions and external features of *Pensjo*'s Figure 3, given teachings of form factors and how to arrange components already taught in references like

Yamaguchi, Mouton, and Dutta. See also Bederson, ¶¶125-26. The '144 patent itself discloses no special arrangement of the internal components needed to achieve any of its claimed dimensions, size ratios, or external features, confirming that such was well within the level of skill in the art at the time. *See generally* Ex. 1001.

3. Independent Claim 1

a. 1[pre]: “A mobile phone device, comprising:”

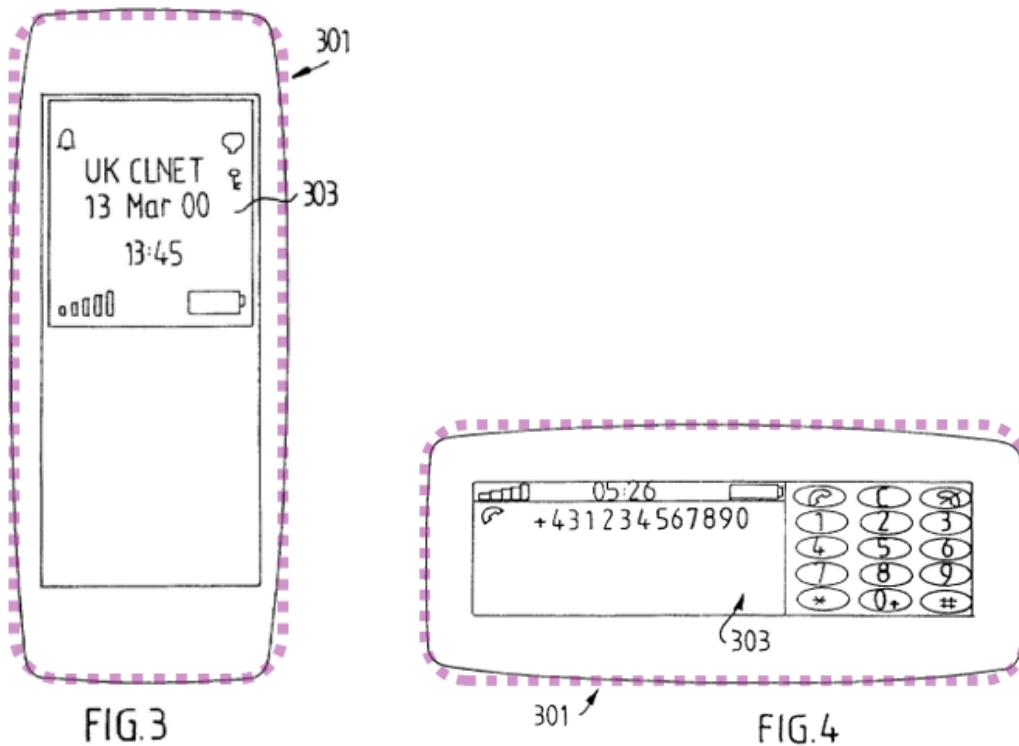
Pensjo discloses 1[pre] by disclosing a mobile telephone, which is a mobile phone device. *Pensjo*, ¶¶[0007], [0010]-[0011], Figs. 1, 3-5; Bederson, ¶127.

Pensjo discloses an “exemplary mobile telephone 301 comprising a touch screen display 303.” *Pensjo*, ¶[0010]. *Pensjo* also discloses a “portable device 101” that includes “a touch sensitive screen display 103 used for input of operational commands and/or data.” *Id.*, ¶[0008]. The screen may “be capable of displaying incoming calls.” *Id.*, ¶[0009].

b. 1[a]: “a practically rectangular-shaped housing within which the components of a mobile phone are integrated, said housing having a front surface, a back surface and four side surfaces,”

Pensjo discloses 1[a] or renders it obvious. Bederson, ¶128. The mobile phone in *Pensjo* has a practically rectangular-shaped housing within which the components of a mobile phone are integrated, said housing having a front surface,

a back surface, and four side surfaces. By way of example, Figures 3 and 4 of *Pensjo* disclose such a **practically rectangular-shaped housing**:



Bederson, ¶128 (annotating *Pensjo*, Figs. 3-4); *see also Pensjo*, ¶[0007], Figs. 1, 5. The housing has components integrated within it, including “an electronic control unit 111” that “operates to control circuits, not shown, for displaying various patterns, pictures[,] and/or information on the screen display 103.” *Pensjo*, ¶[0008]; *see* Section VI.A.1. The rectangular housing in *Pensjo* depicts a front surface and four side surfaces. *Pensjo*, Figs. 1, 3-5. *Pensjo* does not depict its back surface, but a housing including a back surface would have been obvious to a POSITA (e.g., to retain and protect components of the phone as was routine and

conventional in the art). Bederson, ¶128. A POSITA would have a reasonable expectation of success in using a housing having a front surface, a back surface, and four side surfaces as this was the standard practice for mobile phone housings at the time of the invention. *Id.*

c. 1[b]: “wherein the length of the front surface approximately corresponds to the distance between the ear and the mouth of a user and”

Pensjo discloses 1[b] or renders it obvious when combined with the knowledge of a POSITA. Bederson, ¶¶129-31. *Pensjo*’s phone is configured for “operation” by “a user.” *Pensjo*, ¶[0001]. Users at the time of the invention commonly used phone devices to conduct a “call[]” and interacted with the front surface of the phone when doing so. *See id.*, ¶[0009]; Mobile telephones were known to have a front surface having a form factor allowing a user to both speak and listen during a call. As such, a POSITA would have understood *Pensjo* to disclose—or would have found it obvious to modify *Pensjo* based on the knowledge of a POSITA to include—a front surface having a length approximately corresponding to the distance between the ear and the mouth of a user. Bederson, ¶129.

The length claimed in 1[b] allows a user to hold one end of the mobile phone device near the user’s ear for listening and another end near the user’s mouth for speaking. This length of front surface was well understood in the art for phone

devices. *See, e.g.*, Bederson, ¶130; *Yamaguchi*, ¶[0005]; *Dutta*, ¶[0003] (“the ideal size . . . is determined by the typical ear-to-mouth distance of the average user”), Figs. 2A-2B (depicting a microphone 215 and a speaker 220 located on the front surface).

To the extent that *Pensjo* does not already disclose a length of the front surface approximately corresponding to the distance between the ear and the mouth of a user, modifying it to have such would merely entail a simple and predictable alteration of the phone’s dimensions based on the knowledge of a POSITA to make the phone more easily usable for listening and speaking. A POSITA would have known of this length of front surface, had a motivation to use it, and would have had a reasonable expectation of success in achieving it. Bederson, ¶131.

d. 1[c]: “wherein the width of the front surface is substantially shorter than the length and”

Pensjo discloses 1[c] or renders it obvious when combined with the knowledge of a POSITA. Bederson, ¶¶132-36. For example, *Pensjo*’s mobile phone is depicted as having a **width of the front surface** that is substantially shorter than the **length**.

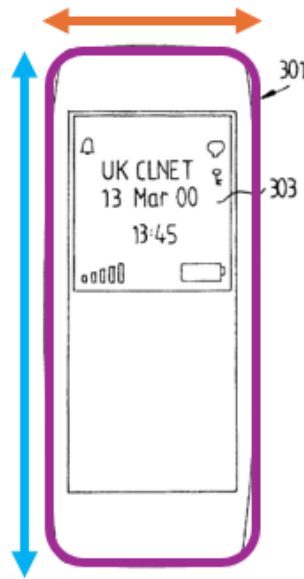
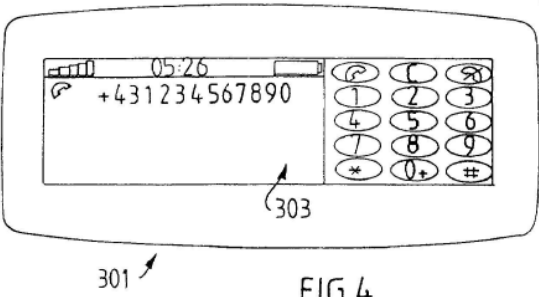
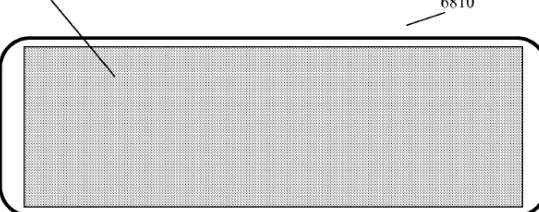


FIG. 3

Bederson, ¶132 (annotating *Pensjo*, Fig. 3); see also *Pensjo*, ¶[0007], Figs. 1, 4, 5.

Indeed, the relative width and length dimensions of phones depicted in the drawings in *Pensjo* are consistent with the relative width and length dimensions of phones depicted in the drawings of the '144 patent.

Drawings from <i>Pensjo</i>	Drawings from '144 Patent
 FIG. 4 <i>Pensjo</i>, Fig. 4; see also <i>id.</i>, Fig. 3.	 Fig. 68a Ex. 1001, Fig. 68a.

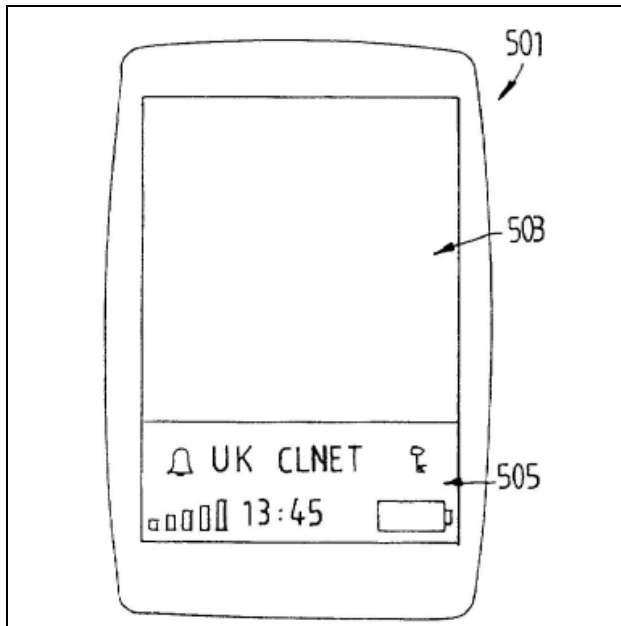


FIG. 5

Pensjo, Fig. 5.

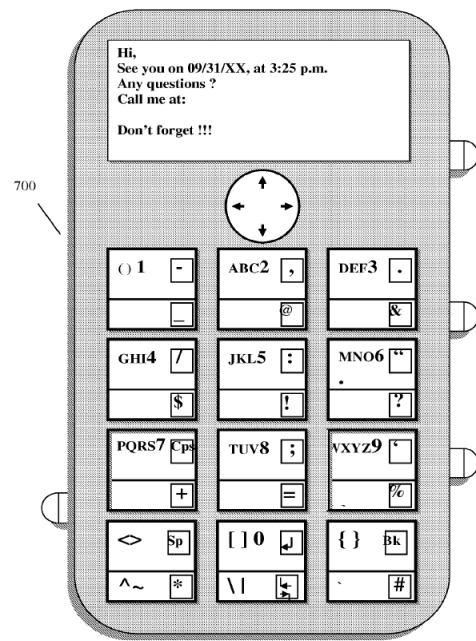


Fig. 7

Ex. 1001, Fig. 7.

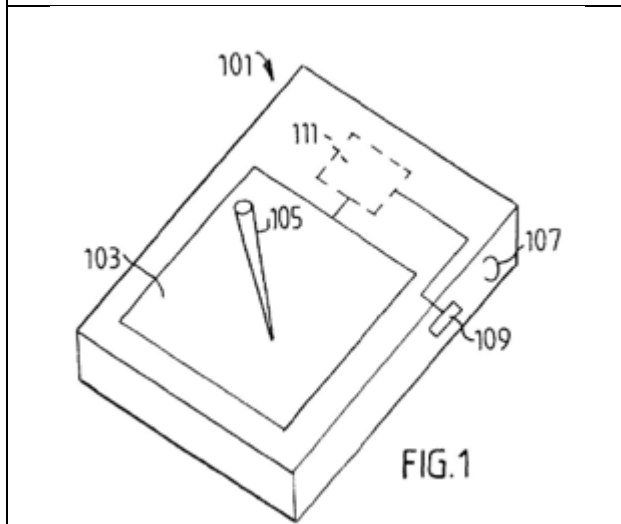


FIG. 1

Pensjo, Fig. 1.

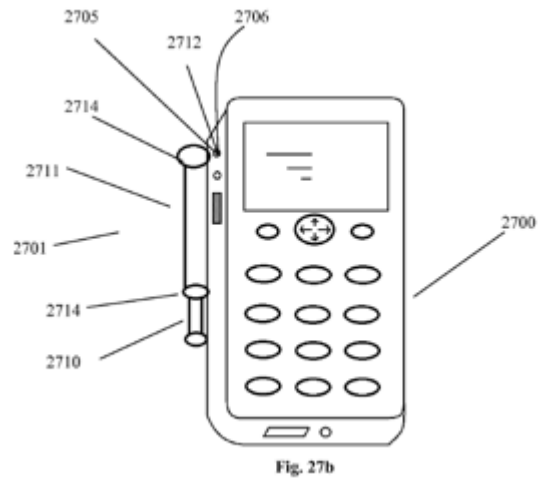


Fig. 27b

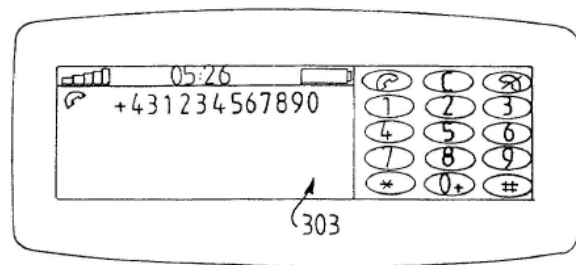
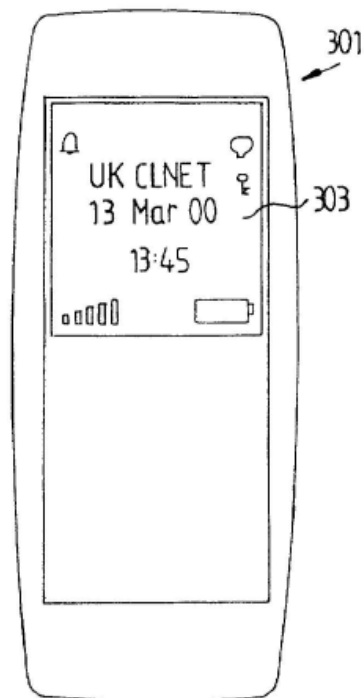
Ex. 1001, Fig. 27b.

A POSITA would have understood *Pensjo* to disclose a width of the front surface that is substantially shorter than the length. Bederson, ¶¶133-34.

Even assuming that *Pensjo* did not already disclose a width of the front surface that is substantially shorter than the length, a POSITA would have found it obvious to modify *Pensjo* to have such, which would merely entail a simple and predictable alteration of the phone's dimensions based on the knowledge of a POSITA. These relative dimensions were well known at the time of the alleged invention. *See, e.g.*, Bederson, ¶135; *Yamaguchi*, ¶¶[0009], [0015]; *Dutta*, ¶¶[0004], [0017], Figs. 2A-2B. A POSITA would have found it obvious to use such dimensions because it would improve portability (allowing storage in a pocket) and the ability to comfortably hold the phone in a single hand and interface with the device. *See, e.g.*, Section VI.A.2; *Yamaguchi*, ¶¶[0009], [0015]; *Dutta*, ¶¶[0004], [0017], Figs. 2A-2B. Moreover, having a width of the front surface that is substantially shorter than the length is consistent with a form factor that is comfortable for holding the phone during telephone calls. For example, such dimensions permit placement of a microphone and speaker on ends of the device near where a user's ear and mouth would be located while still allowing the device to be comfortably held in a user's hand. A POSITA would have known of this size ratio, had a motivation to use it, and would have had a reasonable expectation of success in achieving it. Bederson, ¶136.

e. **1[d]: “wherein the housing has a thin thickness; and”**

Pensjo discloses 1[d] or renders it obvious when combined with the knowledge of a POSITA. Bederson, ¶¶136-41. As an initial matter, *Pensjo* alone discloses 1[d] in light of the applicant’s admissions.



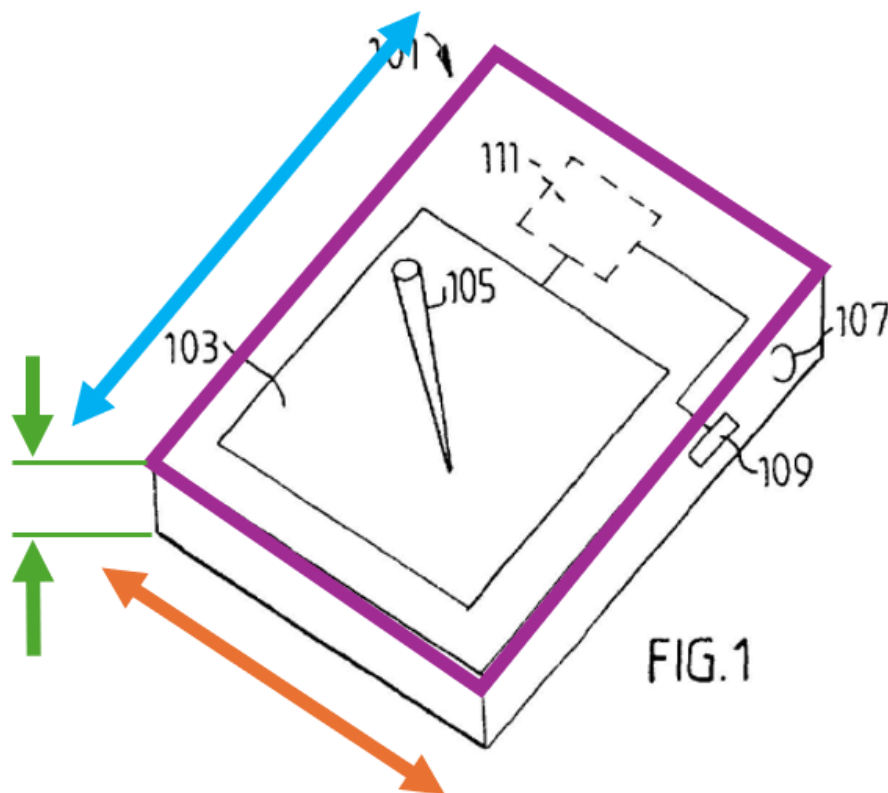
Pensjo, Figs. 3-4.

The applicant stated during prosecution that a “thick” device is one that is designed “for use with one hand in the vertical/portrait position only.” Ex. 1004, 362. *Pensjo*, by contrast, teaches a mobile phone device capable of use in both portrait and landscape orientations (*see Pensjo*, Figs. 3-4 (reproduced above));

¶¶[0010]-[0011], consistent with the claimed understanding of a “thin” device.

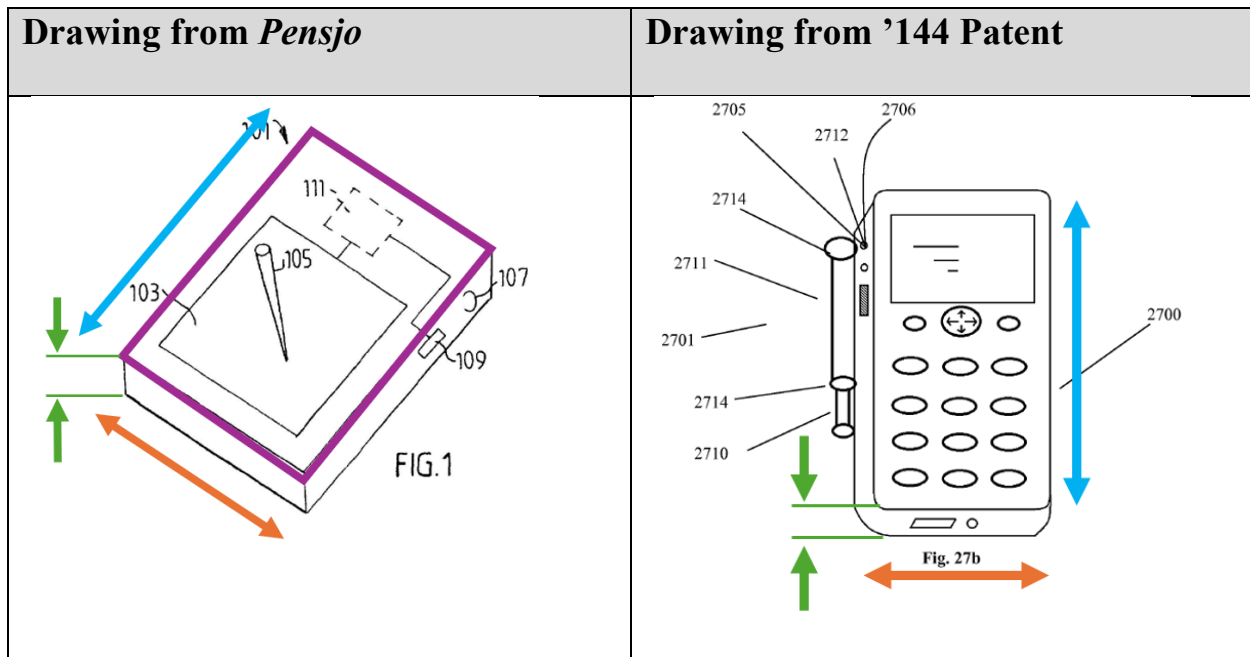
Therefore, applicant’s own admissions confirm that *Pensjo* discloses 1[d].

Pensjo also depicts a phone housing with **thin thickness** in Figure 1, and a POSITA would have found it obvious to apply this teaching to the housing of Figure 3.



Bederson, ¶140 (annotating *Pensjo*, Fig. 1); see also *Pensjo*, ¶[0007], Figs. 3-5.

The thin thickness disclosed in *Pensjo* is consistent with drawings of the '144 patent where a profile is shown.



Bederson, ¶140 (annotating *Pensjo*, Fig. 1; Ex. 1001, Fig. 27b). A POSITA would have been motivated to use the thin thickness of Figure 1 with the Figure 3 housing for the reasons explained in Section VI.A.2. *Pensjo* further suggests a reason to make the device thin by noting its ability to fit within a “pocket” (*Pensjo*, ¶[0013]), which is consistent with its hand-held nature (*id.*, ¶¶[0002], [0007], [0010]-[0011]). Accordingly, a POSITA would have understood *Pensjo* to disclose 1[d] or render it obvious.

Even assuming that *Pensjo* did not already disclose a housing that has a thin thickness, modifying it to have such would merely entail a simple and predictable alteration of the phone’s dimensions based on the knowledge of a POSITA. At the time of the alleged invention, it was well known to make housings thin. *See, e.g.,*

Bederson, ¶141; Sections II, VI.A.2. A POSITA would have found it obvious to use such dimensions because it would improve portability (allowing storage in a pocket) and the ability to comfortably hold the phone in a single hand and interface with the device. *See, e.g.*, Section VI.A.2; *Yamaguchi*, ¶¶[0009], [0015]; *Dutta*, ¶¶[0004], [0017], Figs. 2A-2B. A POSITA would have known of the desire to make the housing of the phone thin, had a motivation to do so, and would have had a reasonable expectation of success in achieving it. Bederson, ¶141.

f. 1[e]: “a display unit integrated within the front surface of said housing wherein said display unit practically covers the entire front surface of said housing;”

Pensjo discloses 1[e] or renders it obvious when combined with the knowledge of a POSITA. Bederson, ¶¶142-47. For example, *Pensjo* discloses a **touchscreen display** that is integrated into the front surface of the housing. *Pensjo*, ¶¶[0001], [0004], [0007]-[0008], [0010], [0012], Figs. 1, 3-5. *Pensjo* explains that “[i]t is an object of the present invention to provide a method and a device which facilitates the operation by a user of a portable touch screen device.” *Id.*, ¶[0004]. *Pensjo* discloses in Figures 3 and 4, respectively, a “front view of a mobile telephone comprising a touch screen being in a first mode” and “the touch screen being in a second mode.” *Id.*, ¶[0007].

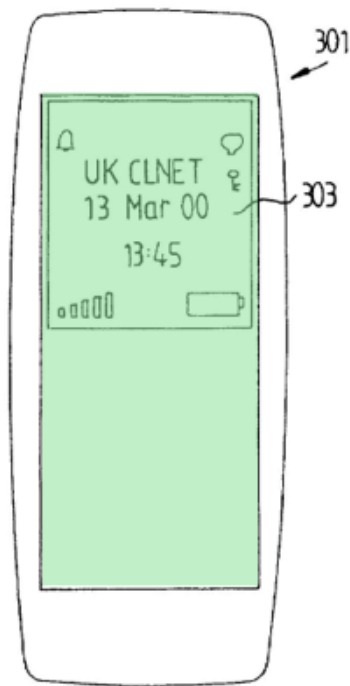


FIG. 3

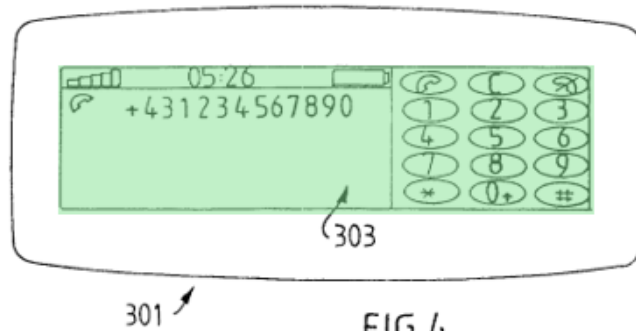
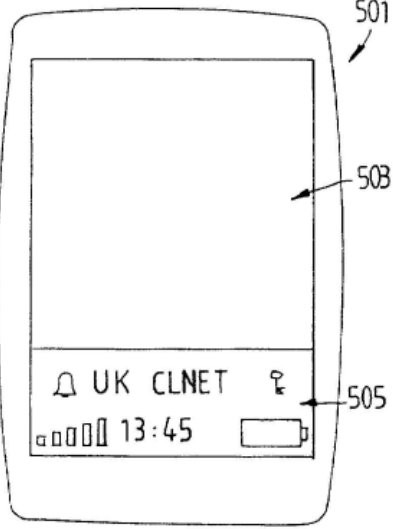
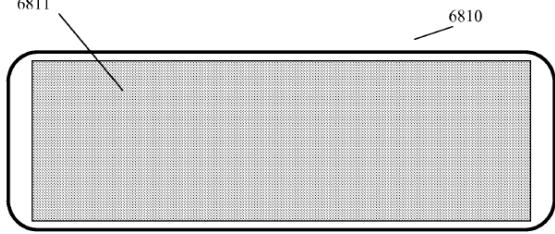


FIG. 4

Bederson, ¶143 (annotating *Pensjo*, Figs. 3-4). The touchscreen, consistent with its standard understood use, is “used for input of commands and/or data.” *Pensjo*, ¶[0007]-[0008].

As shown in Figures 3 and 4, the touchscreen of *Pensjo* practically covers the entire front surface of said housing. *See also* Bederson, ¶143 (comparing *Pensjo* to *Messel*). *Pensjo* also discloses Figure 5, where the screen covers an even greater amount of the front surface of the housing. Screens depicted in *Pensjo* have similar coverage to those depicted in certain embodiments of the '144 patent, with limited framing along the length of the screen and slightly more framing along the short dimension (e.g., providing space for a microphone and a speaker). Bederson,

¶144. By contrast, many earlier phones included physical keyboards and other such features on the front surfaces. *Id.*

Drawing from <i>Pensjo</i>	Drawing from '144 Patent
 FIG. 5 <i>Pensjo</i>, Fig. 5; see also <i>id.</i>, Fig. 3.	 Fig. 68a Ex. 1001, Fig. 68a.

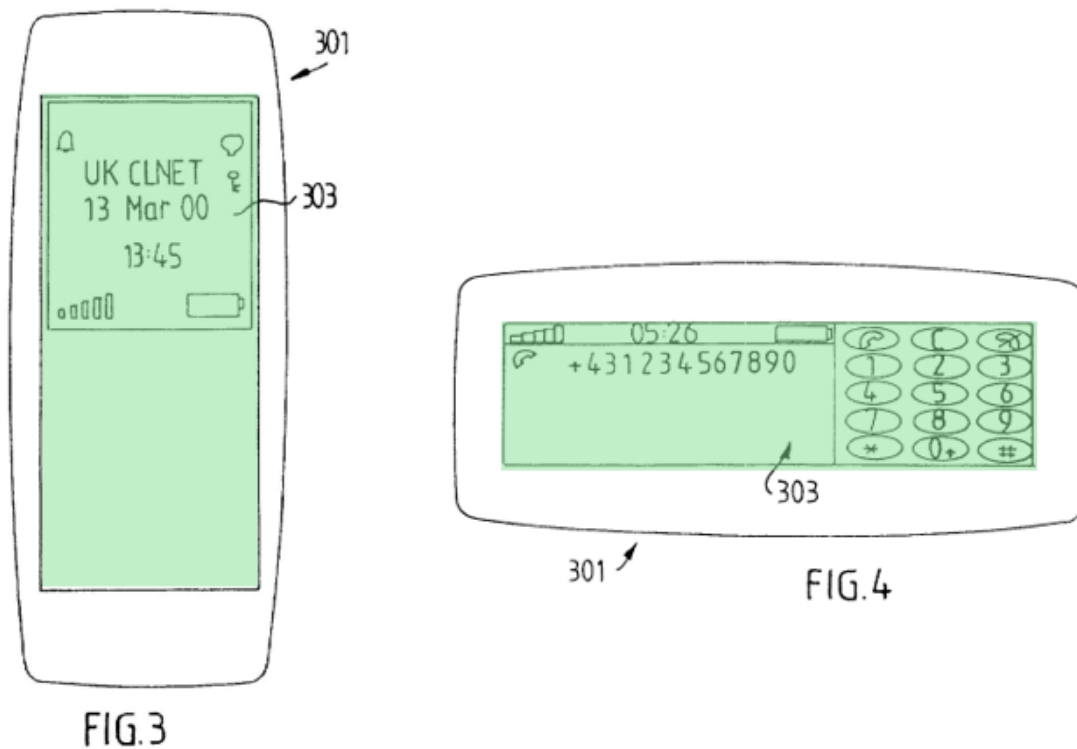
It would have been obvious to a POSITA at the time of the alleged invention to continue to expand the screen of *Pensjo* in Figure 3 consistent with Figure 5 to provide more viewing area for content and to increase the touchable area for data input (e.g., by selecting icons or typing on a virtual keyboard). Bederson, ¶145. A POSITA would have known of the desire to make the screen larger relative to the housing, had a motivation to do so, and would have had a reasonable expectation of success in achieving it. Bederson, ¶145.

Even assuming that *Pensjo* did not already disclose a display unit that practically covers the entire front surface of said housing, modifying it to have such would merely entail a simple and predictable alteration of the phone's dimensions based on the knowledge of a POSITA. Bederson, ¶¶146-47. At the time of the alleged invention, it was well known to increase the screen size relative to the housing. *See, e.g., Gupta*, Figs. 2-4, ¶¶[0017] (disclosing a “full length, tactile response, touchscreen display”), [0019]-[0020] (teaching a “buttonless” device with a “large touchscreen display”); Sections VI.A.2, II. A POSITA would have found it obvious to practically cover the entire front surface of said housing because it would provide more viewing area for content and would increase the touchable area for data input (e.g., by selecting icons or typing on a virtual keyboard). *See, e.g.,* Section VI.A.2. A POSITA would have known of the desire to make the screens larger relative to the housing, had a motivation to do so, and would have had a reasonable expectation of success in achieving it in light of the prior art. Bederson, ¶¶146-47.

g. 1[f]: “wherein said mobile phone device does not include a physical key on the front surface, and”

Pensjo discloses 1[f] and renders it obvious. Bederson, ¶¶148-50. For example, *Pensjo* discloses a mobile phone that does not include a physical key on the front surface. *Pensjo*, Figs. 3-4. *Pensjo* teaches that the touchscreen includes a

virtual keyboard, thus removing the need for a physical key. *Id.*, ¶¶[0005], [0009], [0011], [0014].



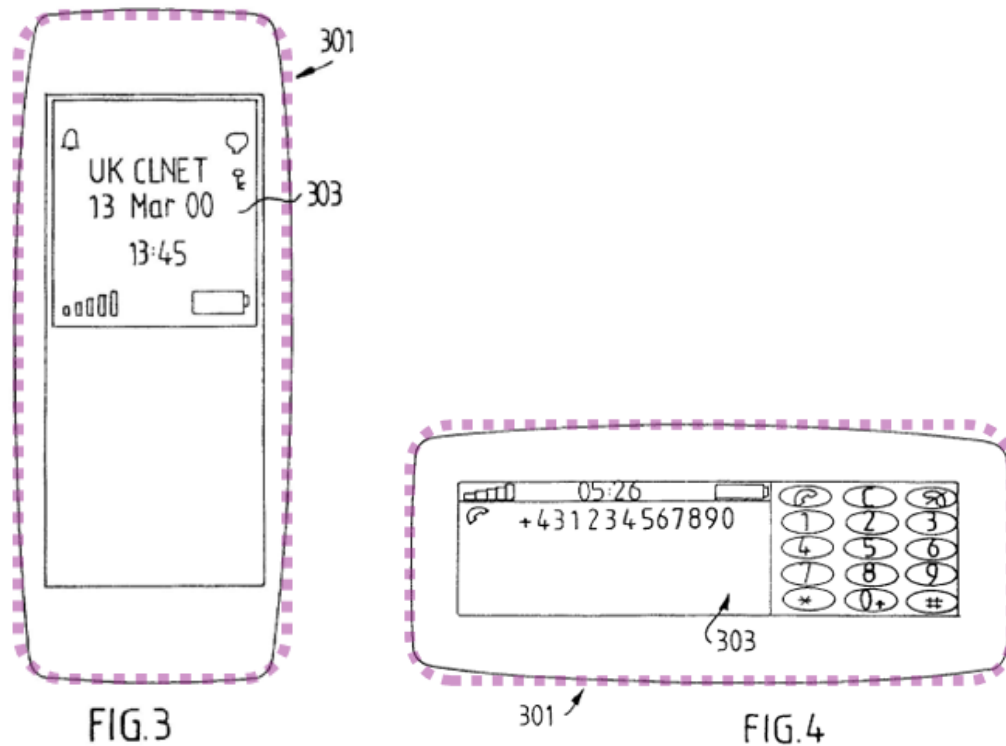
Bederson, ¶148 (annotating *Pensjo*, Figs. 3-4); *see also Pensjo*, Figs. 1, 5. The design of Figures 3 and 4 shows the display with numeric virtual buttons displayed on the screen. *Pensjo* also teaches an “alphabetic keyboard.” *Pensjo*, ¶[0005]. And it would have been obvious to a POSITA that the design of Figures 3 and 4 would also use an alphabetic keyboard in addition to a numeric keyboard to permit entry of alphabetic text for text messages, emails, and other functions known in the art and disclosed in *Pensjo*. *Id.*, ¶[0014].

The desire to use buttonless designs and remove physical keys from the front surface was also well known and obvious to POSITAs. *See, e.g., Gupta*, Figs. 2-3; ¶¶[0019]-[0021] (“illustrates [a] buttonless communication device”); Section II. A POSITA would have been motivated to remove buttons to provide a sleeker device profile, reduce mechanical components that may fail, reduce points of entry for water and debris, increase the screen size, and allow reconfiguring of buttons for data entry merely using software. *Bederson*, ¶149. A POSITA would have a reasonable expectation of success in using a design without a physical key on the front surface in light of the prior art. *Bederson*, ¶150.

- h. 1[g] “wherein said components of the mobile phone are integrated within said housing such that none of said components is noticeably extended out from said housing.”**

Pensjo discloses 1[g] and renders it obvious. *Bederson*, ¶¶151-54. *Pensjo* shows that the components of the mobile phone are integrated within said housing such that none of the components noticeably extends out from the housing. By way of example, Figures 3 and 4 of *Pensjo* disclose a **housing** having no components extending therefrom. The housing has components integrated within it, including “an electronic control unit 111” that “operates to control circuits, not shown, for displaying various patterns, pictures[,] and/or information on the screen display 103.” *Pensjo*, ¶[0008]; *see* Section VI.A.2; Neither the electronic control unit nor

the screen noticeably extend from the **housing**. *Pensjo* further teaches a buttonless design. See Section VI.A.3.g.

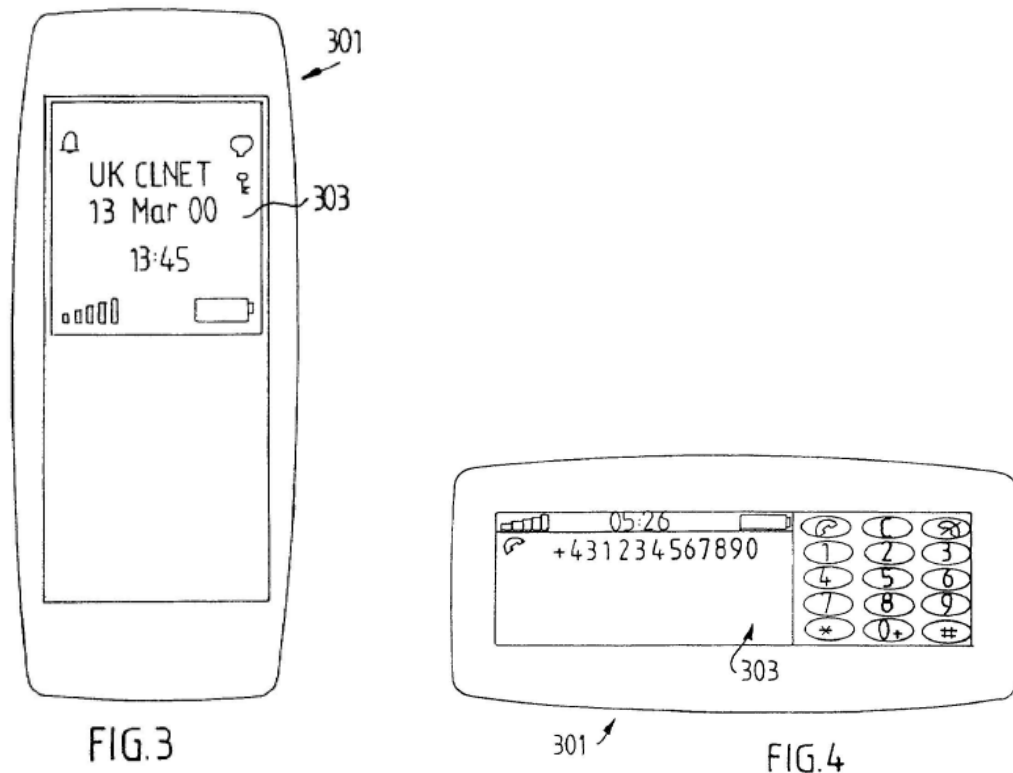


Bederson, ¶151 (annotating *Pensjo*, Figs. 3-4); see also *Pensjo*, ¶[0007], Figs. 1, 5. *Pensjo* also teaches a pen 105 that is inserted into the body of the device via pen holder 107, such that it does not noticeably extend from the housing. *Pensjo*, ¶[0008], Fig. 1. Moreover, locating the phone's components within the housing such that they do not noticeably extend would have been an obvious design to prevent the components from catching on pockets or other objects during phone use, and a POSITA would have had a reasonable expectation of success in achieving this design in light of the prior art. Bederson, ¶¶152-53.

4. Claim 2: “The device of claim 1, wherein said practically rectangular shape has rounded corners.”

Pensjo discloses that its practically rectangular shape has rounded corners.

Bederson, ¶¶155-58. By way of example, Figures 3 and 4 of *Pensjo* (shown below) depict the housing with rounded corners:



Pensjo also depicts the design of Figure 5 having rounded corners. See *Pensjo*, Fig. 5; Bederson, ¶156.

Rounding the corners of a mobile phone was also obvious in light of the knowledge of a POSITA. A POSITA would have appreciated that having rounded corners would be ergonomically more friendly—making the phone more

comfortable for a user to hold and making it easier to tilt the phone with one hand. Moreover, rounded corners were well known and widely used in the art. *Supra*, §II (see Figures in *Beaty*, *Gupta*, and *Mouton*); *Dutta*, Figs. 2A-2B. Therefore, even if *Pensjo* did not teach rounded corners, a POSITA would have been motivated to modify *Pensjo*'s phone housing to have rounded corners. Bederson, ¶157.

A POSITA would also have a reasonable expectation of success for doing so, because it would have been a negligible change to the housing's shape and external appearance, particularly because the phone already has streamlined side surfaces. Bederson, ¶158.

5. Claim 7: “The device of claim 1, wherein the width of the device is approximately half of said length.”

Pensjo discloses a width of the device that is approximately half of the length or renders it obvious when combined with the knowledge of a POSITA. Bederson, ¶¶159-63. For example, *Pensjo* discloses a mobile phone depicting a width of the front surface that is approximately half of the length.

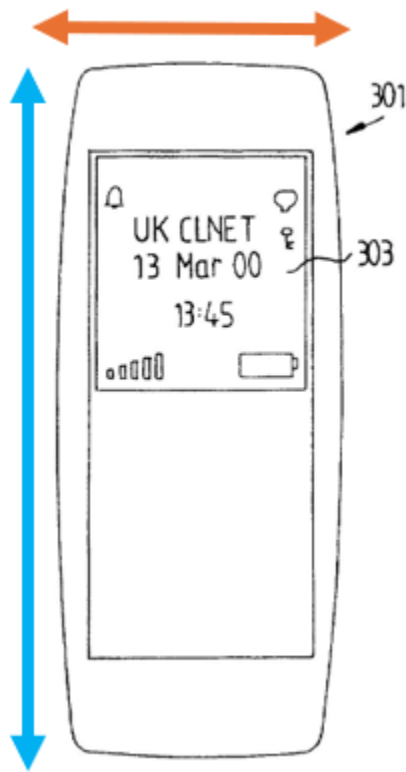
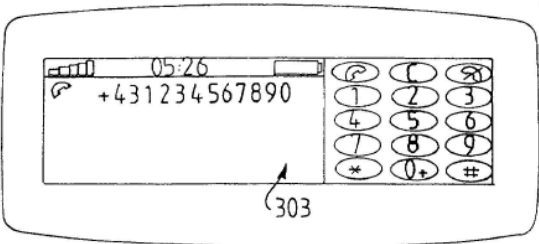
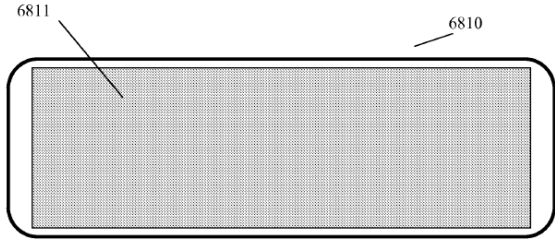
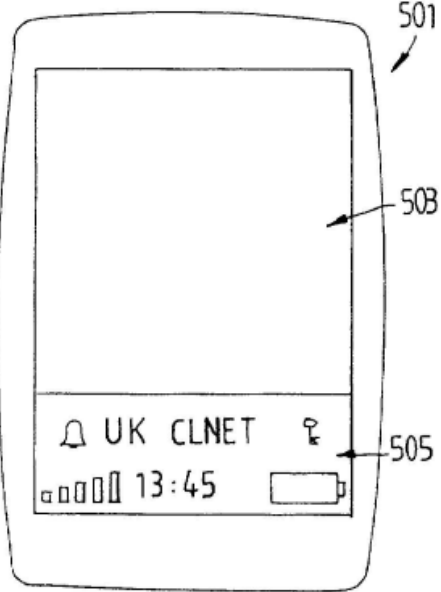
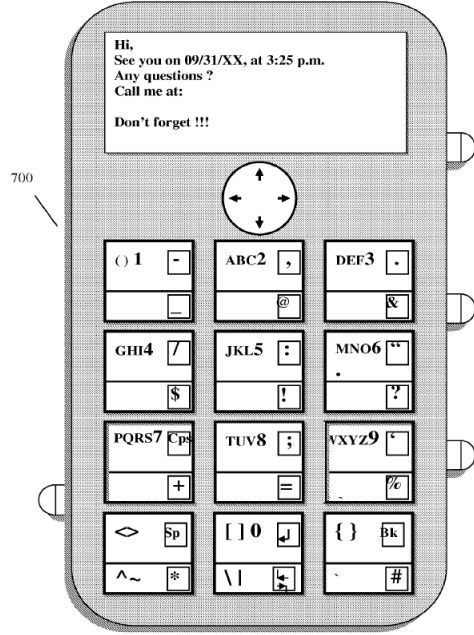
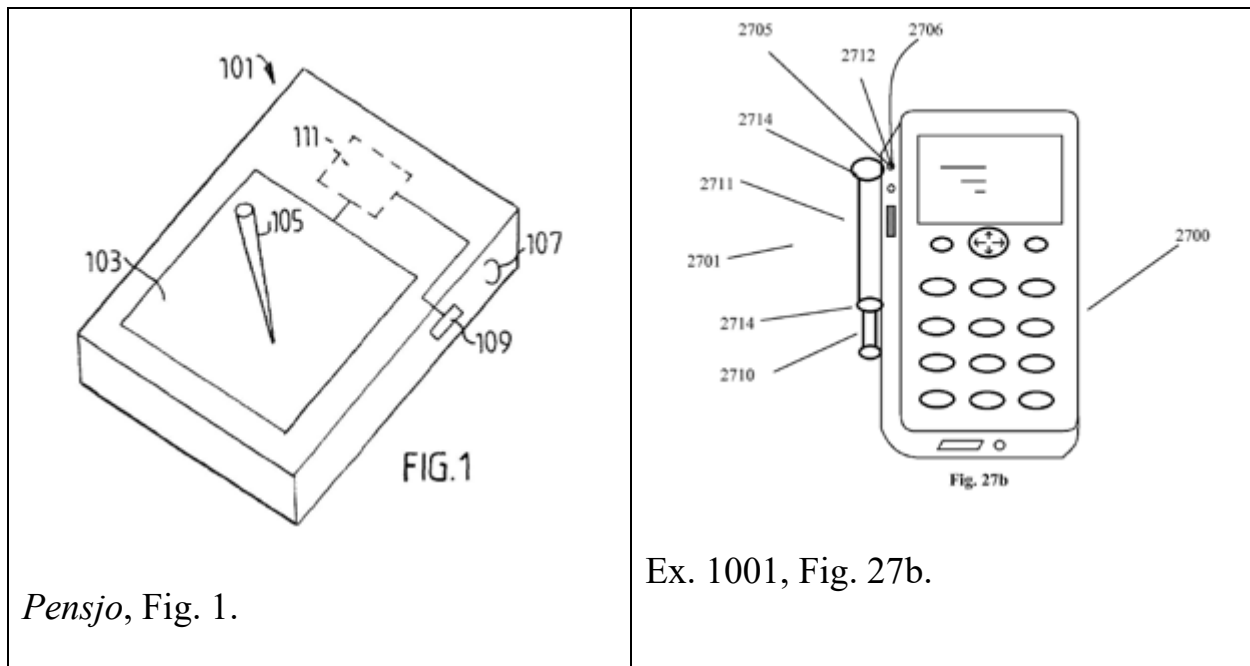


FIG. 3

Bederson, ¶159 (annotating *Pensjo*, Fig. 3); see also *Pensjo*, ¶[0007], Figs. 1, 4-5.

The relative width and length dimensions of phones depicted in the drawings of *Pensjo* are consistent with the relative width and length dimensions of phones depicted in the drawings of the '144 patent.

Drawings from <i>Pensjo</i>	Drawings from '144 Patent
 FIG. 4 <i>Pensjo</i>, Fig. 4; <i>see also id.</i>, Fig. 3.	 Fig. 68a Ex. 1001, Fig. 68a.
 FIG. 5 <i>Pensjo</i>, Fig. 5.	 Fig. 7 Ex. 1001, Fig. 7.



A POSITA would have understood *Pensjo* to disclose a width of the device that is approximately half of the length. Bederson, ¶¶160-61.

Even assuming that *Pensjo* did not already disclose a width of the device that is approximately half of the length, a POSITA would have found it obvious to modify *Pensjo* to include these relative dimensions, which were well known to POSITAs at the time of the alleged invention. *See, e.g.*, Bederson, ¶162; *Rydbeck*, 4:39-43 (teaching that “pocket[-]” or “palm”-sized mobile devices “[t]ypically[] ...are less than about 8-10 inches in length and less than about 4 inches in width”); *Yamaguchi*, ¶¶[0034], [0036] (teaching a mobile phone 100-150mm in length, 60-75mm in width, and 15-25mm in depth); Ex. 1045, 188 (disclosing a rectangular,

touchscreen mobile device has 117mm in length and 59mm in width); *see also* Ex. 1045, 9, 123.

Modifying *Pensjo* to have the dimensions of claim 7 would merely entail a simple and predictable alteration of the phone's dimensions based on the knowledge of a POSITA. Bederson, ¶163. A POSITA would have found it obvious to use such dimensions because they were known in the art and doing so would improve portability (allowing storage in a pocket) and the ability to comfortably hold the phone in a single hand and interface with the device. *See, e.g.*, Section VI.A.2; *Rydbeck*, 4:39-43; *Yamaguchi*, ¶¶[0009], [0015]; *Dutta*, ¶¶[0004], [0017], Figs. 2A-2B. Moreover, having the width of the device be approximately half of the length is consistent with a form factor that is comfortable for holding the phone during telephone calls. For example, such dimensions permit placement of a microphone and speaker on ends of the device near where a user's ear and mouth would be located while still allowing the device to be comfortably held in a user's hand. Bederson, ¶163. A POSITA would have known of this size ratio, had a motivation to use it, and would have had a reasonable expectation of success in achieving it. Bederson, ¶163.

6. Claim 8: “The device of claim 1, wherein the thickness of the device is less than 20 percent of said width.”

Pensjo renders this feature obvious when combined with the knowledge of a POSITA. Although *Pensjo* does not depict the profile of the phone in Figure 3, a POSITA would have found it obvious to use a thickness of the device that is less than 20 percent of the width. Bederson, ¶¶164-67.

A POSITA would also have found it obvious to modify the shape and size of *Pensjo* based on the knowledge of a POSITA. It was well known in the art to make a phone housing thin. See Sections II, VI.A.2. *Yamaguchi*, for example, teaches a mobile phone that is approximately 75mm in width and as thin as 15mm in depth, thus having a thickness that is about 20 percent of said width. *Yamaguchi*, ¶¶[0034], [0036]; Bederson, ¶165. *Yamaguchi* notes “a demand for a size such that the device can fit in a clothing pocket or the like from the perspective of making the device ‘easily portable anywhere.’” *Id.*, ¶[0007].

Mobile devices disclosed after *Yamaguchi*—but still prior to the ’144 patent’s alleged priority date—continued to emphasize the importance of decreasing the thickness of mobile devices, thus creating a motivation to decrease below a thickness that is 20 percent of the width. See, e.g., *Dutta*, ¶[0002]; Sections II, VI.A.2. A POSITA would be motivated to configure *Pensjo*’s mobile phone to be thin (including having a thickness that is less than 20 percent of the

width) to improve the ease of use and improve portability of the phone. Bederson, ¶166. A POSITA would have a reasonable expectation of success in modifying the dimensions of Figure 3 to have a thin thickness (including having a thickness that is less than 20 percent of the width) given teachings of how to rearrange components already taught in references like *Yamaguchi* and *Dutta*. The '144 patent itself discloses no special arrangement of the internal components needed to achieve any of its claimed dimensions or size ratios, confirming that such was well within the level of skill in the art at the time. *See generally* Ex. 1001; Bederson, ¶¶166-67; *see* Sections II, VI.A.2.

a. Claim 8 is entitled to priority no earlier than January 22, 2017

In addition, Petitioners note that claim 8 is entitled to a priority date no earlier than January 22, 2017. Dependent claim 8 recites “the thickness of the device is less than 20 percent of said [device’s] width.” Ex. 1001, 104:50-51. This limitation was first introduced into the '144 patent’s file history by the August 16, 2020, amendment. Ex. 1004, 361 (new claim 26). Support for the “20 percent” feature appears nowhere in the '144 patent. Bederson, ¶168.

Specifically, neither the '144 patent’s specification nor any of its claimed priority applications (or the prosecution history of these priority applications) describe anything about the dimensions of the thickness or width, let alone their

ratio. Exs. 1001, 1005-1020, 1040-1042; Bederson, ¶168. Moreover, the '144 patent and the priority applications do not state that their figures are drawn to scale. *Id.* Rather, the '144 patent says the opposite—"It is to be understood that the drawings are not necessarily drawn to scale, but that they are merely conceptual in nature." Ex. 1001, 24:64-66, 103:34-36. Thus, the drawings cannot disclose the dimensions or ratio of the thickness and width. *Hockerson-Halberstadt, Inc. v. Avia Grp. Int'l, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000). Moreover, Keyless cannot use any obviousness teaching of the drawings or combine different embodiments to provide written description or to support priority claims. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc). Thus, claim 8 is not entitled to priority before the '144 patent's filing date, January 22, 2017.

It was well known before January 22, 2017, that mobile phones with touchscreens and lacking physical keys on the front surface had less than a 20% thickness/width ratio. *E.g.*, Ex. 1046 (disclosing a 2015 touchscreen mobile device that is 72.2mm in width and 8.8mm in thickness, i.e., a 12.2% thickness/width ratio). For the same reasons identified above (e.g., to improve the ease of use and improve the portability of the phone), it would have been obvious to modify *Pensjo* to use a thickness of the device that is less than 20 percent of the width, and

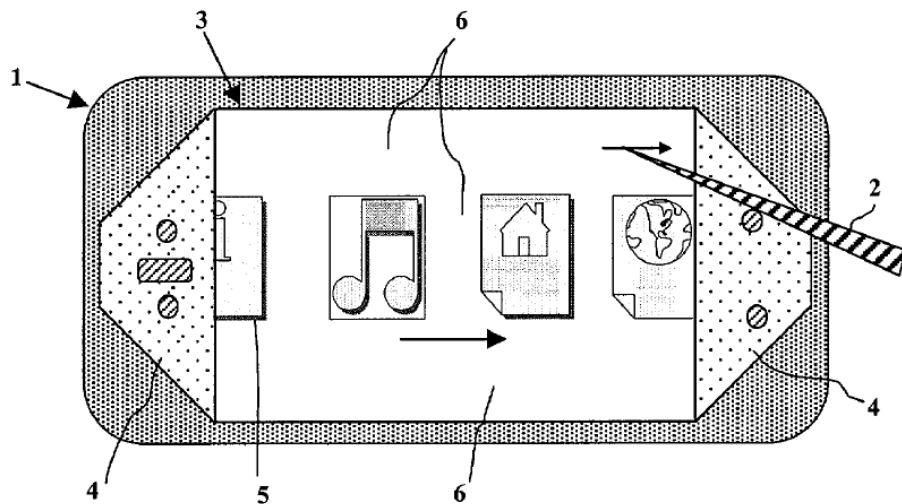
a POSITA would have had a reasonable expectation of success in doing so.

Bederson, ¶168.

B. Ground 2A: Claims 3, 4, and 15-19 Are Obvious over *Pensjo* in View of *Benoit*

1. Overview of *Benoit*

Benoit is directed to “a human-machine interface on a touch screen, for example[,] on a personal digital assistant (PDA).” *Benoit*, Abstract. *Benoit* teaches a method for navigating and launching an application on a touchscreen device. *Id.*, 1:3-7. It states, “[t]o launch a program, one scrolls through a series of icons on the screen and then highlights the suitable icon for launching that program.” *Id.*, Abstract. “Scrolling is achieved by using the PDA’s stylus (or a finger) in the control area to indicate a move in the direction of the scroll.” *Id.* Once a suitable icon is located, “a brief touch of the stylus [or the finger] on the icon” opens the corresponding program. *Id.*, 5:22-23.



Id., Fig. 1.

Benoit is analogous art at least because it is in the same field of endeavor as the '144 patent—a mobile device with a touchscreen. *Compare Benoit*, Abstract, 1:3-3:24, *with* Ex. 1001, Claims 1, 9, 15; Bederson, ¶103. *Benoit* is also reasonably pertinent to the particular problem the patent at issue is concerned with because it deals with technologies relating to information input with a touch sensitive device. *Compare Benoit*, Abstract, 1:3-3:24, *with* Ex. 1001, Abstract, 1:66-2:19, 21:60-63, 25:42-54, Claims 1, 9, 15; Bederson, ¶103.

2. Rationale to Combine *Pensjo* and *Benoit*

It would have been obvious to a POSITA to modify *Pensjo* (as modified) to include *Benoit*'s teaching of a series of icons corresponding to a plurality of applications, swiping the screen to scroll through the series of icons, and briefly touching an icon to launch an application linked to the icon. Bederson, ¶¶170-74. *Benoit* itself suggests reasons for the modification. Doing so would extend the control area “so as to distribute the touch points and prevent the premature wear of the touch screen over the defined areas.” *Benoit*, 2:9-16. According to *Benoit*, “the icons scroll along a virtual circle inscribed in a plane perpendicular to the plane of the screen” so that it is “possible to show each icon on the screen successively, with the other icons remaining in the background.” *Id.*, 3:11-15. “In this case, it is possible to envisage that only the icon shown on the touch screen is capable of

launching an application.” *Id.* *Benoit*’s configuration allows for more screen real estate, improves wear of the screen, and allows for easier navigation. Bederson, ¶170.

A POSITA would be motivated for at least these reasons to configure *Pensjo*’s mobile phone to incorporate *Benoit*’s teaching of icons corresponding to applications, swiping to scroll through the icons, and touching an icon to launch an application. Bederson, ¶¶171-73. Configuring *Pensjo* in this way would have been routine and conventional to a POSITA, as shown by the knowledge of a POSITA. *Id.* A POSITA would have considered modifying *Pensjo* with these teachings of *Benoit* to be an example of (A) combining prior-art elements (e.g., *Pensjo*’s mobile phone teachings and *Benoit*’s human-machine interface for a PDA) according to known methods to yield predictable results (e.g., configure *Pensjo*’s software such that launchable icons displayed on the touchscreen can be scrolled by a user by touching the touchscreen and moving in the intended scroll direction); (B) use of a known technique (e.g., *Benoit*’s teaching of scrolling application icons) to improve similar devices (e.g., *Pensjo*’s mobile phone) in the same way; (C) applying a known technique to a known device ready for improvement (e.g., *Pensjo*’s mobile phone that has all the necessary hardware such as a large touchscreen and central processing unit) to yield predictable results (e.g., configure the central processing unit to enable *Benoit*’s application navigation and launching method on the

touchscreen); and/or (D) a teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the mobile phone disclosed by *Pensjo* to include a series of icons corresponding to a plurality of applications, swiping the screen to scroll through the series of icons, and touching an icon to launch an application. *Id.*

A POSITA would have a reasonable expectation of success in modifying the *Pensjo* to include the icon, swiping, and launching features of *Benoit*. Bederson, ¶174. Such software modifications were well within the skill of the art and are taught by *Benoit*. *Id.* See *Keynetik, Inc. v. Samsung Elecs. Co.*, No. 2022-1127, 2023 WL 2003932, at *2 (Fed. Cir. Feb. 15, 2023) (“Normally, once the function to be performed by software has been identified, writing code to achieve that function is within the skill of the art.” (citing *Fonar Corp. v. Gen. Elec. Co.*, 107 F.3d 1543, 1549 (Fed. Cir. 1997))). The ’144 patent itself discloses no special software programming or algorithms needed to achieve this claimed feature, confirming that such was well within the level of skill in the art at the time. See *generally* Ex. 1001.

3. Claim 3

- a. 3[a]: “[The] device of claim 1, wherein plurality of icons corresponding to plurality of applications are displayed on said display unit, and”**

Pensjo in view of *Benoit* renders claim 3 obvious, including 3[a]. Bederson, ¶¶175-77. *Pensjo* discloses a display touchscreen and a plurality of applications. *Pensjo*, ¶¶[0005], [0008], [0010]-[0011], [0014], Figs. 1, 3-5. *Pensjo* also discloses modifying the interface “depending on the applications used by the device,” including “a telephone application” and “an e-mail application.” *Id.*, ¶[0014]. *Pensjo*’s Figure 3 discloses a screen layout consistent with a resting or home screen, whereas Figure 4 discloses a telephone application in use, including a numeric keyboard and a telephone number typed onto the screen.

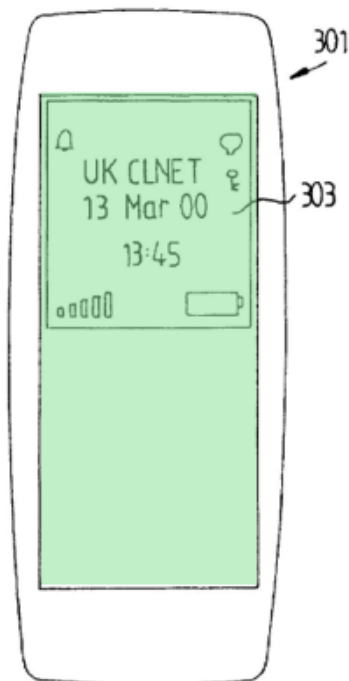


FIG.3

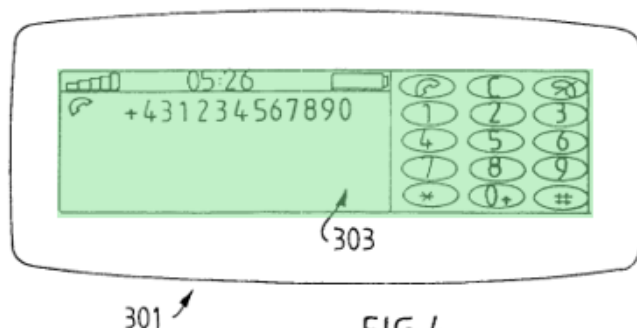


FIG.4

Bederson, ¶175 (annotating *Pensjo*, Figs. 3-4); *see also Pensjo*, Figs. 1, 5.

Accordingly, *Pensjo* contemplates a variety of applications.

The figures of *Pensjo* suggest, but do not themselves depict, a plurality of icons corresponding to a plurality of applications that are displayed on the display unit. This feature, however, was well known in the art. Bederson, ¶176. *Benoit* discloses “a series of icons on the screen” that permit “highlight[ing] the suitable icon for launching that program.” *Benoit*, Abstract. *Benoit* further teaches that it is desirable to display large icons corresponding to applications, making them “easily distinguishable.” *Id.*, 2:17-18.

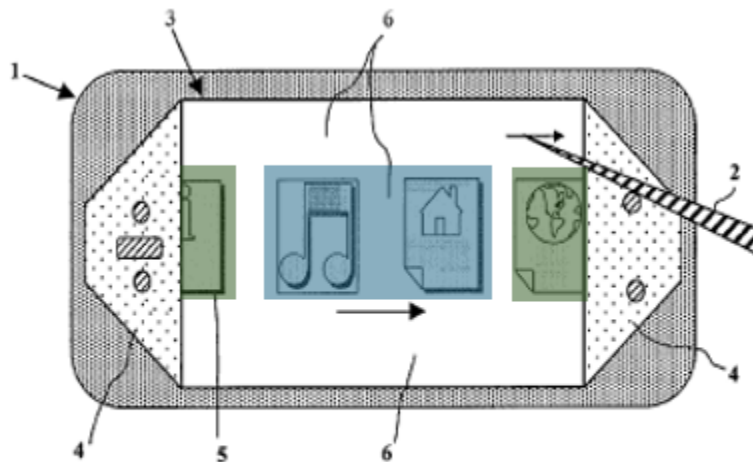


FIGURE 1

Bederson, ¶176 (annotating *Benoit*, Fig. 1), *see also Benoit*, Fig. 3.

It would have been obvious to a POSITA to modify *Pensjo* to include *Benoit*’s teaching of a plurality of icons corresponding to a plurality of applications

that are displayed on the display unit. *See* Section VI.B.2. This would have allowed a user to identify and launch a desired program using the touchscreen. *Id.* A POSITA would have a reasonable expectation of success in incorporating this technology as it was commonplace at the time of the invention as shown by the prior art. *Bederson*, ¶177.

- b. **3[b]: “wherein upon providing a sweeping action on said display unit, plurality of other icons corresponding to plurality of other applications are displayed on said display unit.”**

Benoit discloses 3[b]. *Benoit* states, “Scrolling is achieved by using the PDA’s stylus (or a finger) in the control area to indicate a move in the direction of the scroll.” *Benoit*, Abstract. *Benoit* depicts the **sweeping action**, for example, in Figure 1, which displays a plurality of other icons.

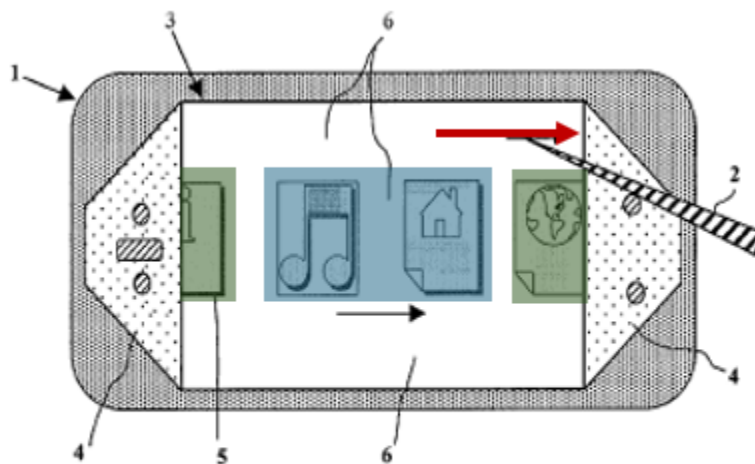


FIGURE 1

Bederson, ¶178 (annotating *Benoit*, Fig. 1), *see also Benoit*, Fig. 3. It would have been obvious to a POSITA to modify *Pensjo* to include this feature from *Benoit*. *See* Section VI.B.2. *Benoit* itself suggests reasons for the modification to permit easier interfacing with the mobile device and prevent premature wear, amongst other reasons. *Benoit*, 2:9-16; *see* Section VI.B.2. A POSITA would have a reasonable expectation of success in modifying the *Pensjo* to include the icon and swiping features of *Benoit* as they would involve a straightforward software modification already known in the art. *See* Section VI.B.2; Bederson, ¶178.

4. Claim 4: “The device of claim 3, wherein upon providing a predefine interaction with an icon, said corresponding application is opened on the display unit.”

Pensjo as modified by *Benoit* renders obvious opening a corresponding application on the display unit upon providing a predefined interaction with an icon. Bederson, ¶179. *Benoit* discloses that “[t]o launch a program, one scrolls through a series of icons on the screen and then highlights the suitable icon for launching that program.” *Benoit*, Abstract. *Benoit* also teaches that “a brief touch on an icon launches an application linked to the icon.” *Id.*, 3:5-8; *see also id.*, 5:9-16 (teaching that an icon may be “identified and selected,” and icons are capable of “launching an application”), 5:22-23 (“An application launch command is characterized by a brief touch of the stylus on the icon.”). It would have been obvious to a POSITA to modify *Pensjo* to include this feature from *Benoit*. *See*

Section VI.B.2. The modification would have permitted a user to open an application in a predictable manner based on user input. *See, e.g., Benoit*, 3:5-8; Section VI.B.2. A POSITA would have a reasonable expectation of success in modifying the *Pensjo* to include the opening feature of *Benoit* as it would involve a straightforward software modification already known in the art. *See* Section VI.B.2; Bederson, ¶179.

5. Independent Claim 15

a. 15[pre]: “A mobile phone device, comprising:”

Pensjo discloses 15[pre] for the same reasons as it discloses 1[pre].

Bederson, ¶180.

b. 15[a]: “a body having a practically rectangular shape;”

Pensjo discloses 15[a] for the same reasons as it discloses 1[a]. Bederson, ¶181.

c. 15[b]: “a processor; and”

Pensjo discloses a processor. Bederson, ¶182. *Pensjo* discusses hardware of the mobile phone, including its “control unit 111,” which a POSITA would understand to be a processor, that “controls the screen display 103.” *Pensjo*, ¶[0009]. *Benoit* also discloses “a central processing unit.” *Benoit*, 3:22-24. Moreover, a processor would be obvious and inherent to run the display and other hardware in both *Pensjo* and *Benoit*. Bederson, ¶182.

- d. **15[c]: “a display unit, said display unit occupying practically the entire surface of the front surface of said device is integrated within said device;”**

Pensjo discloses and renders obvious 15[c] for the same reasons as it discloses 1[e]. Bederson, ¶183.

- e. **15[d]: “wherein plurality of icons corresponding to a plurality of applications are displayed by said processor on said display unit; and”**

Pensjo in view of *Benoit* renders obvious 15[d] for the same reasons it renders obvious limitation 3[a]. Bederson, ¶184. It would have been obvious to a POSITA that a processor as disclosed in *Pensjo* performs the “display[ing]” because that was the standard way phones carried out processes at the time. Bederson, ¶184.

- f. **15[e]: “wherein upon identifying an input corresponding to a sweeping action provided on a touch sensitive surface of said device, said processor displays plurality of other icons corresponding to plurality of other applications on said display unit.”**

Pensjo discloses a “touch screen device.” *Pensjo*, ¶[0001]; see Sections VI.A.1, VI.A.3.f. The display has a touch sensitive surface. Bederson, ¶185.

Moreover, *Pensjo* and *Benoit* render obvious “wherein upon identifying an input corresponding to a sweeping action provided on a touch sensitive surface of said device, said processor displays plurality of other icons corresponding to

plurality of other applications on said display unit,” for the reasons discussed in connection with 3[b] (and a POSITA would have a reasonable expectation of success for the same reasons). It would have been obvious to a POSITA that a processor as disclosed in *Pensjo* performs the “display[ing] plurality of other icons corresponding to plurality of other applications on said display” because that was the standard way phones carried out processes at the time. Bederson, ¶186.

Therefore, *Pensjo* in view of *Benoit* renders obvious 15[e]. Bederson, ¶¶186-87.

6. Claim 16: “The device of claim 15, wherein said display unit is touch sensitive and wherein said sweeping action is provided on said display unit.”

As discussed in connection with 15[e], *Pensjo* discloses a touch sensitive display unit. Moreover, *Pensjo* and *Benoit* disclose that the sweeping action is performed on the surface of the touch sensitive display unit, for the reasons discussed in connection with 3[b]. *Pensjo* in view of *Benoit* renders obvious claim 16. Bederson, ¶188.

7. Claim 17: “The device of claim 15, wherein upon providing a predefined interaction with an icon, the corresponding application is opened on the screen.”

Aside from its dependency on claim 15, claim 17 is substantially similar to claim 4, and thus is rendered obvious by *Pensjo* in view of *Benoit* for the reasons discussed for claims 15 and 4. Bederson, ¶189.

8. Claim 18: “The device of claim 15, wherein said device does not include a physical key on the front surface of the device.”

Aside from its dependency on claim 15, claim 18 is substantially similar to limitation 1[f]. And *Pensjo* discloses and renders obvious limitation 1[f]. Therefore, claim 18 is rendered obvious by *Pensjo* in view of *Benoit* for the reasons discussed for claim 15 and limitation 1[f]. Bederson, ¶190.

9. Claim 19: “The device of claim 15, wherein said components of the mobile phone are integrated within the body such that none of said components is noticeably extended out from said the body.”

Aside from its dependency on claim 15, claim 19 is substantially similar to limitation 1[g]. And *Pensjo* discloses and renders obvious limitation 1[g]. Therefore, claim 19 is rendered obvious by *Pensjo* in view of *Benoit* for the reasons discussed for claim 15 and limitation 1[g]. Bederson, ¶191.

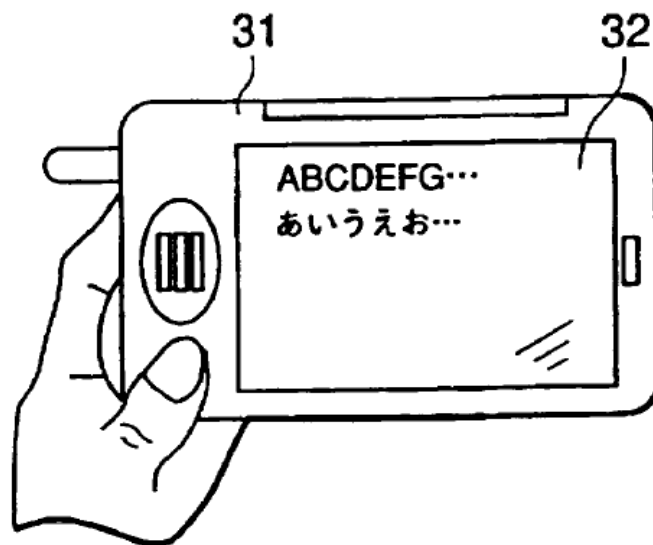
C. Ground 3A: Claims 5, 9-11, and 14 Are Obvious over *Pensjo* in View of *Kobayashi* and *Jambhekar*

1. Overview of *Kobayashi*

Kobayashi relates to a “portable terminal device.” *Kobayashi*, 2:5-6. The device has a “display for displaying data,” a “decision circuit for deciding whether or not the portable terminal device is held by a user,” and “a controller for automatically controlling a direction of [the] screen display on the displaying means in accordance with a result of [the] decision from the decision circuit.” *Id.*,

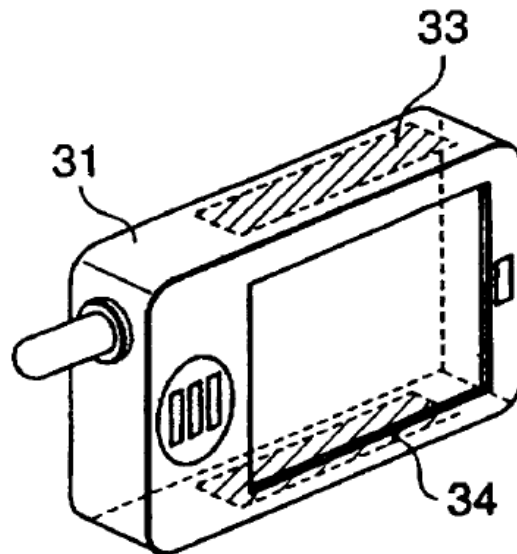
2:15-21. The portable terminal device also includes a “telephone function.” *Id.*,

2:24-27. According to *Kobayashi*, “the display screen on the display 32 can be automatically controlled between the direction of the short side and the direction of the long side in response to how the user holds the mobile information terminal 31, without necessity of any operation.” *Id.*, 19:25-20:4.



Id., Fig. 8a.

To facilitate the automatic orientation of the screen display, *Kobayashi* discloses “pressure sensors 33 and 34” that are disposed on the side surfaces of the device, as depicted in Figure 8b (below). *Id.*, 17:27-18:5. *Kobayashi* explains that the pressure sensors 33 and 34 detect the user’s hands to determine whether the mobile device is positioned in a landscape or portrait orientation, and *Kobayashi* uses this information to rotate the displayed information accordingly. *See id.*, 17:27-18:6.



Id., Fig. 8b; *see also id.*, Figs. 9a-9b.

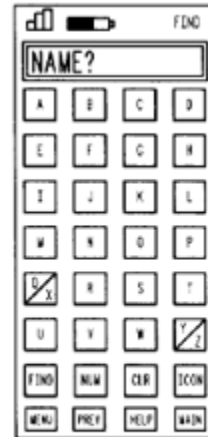
Kobayashi is analogous art at least because it is in the same field of endeavor as the '144 patent—a mobile device with a touchscreen. *Compare id.*, 2:5-3:14, 12:4-27, Figs. 8a-9b, *with* Ex. 1001, Claims 1, 9, 15; Bederson, ¶107.

Kobayashi is also reasonably pertinent to the particular problem the patent at issue is concerned with because it deals with technologies relating to information input with a touch sensitive device. *Compare Kobayashi*, 2:5-3:14, 12:4-27, Figs. 8a-9b, *with* Ex. 1001, Abstract, 1:66-2:19, Claims 1, 9, 15; Bederson, ¶107.

2. Overview of *Jambhekar*

Jambhekar is directed to a mobile device (radio communication device) with a touchscreen that provides telephone, email, and other capabilities. *Jambhekar*, Abstract, Fig. 3, 2:20-31. *Jambhekar* discloses a virtual alphanumeric keyboard

usable with the touchscreen that can be displayed in either portrait or landscape directions. *See, e.g., id.*, Figs. 4C, 5F (shown below).

**FIG. 4C****FIG. 5F**

Jambhekar is analogous art at least because it is in the same field of endeavor as the '144 patent—a mobile device with a touchscreen. *Compare Jambhekar*, Abstract, 1:5-8, 2:20-31, Figs. 2, 3, 4C, 5F, *with* Ex. 1001, Claims 1, 9, 15; Bederson, ¶111. *Jambhekar* is also reasonably pertinent to the particular problem the patent at issue is concerned with because it deals with technologies relating to information input with a touch sensitive device. *Compare Jambhekar*, Abstract, 1:5-8, 2:20-31, Figs. 2, 3, 4C, 5F, *with* Ex. 1001, Abstract, 1:66-2:19, Claims 1, 9, 15; Bederson, ¶111.

3. Rationale to Combine *Pensjo* with *Kobayashi* and *Jambhekar*

It would have been obvious to a POSITA to modify *Pensjo* (as modified) to include *Kobayashi*'s teaching of detecting the orientation of the mobile device and

rotating the display accordingly (e.g., using side sensors or gravity sensors and related hardware/software). Bederson, ¶¶193-201. *Pensjo* teaches an “alphabetic keyboard, which can be used for input of alphanumeric characters” (*Pensjo*, ¶[0005]), and *Pensjo* also discloses that its mobile device can be used in both portrait and landscape orientations (*see id.*, Figs. 3-4, ¶¶[0010]-[0011]), but *Pensjo* does not depict the orientation of that keyboard nor any hardware to permit it to rotate based on the position of the device. Bederson, ¶193.

Given teachings and suggestions in the prior art, a POSITA would have been motivated to use the detection and rotation technology of *Kobayashi* with the device of *Pensjo* to detect the orientation of the mobile device and rotate the display accordingly. Bederson, ¶¶194-95. *Kobayashi* teaches it is beneficial to have a display that can automatically adjust its orientation based on how it is held by a user. *Kobayashi*, 2:5-23, 18:2-19 (“[T]he direction of display can be automatically changed in accordance with the direction in which the user views the display.”). Bederson, ¶¶194-95. When orienting the screen for use in both portrait and landscape orientations, it would have been further obvious to utilize a virtual keyboard format that aligned with that same direction, as disclosed in *Jambhekar*. *Id.* A POSITA would have been motivated to do this so that the user could input information on a virtual keyboard aligned with the screen direction (i.e., portrait-style keyboard for a portrait orientation and landscape-style keyboard for a

landscape orientation). *Id.* This would be beneficial because the keyboard would be aligned with the screen allowing for a more natural and intuitive typing experience for the user. Making the change to *Pensjo* would merely entail applying known and predictable modifications to the hardware and software of *Pensjo*. *Id.*

A POSITA would also have found it obvious to modify *Pensjo/Kobayashi* with the virtual keyboard teachings of *Jambhekar* because all three references relate to mobile phones that provide applications (e.g., texting, e-mail, etc.) beyond the traditional phone dialing functions. Bederson, ¶196. *Jambhekar* recognizes the tension between a traditional mobile phone’s “small display and ... fixed data input keypad,” and that a “wireless data service such as e-mail requires extensive display of received messages as well as extensive user data input from either a pen or a keyboard” (*Jambhekar*, 1:31-36), and sought to provide a phone user interface for “more convenient operation by the user” to navigate the various applications (*id.*, 1:45-49). Bederson, ¶196.

A POSITA would have considered modifying the mobile phone of *Pensjo* with the detection and rotation teachings of *Kobayashi* and the virtual keyboard teachings of *Jambhekar* to be an example of (A) combining prior-art elements (e.g., modified *Pensjo* device) according to known methods (e.g., coding detection and rotation as in *Kobayashi* using known sensors and displaying a virtual keyboard aligned with the screen direction as in *Jambhekar*) to yield predictable

results; (B) use of a known technique (e.g., configuring a device with the detection and rotation teachings and hardware taught in *Kobayashi* and the orientation-aligned virtual keyboards of *Jambhekar*) to improve similar devices (e.g., modified *Pensjo* device) in the same way; (C) applying a known technique (e.g., configure a mobile device to detect rotation as in *Kobayashi* and to incorporate an orientation-aligned virtual keyboard as in *Jambhekar*) to a known device (e.g., modified *Pensjo* device) ready for improvement to yield predictable results; and/or (D) a teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the mobile phone disclosed by *Pensjo*. Bederson, ¶¶197, 200.

A POSITA would have a reasonable expectation of success in modifying the mobile phone of *Pensjo* with the detection and rotation teachings of *Kobayashi* and the virtual keyboards of *Jambhekar* given that it would involve straightforward application of software with known hardware (e.g., touch sensors or gravity sensors). Bederson, ¶¶198-201; *See Keynetik, Inc.*, No. 2022-1127, 2023 WL 2003932, at *2. Such sensors were known, could be accommodated by operating systems, and could comfortably fit within a thin phone. *See* Bederson, ¶¶198-201; Ex. 1052.

4. **Claim 5: “The device of claim 1, wherein said device is adapted to display text entered through a keyboard in landscape direction and in portrait direction on said display unit when the device is used, respectively, in landscape position and in portrait position.”**

Pensjo in light of *Kobayashi* and *Jambhekar* renders this claim obvious.

Bederson, ¶202. *Pensjo* teaches an “alphabetic keyboard” and using the device in both portrait and landscape orientations. *Pensjo*, ¶¶[0005], [0010]-[0011], Figs. 3-4. *Pensjo*’s keyboard is virtual because it appears on the touchscreen and allows input via touch instead of physical keys. *Id.*, ¶¶[0005], [0009], Fig. 4. However, *Pensjo* does not depict the orientation of its alphabetic keyboard nor rotating automatically based on the position of the device. As discussed in Section VI.C.3, a POSITA would have found it obvious to modify *Pensjo* to use the detection and rotation technology of *Kobayashi* (e.g., side sensors or gravity sensors and related hardware/software) to detect the orientation of the mobile device and rotate the display automatically. *See Kobayashi*, 2:5-23, 18:2-19; Bederson, ¶202. And a POSITA would have found it obvious to further modify *Pensjo* to use the virtual landscape and portrait alphabetic keyboards disclosed in *Jambhekar* so the user could input information on a virtual keyboard aligned with the screen direction (i.e., portrait-style keyboard for a portrait orientation and landscape-style keyboard for a landscape orientation). *See* Section VI.C.3. A POSITA would have a reasonable expectation of success in modifying the mobile phone of *Pensjo* with

the detection and rotation teachings of *Kobayashi* and the virtual keyboards of *Jambhekar*. *See id.* The result would have met the limitations of claim 5. Bederson, ¶202.

5. Independent Claim 9

a. 9[pre]: “A mobile phone, comprising:”

Pensjo discloses 9[pre] for the same reasons as it discloses 1[pre]. Bederson, ¶203.

b. 9[a]: “a body having a practically rectangular shape, said body having a front surface, a back surface and four side surfaces,”

Limitation 9[a] is substantially similar to 1[a], and is taught or rendered obvious by *Pensjo* for the same reasons discussed in 1[a]. Bederson, ¶204. Nothing about the modification with *Kobayashi* and *Jambhekar* would have changed the practically rectangular body. For example, *Kobayashi* discloses sensors 33 and 34 as sitting flush against the housing (*Kobayashi*, 17:27-18:16, Figs. 8a-8b, 9a-9b), thus permitting *Pensjo* to retain a configuration that remains practically rectangular shaped. Bederson, ¶204.

c. 9[b]: “wherein the length of the front surface of the mobile phone corresponds to the distance between the ear and the mouth of a user and”

Limitation 9[b] is substantially similar to 1[b], and is taught or rendered obvious by *Pensjo* for the same reasons discussed in connection with 1[b]. Nothing

about the modification with *Kobayashi* and *Jambhekar* would have changed the length of the front surface. Bederson, ¶205.

d. 9[c]: “wherein the width of the front surface of the mobile phone is significantly shorter than the length, and”

Limitation 9[c] is substantially similar to 1[c], and is taught or rendered obvious by *Pensjo* for the same reasons discussed in connection with 1[c]. Nothing about the modification with *Kobayashi* or *Jambhekar* would have changed the length of the front surface or the width of the mobile phone. Bederson, ¶206.

e. 9[d]: “wherein said body has a thin thickness;”

Limitation 9[d] is substantially similar to 1[d], and is taught or rendered obvious by *Pensjo* for the same reasons discussed in connection with 1[d]. Nothing about the modification with *Kobayashi* and *Jambhekar* would have changed the mobile phone from having a thin thickness. Bederson, ¶207.

f. 9[e]: “a touch sensitive display unit;”

Pensjo discloses 9[e]. *Pensjo* discloses “a portable touch screen device, such as a PDA (Personal Digital Assistant) or a smart phone.” *Pensjo*, ¶[0001]. *Pensjo* discloses “an exemplary mobile telephone 301 comprising a touch screen display 303.” *Id.*, ¶[0010]. The mobile phone has a large “touch screen display” that displays a user interface in both “landscape” and “portrait” configurations. *Id.*,

¶¶[0010]-[0011]; *see also id.*, Figs. 3-4. *Kobayashi* and *Jambhekar* likewise disclose this feature. *See* Sections VI.C.1-VI.C.2.

g. 9[f]: “a virtual keyboard to enter text; and”

Limitation 9[f] is taught or rendered obvious by *Pensjo* in view of *Kobayashi* and *Jambhekar* for the same reasons discussed in connection with claim 5. Bederson, ¶209. A POSITA would have found it obvious to further modify *Pensjo/Kobayashi* to use the virtual landscape and portrait alphabetic keyboards disclosed in *Jambhekar* so the user could input information on a virtual keyboard aligned with the screen direction (i.e., portrait-style keyboard for a portrait orientation and landscape-style keyboard for a landscape orientation). *See* Section VI.C.3.

h. 9[g]: “a microphone and a speaker;”

Pensjo discloses 9[g] and renders it obvious. A POSITA would have understood that *Pensjo*’s device would have included a microphone and a speaker because it is intended for use as a “smart phone” or a “mobile telephone.” *Pensjo*, ¶¶[0001], [0006]-[0007], [0010]-[0011], Figs. 1, 3-5. A POSITA would have understood that *Pensjo*’s smart phone or mobile telephone at the time of the invention included a microphone and speaker for conducting phone conversations. Bederson, ¶210.

A microphone and speaker would also have been obvious given the knowledge of a POSITA. Microphones and speakers were commonplace features in mobile phones to allow telephone conversations. Bederson, ¶211; *Yamaguchi*, ¶[0005]; *Dutta*, ¶[0018], Figs. 2A-2B. A POSITA would have known of using a microphone and speaker with a mobile phone, had a motivation to use them, and would have had a reasonable expectation of success in implementing them in light of the prior art. Bederson, ¶211.

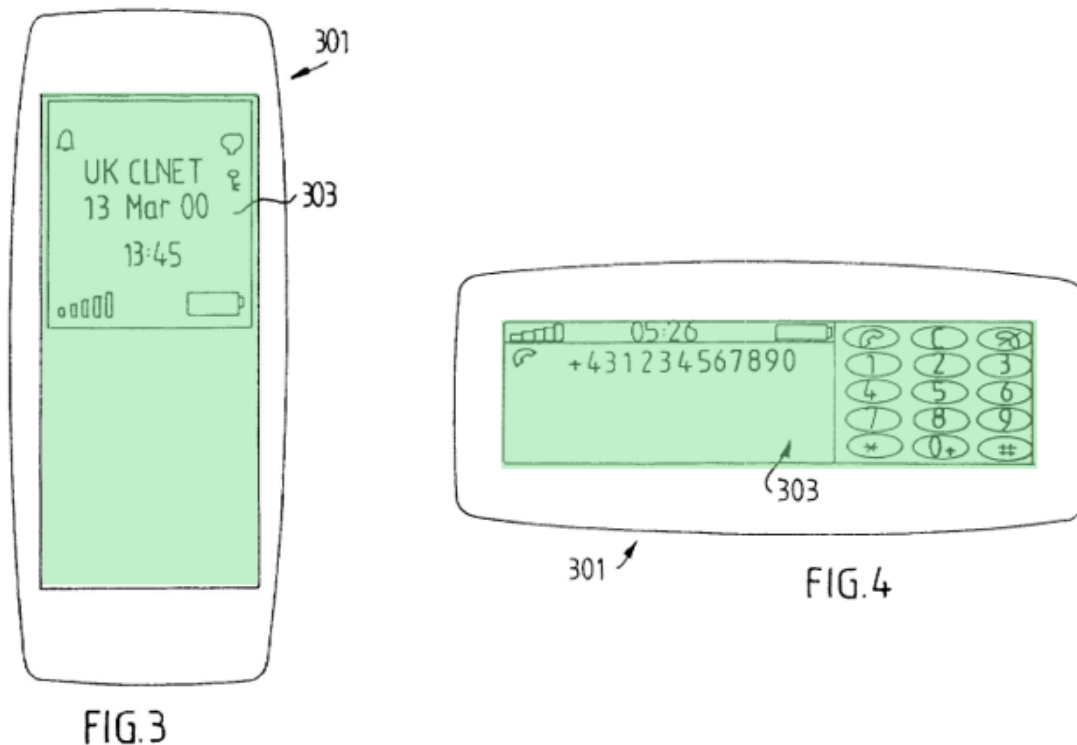
i. 9[h]: “wherein said display unit, practically occupying the entire front surface of the mobile phone, is integrated within said mobile phone and”

Limitation 9[h] is substantially similar to 1[e], and is taught or rendered obvious by *Pensjo* for the same reasons discussed in connection with 1[e]. Bederson, ¶212. Nothing about the modification with *Kobayashi* and *Jambhekar* would have changed the mobile phone from having a display unit that is practically occupying the entire front surface of the mobile phone and is integrated within the mobile phone. Bederson, ¶212.

j. 9[i]: “wherein said front surface of the mobile phone does not have a physical button and wherein said mobile phone does not have a physical keyboard to enter text, and”

Pensjo discloses or renders obvious “wherein said front surface of the mobile phone does not have a physical button” for the same reasons discussed 1[f].

Pensjo further discloses that the mobile phone does not have a physical keyboard to enter text. *Pensjo* teaches that the touchscreen includes a virtual keyboard, thus removing the need for a physical keyboard. *Pensjo*, ¶¶[0005], [0009], [0011], [0014].



Bederson, ¶213 (annotating *Pensjo*, Figs. 3-4); *see also Pensjo*, Figs. 1, 5. Indeed, the design of Figures 3 and 4 shows the display with numeric virtual buttons displayed on the screen. *Pensjo* also teaches an alphabetic keyboard, noting that “removal of the pen from the pen holder may trigger the appearance of an alphabetic keyboard, which can be used for input of alphanumeric characters.” *Pensjo*, ¶[0005]. *Pensjo*’s disclosure of virtual keyboard’s and failure to disclose

any physical keyboard would have indicated to a POSITA that *Pensjo* is disclosing a mobile phone that does not have a physical keyboard to enter text. Bederson, ¶213. Moreover, it would have been obvious to modify *Pensjo* in view of *Kobayashi* and *Jambhekar* to have a virtual keyboard and buttons for the same reasons discussed in connection with claim 5, further obviating the need for a physical keyboard and physical buttons. Bederson, ¶213.

- k. **9[j]: “wherein said display unit is adapted to display text, entered through the virtual keyboard, in landscape direction and in portrait direction when the mobile phone is used, respectively, in landscape position and in portrait position.”**

Limitation 9[j] is substantially similar to claim 5, and is obvious in light of *Pensjo/Kobayashi/Jambhekar* for the same reasons discussed in connection with claim 5. Bederson, ¶¶214-15.

6. **Claim 10: “The mobile phone of claim 9, wherein the distance between said microphone and said speaker corresponds to the distance between the ear and the mouth of a user.”**

Claim 10 would have been obvious in light of *Pensjo* and the knowledge of a POSITA. The analysis is similar to that of 1[b]. *Pensjo* discloses a mobile phone device. *Pensjo*, ¶¶[0007], [0010]-[0011], Figs. 1, 3-5. Users at the time of the invention commonly used phone devices to conduct a call, and mobile telephones were known to have a microphone positioned near the mouth and the speaker

positioned near the ear of a user, allowing the user to both speak and listen during a call. *See, e.g.*, Bederson, ¶216; *Yamaguchi*, ¶[0005]; *Dutta*, ¶[0003], Figs. 2A-2B. As such, a POSITA would have understood *Pensjo* to disclose—or would have found it obvious to modify *Pensjo* based on the knowledge of a POSITA to include—a distance between the microphone and the speaker corresponding to the distance between the ear and the mouth of a user. This modification would merely entail a simple and predictable alteration of the phone’s dimensions based on the knowledge of a POSITA. Bederson, ¶216. A POSITA would have known of this positioning of the microphone and speaker, had a motivation to use it, and would have had a reasonable expectation of success in achieving it in light of the prior art. Bederson, ¶216; *see* Section VI.A.3.c

7. Claim 11: “The mobile phone of claim 9, wherein said practically rectangular shape has rounded corners.”

Claim 11 is substantially similar to claim 2, and is taught or rendered obvious by *Pensjo* for the same reasons discussed in connection with claim 2. Bederson, ¶217. Nothing about the modification with *Kobayashi* and *Jambhekar* would have changed the practically rectangular shape having rounded corners. Bederson, ¶217.

8. **Claim 14: “The mobile phone of claim 9, wherein said components of the mobile phone are integrated within the body such that none of said components is significantly extended out from the body.”**

Claim 14 is substantially similar to 1[g], and is taught or rendered obvious by *Pensjo* for the same reasons discussed in connection with 1[g]. Bederson, ¶218. Nothing about the modification with *Kobayashi* and *Jambhekar* would have changed the components of the mobile phone being integrated within the body such that none of said components is significantly extended out from the body. Bederson, ¶218.

D. Ground 4A: Claims 12 and 13 Are Obvious over *Pensjo* in View of *Kobayashi*, *Jambhekar*, and *Benoit*

1. Rationale to Combine *Pensjo*/*Kobayashi*/*Jambhekar* and *Benoit*

The rationale to modify the modified device of *Pensjo*, *Kobayashi*, and *Jambhekar* further with the teachings of *Benoit* is substantially the same as the rationale to modify *Pensjo* with *Benoit* explained above in Section VI.B.2. It would have been obvious to a POSITA to modify the *Pensjo*/*Kobayashi*/*Jambhekar* device to include *Benoit*’s teaching of a series of icons corresponding to a plurality of applications and swiping the screen to scroll through the series of icons. Bederson, ¶220. *Benoit* itself suggests reasons for the modification. *Benoit*, 2:9-24, 3:9-21. *Benoit*’s configuration allows for more screen real estate, improves wear of the screen, and allows for easier navigation. Bederson, ¶220. A POSITA would

have known of using icons along with the swiping and launching features of *Benoit*, had a motivation to use them, and would have had a reasonable expectation of success in implementing them in light of the prior art. Bederson, ¶220.

2. Claim 12

- a. 12[a]: “The mobile phone of claim 9, wherein plurality of icons corresponding to plurality of applications are displayed on said display unit, and”**

Limitation 12[a] is substantially similar to 3[a], and is taught or rendered obvious by *Pensjo/Benoit* for the same reasons discussed in connection with 3[a]. Bederson, ¶221. Moreover, as discussed in Section VI.D.1, the combination uses *Benoit*’s teachings to improve the *Pensjo/Kobayashi/Jambhekar* mobile phone in the same way taught by *Benoit* and would have been obvious for the same reasons. Bederson, ¶221. Thus, *Pensjo* in view of *Kobayashi*, *Jambhekar*, and *Benoit* renders obvious 12[a].

- b. 12[b]: “wherein upon providing a sweeping action on said display unit, plurality of other icons corresponding to plurality of other applications are displayed on said display unit.”**

Limitation 12[b] is substantially similar to 3[b], and is taught or rendered obvious by *Pensjo/Benoit* for the same reasons discussed in connection with 3[b]. Bederson, ¶222. Moreover, as discussed in Section VI.D.1, the combination uses *Benoit*’s teachings to improve the *Pensjo/Kobayashi/Jambhekar* mobile phone in the same way taught by *Benoit* and would have been obvious for the same reasons.

Bederson, ¶222. Thus, *Pensjo* in view of *Kobayashi*, *Jambhekar*, and *Benoit* renders obvious claim 12.

3. Claim 13: “The mobile phone of claim 12, wherein upon providing a predefine interaction with an icon, the corresponding application is opened on the screen.”

Claim 13 is substantially similar to claim 4, and is taught or rendered obvious by *Pensjo/Benoit* for the same reasons discussed in connection with claim 4. Bederson, ¶223. Moreover, as discussed in Section VI.D.1, the combination uses *Benoit*’s teachings to improve the *Pensjo/Kobayashi/ Jambhekar* mobile phone in the same way taught by *Benoit* and would have been obvious for the same reasons. Bederson, ¶223. Thus, *Pensjo* in view of *Kobayashi*, *Jambhekar*, and *Benoit* renders obvious claim 13. Bederson, ¶223.

E. Ground 5A: Claim 20 Is Obvious over *Pensjo* in View of *Benoit*, *Kobayashi*, and *Jambhekar*

1. Rationale to Combine *Pensjo/Benoit* with *Kobayashi* and *Jambhekar*

The rationale to modify the modified device of *Pensjo/Benoit* with the teachings of *Kobayashi* and *Jambhekar* is substantially the same as the rationale to modify *Pensjo* explained in Section VI.C.3. It would have been obvious to a POSITA to modify *Pensjo/Benoit* to use the detection and rotation technology of *Kobayashi* so that *Pensjo/Benoit* could detect the orientation of the mobile device and rotate the display accordingly. Bederson, ¶225. *Kobayashi* teaches that it is

beneficial to have a display that can automatically adjust to the orientation how the user is holding it. *Kobayashi*, 2:5-23, 18:2-19. Bederson, ¶225. When orienting the screen for use in both portrait and landscape orientations, it would have been further obvious to utilize a virtual keyboard format that aligned with that same direction, as disclosed in *Jambhekar*. Bederson, ¶225. In this way, the user could input information on a virtual keyboard aligned with the screen direction (i.e., portrait style keyboard for a portrait orientation and a landscape style keyboard for a landscape orientation). *Id.* The keyboard would be aligned with the screen allowing for a more natural and intuitive typing experience for the user. *Id.*

A POSITA would have a reasonable expectation of success in modifying the mobile phone of *Pensjo* with the sensors of *Kobayashi* and the virtual keyboards of *Jambhekar* given that it would involve straightforward application of software with known hardware (e.g., the touch sensors or gravity sensors). Bederson, ¶226; *See Keynetik, Inc.*, No. 2022-1127, 2023 WL 2003932, at *2.

2. **Claim 20: “The device of claim 15, wherein said display unit is adapted to display text entered through a keyboard in landscape direction and in portrait direction on said display unit when the device is used, respectively, in landscape position and in portrait position.”**

Aside from its dependency on claim 15, claim 20 is substantially similar to claim 5, and thus is obvious over *Pensjo* in view of *Benoit*, *Kobayashi*, and *Jambhekar* for the reasons discussed for claims 15 and 5. Bederson, ¶227.

VII. DISCRETIONARY DENIAL IS NOT WARRANTED

A. Denial of Institution Is Not Warranted Under *Fintiv*

Consistent with *Sotera Wireless, Inc.*, Petitioners hereby stipulate “that, if the PTAB institutes inter partes review, Petitioner[s] ‘will not pursue in [*Keyless Licensing LLC v. Samsung Electronics America, Inc., et al.*, Case No. 2:24-cv-00464-JRG (E.D. Tex.)] the specific grounds [asserted in IPR2025-00529], or ... any other ground ... that was raised or could have been reasonably raised in an IPR (i.e., any ground that could be raised under §§ 102 or 103 on the basis of prior art patent or printed publications).” *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 13-14 (PTAB Dec. 1, 2020) (precedential as to § II.A)

The Director’s Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (“Interim Procedure”⁴) directs that “the PTAB will not discretionarily deny institution of an IPR or PGR in view of parallel district court litigation where a petitioner stipulates not to pursue in a parallel district court proceeding the same grounds as in the petition or any

⁴ Available at

https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

grounds that could have reasonably been raised in the petition.” Interim Procedure, 3, 7-8. Petitioners have so stipulated.

Denial of institution is not warranted under *Fintiv*.

B. Denial of Institution Is Not Warranted Under § 325(d)

During prosecution, the Examiner did not consider or rely on any of the prior art asserted in this Petition. Thus, the Examiner did not consider the same (or substantially the same) prior art and arguments presented here. The Board should not exercise its discretion to deny institution under 35 U.S.C. § 325(d).

VIII. MANDATORY NOTICES

A. Real Parties-in-Interest

The real parties-in-interest are Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc.

B. Related Matters

This petition is related to IPR2025-00528.

Keyless asserted the ’144 patent in *Keyless Licensing LLC v. Samsung Electronics America, Inc. et al.*, Case No. 2-24-cv-00464 (E.D. Tex.). Petitioners are not aware of any other judicial or administrative matter that would affect, or be affected by, a decision in this proceeding.

On its face, the ’144 patent purports to claim priority to the following U.S. Patent Applications: U.S. Application Nos. 14/146,125 and 10/553,575 (both

abandoned); International Application No. PCT/US2004/012082; and now-expired U.S. Provisional Application Nos. 60/463,844; 60/466,594; 60/468,028; 60/474,447; 60/475,533; 60/482,706; 60/482,998; 60/496,702; 60/500,602; 60/504,331; 60/510,885; 60/536,564; 60/552,968; 60/557,140. According to the records of the U.S. Patent and Trademark Office, U.S. Patent Application Nos. 17/871,945 and 17/872,301 (both abandoned) claim priority to the '144 patent.

C. Lead and Backup Counsel, and Service Information

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Petitioners consent to electronic service by email at the above email addresses.

IX. GROUNDS FOR STANDING

Petitioners certify that the '144 patent is available for IPR, and that
Petitioners are not barred or estopped from requesting IPR challenging the patent
claims on the grounds identified herein.

X. CONCLUSION

For the reasons above, Petitioners request institution of *inter partes* review and cancellation of each challenged claim. The Office may charge any required fees to Deposit Account No. 06-0916.

Date: February 14, 2025

By: /Joshua L. Goldberg/
Joshua L. Goldberg, Lead Counsel
Reg. No. 59,369

CERTIFICATION OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(a)(1)(i), the undersigned hereby certifies that the foregoing PETITION FOR *INTER PARTES* REVIEW contains 13,996 words, excluding the parts of this Petition that are exempted under 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

Date: February 14, 2025

By: /Joshua L. Goldberg/
Joshua L. Goldberg, Lead Counsel
Reg. No. 59,369

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e) and 42.105(a), the undersigned certifies that on February 14, 2025, a copy of the foregoing **Petition for *Inter Partes* Review of U.S. Patent No. 11,503,144, Petitioners' Notice Ranking Petitions for *Inter Partes* Review of U.S. Patent No. 11,503,144, the associated powers of attorney, and Exhibits 1001-1021, 1023-1033, 1035-1047, 1051-1052** were served by FedEx International on the correspondence address of record indicated in the Patent Office's public Patent Center system for U.S. Patent No. 11,503,144:

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A courtesy copy of the foregoing was also served by FedEx Priority Overnight on litigation counsel:

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Date: February 14, 2025

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