

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY COMPUTER ENTERTAINMENT AMERICA LLC,
Petitioner,

v.

APLIX IP HOLDINGS CORPORATION,
Patent Owner.

Case IPR2015-00533
Patent 7,218,313 B2

Before SALLY C. MEDLEY, BRYAN F. MOORE, and
JASON J. CHUNG, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, Petitioner has shown by a preponderance of the evidence that claims 15, 16, 20, 37–42, and 44–51 of U.S. Patent No. 7,218,313 B2 are unpatentable.

A. Procedural History

Petitioner, Sony Computer Entertainment America LLC, filed a Petition requesting an *inter partes* review of claims 15, 16, 20, 37–42, and 44–51 of U.S. Patent No. 7,218,313 B2 (Ex. 1001, “the ’313 patent”). Paper 2 (“Pet.”). Patent Owner, Aplix Holdings Corporation, filed a Preliminary Response. Paper 10 (“Prelim. Resp.”). Upon consideration of the Petition and Preliminary Response, on June 22, 2015, we instituted an *inter partes* review of claims 15, 16, 20, 37–42, and 44–51, pursuant to 35 U.S.C. § 314. Paper 11 (“Dec.”).

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 15 (“PO Resp.”)) and Petitioner filed a Reply (Paper 21 (“Reply”)). Patent Owner filed a Motion for Observations (Paper 26) and Petitioner filed a Response to the Observations (Paper 29). An oral hearing was held on January 19, 2016, and a transcript of the hearing is included in the record (Paper 31(“Tr.”)).

B. Related Proceedings

The ’313 patent is involved in the following lawsuit: *Aplix IP Holdings Corp. v. Sony Computer Entertainment, Inc.*, No. 1:14-cv-12745 (MLW) (D. Mass.). Pet. 59.

C. The ’313 Patent

The ’313 patent relates to hand-held electronic devices, such as cell phones, personal digital assistants (“PDAs”), pocket personal computers, smart phones, hand-held game devices, bar-code readers, remote controls having a keypad or one or more input elements. Ex. 1001, 1:5–11. The hand-held device includes, on one surface, one or more software configurable input elements that can be manipulated by a user’s thumb(s) or

stylus, and on the other surface, one or more software configurable selection elements that can be manipulated by a user's finger(s). *Id.* at Abstract.

D. Illustrative Claim

Of the challenged claims, claims 15 and 37 are the only independent claims. Claims 16 and 20 depend directly from claim 15 and claims 38–42 and 44–51 depend either directly or indirectly from claim 37.

Claim 37, reproduced below, is illustrative.

37. A hand-held electronic device comprising:

a memory configured to store a plurality of applications, wherein each application is associated with a set of functions;

a processor configured to process a selected one of the plurality of applications;

a first input assembly disposed on a first surface of the electronic device, wherein the first input assembly comprises a plurality of input elements configured to be actuated by a human user's hand, wherein at least one of the input elements of the first input assembly is configured to map to one or more input functions of the set of functions associated with the selected one of the plurality of applications; and

a second input assembly disposed on a second surface so as to substantially optimize a biomechanical effect of the human user's hand, wherein the second input assembly comprises one or more input elements configured to be manipulated by one or more of the human user's fingers, wherein at least one of the input elements of the second input assembly is a selectively configurable sensing surface so as to provide a plurality of delineated active areas, further wherein one or more of the delineated active areas is mapped to one or more functions associated with the selected application, further wherein the memory is further configured to store for each application a mapping of the selectively configurable sensing surface to the plurality of delineated active areas.

Ex. 1001, 19:56–20:17.

E. Grounds of Unpatentability

We instituted an *inter partes* review of claims 15, 16, 20, 37–42, and 44–51 on the following grounds:

Claims	Basis	References
15 and 20	§ 103(a)	Pallakoff ¹ and Ishihara ²
16	§ 103(a)	Pallakoff, Ishihara, and Liebenow ³
37–42, 46, and 49	§ 103(a)	Liebenow and Ishihara
44, 45, 47, and 48	§ 103(a)	Liebenow and Armstrong ⁴
50 and 51	§ 103(a)	Liebenow and Hedberg ⁵

II. ANALYSIS

A. Level of Skill of Person in the Art

We find that the level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

¹ U.S. Patent Publication No. 2002/0163504 A1, published Nov. 7, 2002 (Ex. 1004, “Pallakoff”)

² JP 2002-77357, Mar. 15, 2002 (Ex. 1005, “Ishihara”)

³ U.S. Patent Publication No. 2002/0118175 A1, published Aug. 29, 2002 (Ex. 1003, “Liebenow”)

⁴ U.S. Patent No. 6,102,802, Aug. 15, 2000 (Ex. 1006, “Armstrong”)

⁵ WO 1999/18495, Apr. 15, 1999 (Ex. 1007, “Hedberg”)

B. Claim Interpretation

In an *inter partes* review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 890 (mem.) (2016). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Also, we must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (“[L]imitations are not to be read into the claims from the specification.”). However, an inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner proposes a construction for the terms “substantially optimize a biomechanical effect of the human user’s hand,” (claims 15 and 37) “delineated active areas,” (claim 37) “a game function that is substantially optimized for actuation by the human user’s thumb,” (claim 44) and “a game function that is substantially optimized for actuation by one or more of the human user’s fingers” (claim 46). Pet. 7–13. In our Decision to Institute, we determined that it was not necessary to construe “delineated active area” (claims 3, 5, and 13) and agreed with Petitioner’s construction

for “substantially optimize a biomechanical effect of the human user’s hand,” (claims 15 and 37) “a game function that is substantially optimized for actuation by the human user’s thumb,” (claim 44) “a game function that is substantially optimized for actuation by one or more of the human user’s fingers” (claim 46). Dec. 5–7. Neither party has indicated that our determination in that regard was improper and we do not perceive any reason or evidence that now compels any deviation from our initial determination.

Accordingly, the following constructions apply to this Decision:

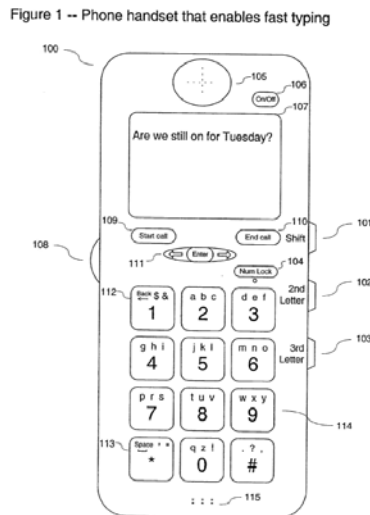
Claim Term	Construction
substantially optimize a biomechanical effect of the human user’s hand	includes any configuration designed to take advantage of any biomechanical effect
a game function that is substantially optimized for actuation by the human user’s thumb	includes any game function that may be actuated by the user’s thumb
a game function that is substantially optimized for actuation by one or more of the human user’s fingers	includes any game function mapped to a delineated active area

C. Obviousness Over Pallakoff and Ishihara

Petitioner contends that claims 15 and 20 are unpatentable under 35 U.S.C. § 103 based on Pallakoff and Ishihara. Pet. 25–36. To support its contentions, Petitioner provides a detailed showing mapping limitations of claims 15 and 20 to structures taught by Pallakoff and Ishihara. *Id.* Petitioner also relies upon the Declaration of Dr. Gregory F. Welch (Ex. 1008) to support its position.⁶

⁶ Patent Owner argues that the Board should give Dr. Welch’s testimony little weight. PO Resp. 16–17. We are not persuaded by the arguments. The

Pallakoff describes a hand-held device with multiple keys on its face and with one or more buttons on its side. Ex. 1004, Abstract. Figure 1 of Pallakoff is reproduced below.

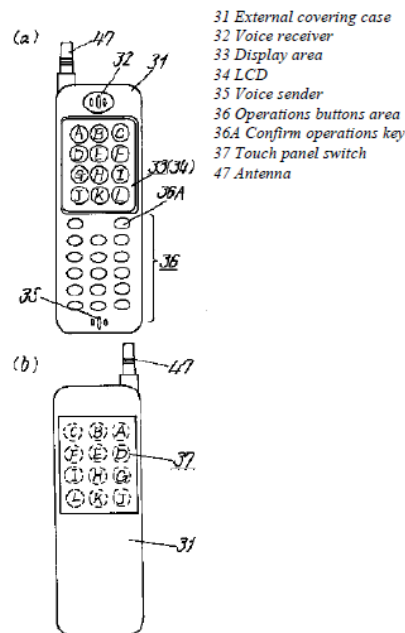


As shown in Figure 1 of Pallakoff, each numerical key on the face of the hand-held device has multiple corresponding letters and each of the keys on the side of the hand-held device corresponds to shift, 2nd letter, and 3rd letter. Users will typically type using two hands, one holding the hand-held device and operating the side keys, and the other hand pressing the keys on the face of the hand-held device. Ex. 1004 ¶ 193. When a key on the side of the display is held and a key on the front of the display is pressed, such as the 2nd letter key and the number 2, the lowercase letter “b” is displayed on the display of the hand-held device. *Id.* ¶ 18. The shift key changes the case of a letter such that when the shift key is held simultaneously with the 2nd letter key and the number 2 key is pressed, an uppercase “B” is displayed on the display of the hand-held device. *Id.*

evidence to which we are directed does not support the conclusion that Dr. Welch is not a credible witness. *See id.*

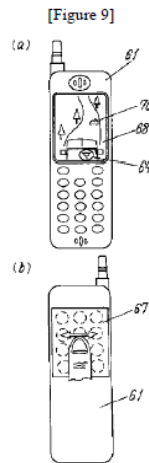
Pallakoff further teaches, in connection with the hand-held device, a user accessing a calculator, email, instant messaging, webpages, remotely hosted applications, and other services. *Id.* ¶¶ 196, 198; 208.

Ishihara teaches a handheld device including touch panel 37 on the back surface of the handheld device and display area 33 on the front surface of the handheld device. Ex. 1005, Abstract. Ishihara's Figure 1a, corresponding to the front surface of the handheld device, and Figure 1b, corresponding to the back surface of the handheld device, is reproduced below.



As shown in Figure 1 of Ishihara, the back surface display area 37 corresponds to inputs on the front surface display area 33. *Id.* Abstract; Figs. 1a–1b.

Figures 9a and 9b of Ishihara, corresponding to the hand-held device's front surface and back surface, respectively, are reproduced below.



As shown in Figures 9a and 9b, Ishihara illustrates a user steering an automobile in a game application. Specifically, Ishihara teaches the user's fingertips moving left and right on the delineated active areas on the back surface touch panel of the hand-held device controls the automobile's steering. *Id.* ¶ 67; Figs. 9a and 9b.

Claim 15

Petitioner argues that Pallakoff teaches a hand-held device for selecting an application from a plurality of applications, the selected application having a plurality of text symbol functions and a plurality of shifting functions. Pet. 28–30; Ex. 1004 (multiple paragraphs and figures cited in petition). Petitioner argues that Pallakoff teaches selectively mapping to a different function and causing the text symbol function to change as claimed in claim 15, for example. Pet. 33–34; Ex. 1004 (multiple paragraphs and figures cited in petition).

Petitioner relies on Ishihara's hand-held device having inputs on back surface display area 37 corresponding to inputs on front surface display area 33 to meet the limitation of “a second surface having one or more input elements, wherein at least one of the input elements of the second surface having one or more selectable active areas.” Pet. 31–32; Ex. 1005 (multiple

paragraphs and figures cited in petition). Petitioner concludes that one of ordinary skill in the art would have recognized that Pallakoff's input elements on the hand-held device could be replaced with input elements that provide tactile feedback, like Ishihara's input elements, as a simple substitution of one known element for another known element. Pet. 25–28; Ex. 1008 ¶¶ 47–53.

Patent Owner argues that Pallakoff and Ishihara should not be combined for various reasons. PO Resp. 17–28. First, Patent Owner argues that Pallakoff teaches away from implementing modifier buttons on the back of the hand held device because Pallakoff does not describe the side buttons as being on the back. *Id.* at 19–21. A reference does not teach away if it merely expresses a general preference for an alternative invention but does not “criticize, discredit, or otherwise discourage” investigation into the invention claimed. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Here, we note that Pallakoff teaches that the positioning of face-keys or side-buttons can vary and one place to position the keys or buttons is on the back of the device. Reply 9–10 (citing Ex. 1004 ¶¶ 196, 200, 323). We have considered Patent Owner's arguments and evidence to which we are directed and determine that Patent Owner has not shown sufficiently that Pallakoff criticizes, discredits, or otherwise discourages implementing the modifier buttons on any surface of the handheld device, including the back surface.

Patent Owner next argues that Ishihara's touchpad could not be substituted for Pallakoff's modifier buttons and be able to perform the operations required in Pallakoff because Ishihara's touchpad would not recognize two different areas being pressed simultaneously. PO Resp. 21–22. Patent Owner's arguments and evidence are based on incorporating

physically all technicalities of Ishihara with all technicalities of Pallakoff. The test for obviousness is what the combined teachings of the references would have suggested to a person of ordinary skill in the art, not whether one reference may be bodily incorporated into the structure of another reference. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). For example, Patent Owner and Dr. MacLean are of the apparent impression that the operation of pressing two modifier buttons simultaneously as described in Pallakoff need be maintained when combining Pallakoff with Ishihara. See, e.g., PO Resp. 23–24; Ex. 2007 ¶¶ 73, 74, 76. However, that is not what the law requires, and in any event, none of the claims require how input elements are selected or operated by the user.

Patent Owner argues that both Pallakoff and Ishihara teach away from both the specific programmable reconfiguration and repositioning of key mappings because: (1) Pallakoff fails to teach any use for its modifier buttons other than as buttons that modify the letter or function of a face key; and (2) Pallakoff cautions against changing an order of the modifier buttons that is intuitive for users, making it easy to learn. PO Resp. 22–26. A reference does not teach away if it merely expresses a general preference for an alternative invention but does not “criticize, discredit, or otherwise discourage” investigation into the invention claimed. *Fulton*, 391 F.3d at 1201. Here, we note that Pallakoff teaches that reasonably skilled programmers can develop other ways to implement software that interprets the keys and modifier buttons. Ex. 1004 ¶¶ 23, 24, 159. In addition, we note that Pallakoff teaches the positioning face-keys or side-buttons can vary and one place to position the keys or buttons is on the back of the device. *Id.* ¶¶ 196, 200, 323. We, therefore, have considered Patent Owner’s arguments

and evidence to which we are directed and determine that Patent Owner has not shown sufficiently that Pallakoff criticizes, discredits, or otherwise discourages both the specific programmable reconfiguration and repositioning of key mappings.

Patent Owner argues that locating Pallakoff’s modifier buttons on the back of the handheld device as suggested by Ishihara would defeat Pallakoff’s goal of enabling fast typing. PO Resp. 26–28. Patent Owner’s arguments are misplaced, and, therefore, not persuasive. Patent Owner does not contend that the combined teachings would not result in a working device, or that the combination would be beyond the skill set of a person of ordinary skill in the art. It is of no moment that the combination would result, in some aspects—aspects not related to claimed features—to be inferior.

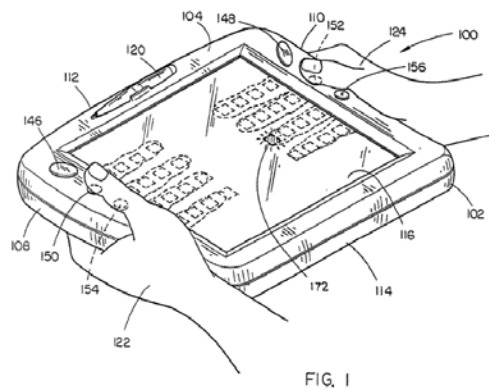
Claim 20

Claim 20 directly depends from claim 15 and recites “wherein the processor is further configured to be communicatively coupled to a host electronic device.” Ex. 1001, 17:48–50. Petitioner argues that Pallakoff’s user accessing remotely hosted applications and other services teaches the limitations of claim 20. Pet. 36 (citing Ex. 1004 ¶ 196). We are not persuaded by Patent Owner’s argument (PO Resp. 28–29) that Pallakoff fails to teach communicative coupling to a local host because claim 20 does not recite “local host.” Moreover, Dr. MacLean acknowledged that “host” is broader than a “local host” and that a server is an electronic device. Ex. 2007 ¶¶ 126–129; Ex. 1037, 142:10–14.

D. Obviousness Over Pallakoff, Ishihara, and Liebenow

Petitioner contends that claim 16 is unpatentable under 35 U.S.C. § 103 based on Pallakoff, Ishihara, and Liebenow. Pet. 45. To support its contentions, Petitioner provides a detailed showing mapping limitations of claim 16 to structures taught by Pallakoff, Ishihara, and Liebenow. *Id.* at 43–45. Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1008) to support its position.

Liebenow teaches an electronic hand-held information appliance having a display disposed on a first surface and an input device disposed on a second surface opposed to the first surface for inputting information. Ex. 1003, Abstract. Figure 1 of Liebenow is reproduced below.



As shown in Figure 1 of Liebenow, digital information appliance 100 is sized and shaped to be held by a user in both hands. Housing 102 includes front surface 104 and back surface. *Id.* ¶ 25. One or more function keys such as 150, 152, and 154 may be mounted on front surface 104. Display 116 may be a touch-screen for touch or pen input of information and data. *Id.* ¶¶ 26, 33. Figure 5 of Liebenow is reproduced below.

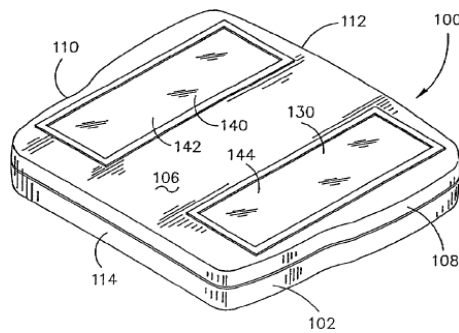


FIG. 5

As shown in Figure 5, back surface may be comprised of one or more touch sensitive panels 140. *Id.* ¶¶ 13, 36. Areas of panel 140 may be defined as keys of a keyboard (emulated as an electromechanical keyboard seen in Figure 2) so that a user touching the panel within such an area would accomplish actuation of a key. *Id.* In particular, panel 140 may be divided into left and right key ranges 142 and 144, such that fingers of a user's left and right hands may be positioned over the touch sensitive panel to be in position for typing. Various key configurations may be defined as desired by the user or as required by the applications executed by the digital information appliance. *Id.*

Liebenow teaches, in connection with the hand-held device, a processing system 502 that includes a central processing unit such as a microprocessor or microcontroller for executing programs, performing data manipulations, and controlling tasks of the hand-held device. *Id.* ¶¶ 21, 56, Fig. 13. Liebenow further teaches an electronic hand-held information appliance having a display disposed on a first surface and an input device disposed on a second surface opposed to the first surface for inputting information. *Id.* at Abstract. Liebenow teaches, in connection with the hand-held device, an input/output system 516 which may comprise one or

more controllers or adapters for providing interface functions between one or more of I/O devices 518–522. *Id.* ¶ 62, Fig. 13.

Claim 16

Claim 16 directly depends from claim 15 and recites that the hand-held device includes a “controller receiv[ing] signals generated by the human user’s manipulation of the input elements of the first surface or active areas.” Ex. 1001, 17:33–36.

Petitioner relies on Liebenow for its description of controllers included in a user’s hand-held device. Pet. 43–45. Petitioner concludes that one of ordinary skill in the art would have recognized that the addition of an input controller to Pallakoff and Ishihara handheld device would have reduced demands on the microprocessor and improve interactive responsiveness of the device. Pet. 44; Ex. 1008 ¶¶ 54–55.

Patent Owner argues that at the time of the invention, mobile phone handsets typically did not include an input controller, but rather input elements connected directly to a processor. PO Resp. 29–30. Patent Owner contends that a person of ordinary skill in the art at the time of the invention would not have looked at the PC-type hardware architecture of Liebenow’s handheld device and been motivated to add such hardware to Pallakoff’s or Ishihara’s mobile handset device. *Id.* at 30.

We are not persuaded by these arguments because the claims are not limited to a mobile phone device. Rather the claims are directed to handheld devices in general. Accordingly, a person of ordinary skill in the art would have considered the relevant teachings for all types of handheld devices. Moreover, we are not persuaded by the arguments because the arguments are

again narrowly focused on combining the technicalities of the features of one piece of prior art with the technicalities of another prior art reference.

We agree with Petitioner's showing, and adopt it as our own, that Liebenow in combination with Pallakoff and Ishihara discloses an input controller as claimed in claim 16 and that adding an input controller to the Pallakoff and Ishihara device would have been desirable for the reasons provided by Petitioner.

E. Obviousness Over Liebenow and Ishihara

Petitioner contends that claims 37–42, 46, and 49 are unpatentable under 35 U.S.C. § 103 based on Liebenow and Ishihara. Pet. 48–50. To support its contentions, Petitioner provides a detailed showing mapping limitations of claims 37–42, 46, and 49 to structures taught by Liebenow and Ishihara. *Id.* Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1008) to support its position.

Claims 37–39, 46, and 49⁷

Petitioner argues that Liebenow teaches a hand-held device with a processor for processing a selected application having two or more

⁷ Patent Owner argues that we should not rely on Petitioner's anticipation arguments to evaluate obviousness, but that we should observe that no evidence has been presented about how any proposed combination of prior art references renders obvious claims 37–39 and 49. PO Resp. 3–5, 31–32. We decline to do so. Although Petitioner alleges these claims are unpatentable as obvious, yet appears to present a case of anticipation, we determine that such a presentation is not a basis for dismissing the petition. It is axiomatic patent law that a disclosure that anticipates under 35 U.S.C. § 102 also may render the claim unpatentable under 35 U.S.C. § 103, because anticipation is the epitome of obviousness. *See In re McDaniel*, 293 F.3d 1379, 1385 (Fed. Cir. 2002) (“It is well settled that ‘anticipation is the

functions. Pet. 15–23. Petitioner argues that Liebenow teaches the hand-held device to have a first and second surface as claimed in claim 37, for example. *Id.*

Petitioner relies on Ishihara for its description of controlling movement of an automobile in a game application. Pet. 48–50; Ex. 1004 at 6:10–14, 9:11–15. Specifically, Petitioner relies on Ishihara’s user’s fingertips moving left and right on the delineated active areas on the back surface touch panel of the hand-held device to control the automobile’s steering to meet the limitation of claim 40 to “the selected one of the plurality of applications is a game application.” Pet. 48–50. Petitioner concludes that one of ordinary skill in the art would have recognized that the hand-held device of Liebenow including multiple applications including word processing, calculator, web browsing, spreadsheet, etc. could also include a game application, like Ishihara’s automobile driving game, given the popularity of handheld game consoles such as Nintendo Game Boy. Pet. 49–50; Ex. 1008 ¶¶ 60–61.

Patent Owner argues that Liebenow and Ishihara should not be combined because one having ordinary skill in the art would not have wanted to modify Liebenow’s business oriented device with Ishihara’s games. PO Resp. 31. In support of the argument, Patent Owner relies on the testimony of Mr. Lim to show that gaming features are not desirable in the vertical corporate market of Liebenow’s device. *Id.* (citing Ex. 2009 ¶¶ 103–115). In addition, Patent Owner relies on Mr. Lim to show that

epitome of obviousness.’”) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

incorporating Liebenow into a gaming platform is technically complex and requires significant modifications to the software and hardware. *Id.* (citing Ex. 2009 ¶¶ 116–120).

Patent Owner’s expert Mr. Lim, however, acknowledged during cross examination that one could load games into the Liebenow device at the time of the invention. Ex. 1041, 125:5–126:4; 144:19–24; Ex. 1038, 278:11–20. In addition, both of Patent Owner’s experts Mr. Lim and Dr. MacLean acknowledged during cross examination that adding games to Liebenow’s device makes it more desirable. Ex. 1040, 24:17–18, 25:14–16; Ex. 1041, 23:3–24:18, 62:10–22, 182:13–22; Ex. 1038, 278:11–20. Based on the record before us, it would have been obvious to incorporate Liebenow’s device with Ishihara’s games. Ex. 1042 ¶¶ 35–43.

Patent Owner argues that Liebenow fails to teach “a selectively configurable sensing surface so as to provide a plurality of delineated active areas” and that “for each application” the memory stores “a mapping of the selectively configurable sensing surface to the plurality of delineated active areas” as recited in claim 37. In particular, Patent Owner implicitly argues that during prosecution, the Examiner found that Liebenow does not teach or suggest the aforementioned limitation and that we should give deference to the Examiner’s determinations. PO Resp. 32–33. We disagree that it is appropriate, based on the facts of this case, to give deference to the Examiner’s findings and determinations. Neither Petitioner nor the Board was involved in the ex parte prosecution of the then application. The record here is much more fully developed than the one before the examiner. Accordingly, we are not persuaded by Patent Owner’s arguments.

Patent Owner argues that the Specification of the '313 patent describes the limitation “selectively configurable sensing surface” recited in claim 37, as allowing applications to define (i.e., “provide”) the contours of the delineated active areas, whereas Liebenow’s applications merely select keyboards. PO Resp. 33–35. We disagree with Patent Owner’s argument that Liebenow’s applications merely “select” keyboards because Liebenow teaches “areas of the touch sensitive panel 240 may be defined *to provide* key configurations such as . . . an application specific or user defined key configuration” (emphasis added). Reply 15–16 (citing Ex. 1003 ¶ 44).

Patent Owner argues that Dr. MacLean’s testimony shows that in the claim 37 limitation “for each application,” the mapping is specified at the level of the application rather than at the level of the system. PO Resp. 33–35 (citing Ex. 2007 ¶¶ 154–156, 165, 167). However, neither Patent Owner nor Dr. MacLean explain sufficiently why we should construe claim 37 that way. There is nothing in claim 37 that suggests how the mapping is specified, much less that the mapping is specified at the level of the application. Thus, Patent Owner’s argument regarding how the mapping is specified and Dr. MacLean’s testimony in support of that argument are not commensurate in scope with the language of claim 37, and in any event are conclusory, not supported by record evidence.

For example, Patent Owner has not directed us to where in the '313 patent, “for each application” requires us to read into the claim that mapping is specified at the level of the application. The portions of the Specification of the '313 patent that the parties direct attention to (PO Resp. 33–34; Ex. 2007 ¶¶ 154, 156; Reply 16) describe that the mapping of input elements to particular input functions for a given software application “*may be*

configured in software to represent one or more delineated active areas corresponding to different programmable functions depending on the application” (emphasis added). Ex. 1001, 9:20–46; *see also id.* at 12:35–42 (“a game developer *may* optimize the mapping of delineated active areas based on the best configuration for a particular game”) (emphasis added); *id.* at 8:46–50 (“the entire surface of pressure sensor pad 354 *may* be covered by horizontal rectangular active areas interspersed between small rectangular horizontal inactive areas to achieve any desired number of active areas”) (emphasis added); *id.* at 9:50–52 (“[o]ther configurations of the pressure sensor pad 354 *may* be realized depending on the requirements of the desired application”) (emphasis added). In addition, Patent Owner uses similar permissive language in arguing that claim 37 “makes clear that applications *can* do more than select keyboards” and “applications using the [’]313 invention *can* define the very shapes of the delineations” (emphasis added). PO Resp. 33; *see also id.* at 34 (delineations “*can* be defined ‘in software’ by the ‘application developer’ to provide, *for example*, ‘different numbers of sizes’ of areas”) (emphasis added); *id.* (applications “*can* use the selectively configurable sensing surface”) (emphasis added); *id.* at 35 (“application *can* stor[e] those mappings in memory) (emphasis added).

We disagree with Patent Owner that the Specification of the ’313 patent would have indicated to a person of ordinary skill in the art that the selected application must be customized at the application level. The language in the Specification of the ’313 patent cited in the preceding paragraph is permissive such that the software application may be customized. A person of ordinary skill in the art would have understood that the functionality of the selected application may be programmed at the

application level or when the hand-held device is manufactured, for example, at the device or operating system level. In any event, as noted above, the claim language does not include any specificity with respect to when or how the device is customized.

For claims 38, 39, 46, and 49, each of which directly or indirectly depends from claim 37, Petitioner relies on Liebenow and Ishihara to meet these additional limitations of those claims. Pet. 23–24, 48, 50. We agree with Petitioner’s showing, which we adopt as our own that Liebenow and Ishihara teach the additional limitations of claims 38, 39, 46, and 49. Patent Owner does not argue claims 38, 39, 46, and 49 separately. PO Resp. 31–35.

Claims 40–42 and 46

Claim 40 indirectly depends from claim 37. Petitioner argues that Ishihara’s electronic device responds to games and one of the games is an automobile driving game teaches the limitations of claim 40. Pet. 46, 50.

Patent Owner argues that the combination of Liebenow and Ishihara fails to teach the limitations of claim 40 because Ishihara’s simple game application has only one game function mapped to one input element on one surface. PO Resp. 35–36. Patent Owner further argues that Ishihara’s simple game application fails to teach the sophisticated game applications that were enabled by the challenged claims and it is not likely that Liebenow’s business oriented device would be modified with Ishihara’s simple game. *Id.* at 36–37. We are not persuaded by Patent Owner’s arguments.

At the outset, we note that claim 37 recites “configured to map to *one or more* input functions” (emphasis added) and claim 40, which depends

from claim 37, does not limit the scope of the claim to more than one game function. Even if claims 37 and 40 were directed to more than one game function, which they are not, Ishihara teaches a more complicated gaming application, which has more than one input function such as steering right and steering left; put another way, Ishihara's steering right (one function) and steering left (another function) is more than one input function. Pet. 41–42 (citing Figs. 9a–9b). We disagree with Patent Owner's argument that it is not likely that Liebenow's business oriented device would be modified with Ishihara's simple game for the reasons discussed *supra* in part II.E.

We have considered Patent Owner's argument that Ishihara fails to teach “a selectively configurable sensing surface so as to provide a plurality of delineated active areas” as recited in claim 37 because Ishihara teaches a fixed 3X4 convex area. PO Resp. 37–38. We disagree with Patent Owner because as discussed *supra* in Part II.E., both of Patent Owner's experts Mr. Lim and Dr. MacLean acknowledged during cross examination that adding games to Liebenow's device makes it more desirable.

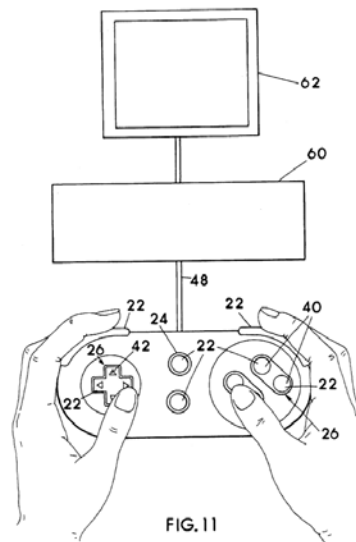
For claims 41 and 42, each of which indirectly depends from claim 37, Petitioner relies on Liebenow and Ishihara to meet these additional limitations of those claims. Pet. 46–48, 50. We agree with Petitioner's showing, which we adopt as our own that Liebenow and Ishihara teach the additional limitations of claims 41 and 42. Patent Owner does not argue claims 41 and 42 separately. PO Resp. 35–38.

F. Obviousness Over Liebenow and Armstrong

Petitioner contends that claims 44, 45, 47, and 48 are unpatentable under 35 U.S.C. § 103 based on Liebenow and Armstrong. Pet. 50–55. To support its contentions, Petitioner provides a detailed showing mapping

limitations of claims 44, 45, 47, and 48 to structures taught by Liebenow and Armstrong. Pet. 50–55. Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1008) to support its position.

Armstrong teaches a game controller with input elements mapped to specific game functions. Ex. 1006, Abstract; 3:10–22, 3:27–39; 3:58–4:2; 11:40–55. Figure 11 of Armstrong is reproduced below.



As shown in Figure 11, the user's inputs from the game controller are transmitted to a game application running on an image generation machine such as a game console or computer connected to a display. *Id.*, 10:67–11:7, 12:3–8; Fig. 11.

Claims 44, 45, 47, and 48

Each of claims 44, 45, 47, and 48 indirectly depends from claim 37. Claim 44 recites a human user's thumb actuating a game function. Claim 45 recites the game function comprises a directional control. Each of claims 47 and 48 recites that the human user's fingers actuates functions of weapon firing control or game character jumping control.

Petitioner relies on Armstrong's thumb or finger controlling a direction of a race car to meet the limitation of claims 44 and 45 to a human user's thumb actuating a game function and a directional control. Pet. 53–54. Petitioner relies on Armstrong's thumb or finger controlling a variable firing rate of a gun or a variable jumping height of a character to meet the limitations of claims 47 and 48 to weapon firing control and game character jumping control. Pet. 55. Petitioner concludes that one of ordinary skill in the art would have recognized that the hand-held device of Liebenow including multiple applications including word processing, calculator, web browsing, spreadsheet, etc. could also include a game application, like Armstrong's game application, given the popularity of handheld game consoles such as Nintendo Game Boy. Pet. 51; Ex. 1008 ¶¶ 63–64.

Patent Owner argues that Liebenow and Armstrong should not be combined because adding functionality to a device is not itself a motivation to combine. PO Resp. 38–39. To support its argument, Patent Owner relies on both its experts Mr. Lim and Dr. MacLean. *Id.* at 39–40.

As discussed *supra* in Part II.E., however, both of Patent Owner's experts Mr. Lim and Dr. MacLean acknowledged during cross examination that adding games to Liebenow's device makes it more desirable. In addition, as discussed *supra* in Part II.E., Mr. Lim acknowledged during cross examination that one could load games into the Liebenow device at the time of the invention. Other articles have discussed portable devices incorporating games. Ex. 1057 (discussing game called Inkball); Ex. 1061 (discussing Nokia 3210 and game called Snake); Ex. 1062 (discussing Nokia 3210 and game called Snake); Ex. 1014 (PalmPilot includes games).

Patent Owner argues that Liebenow and Armstrong should not be combined because one having ordinary skill in the art would not have wanted to modify Liebenow's business oriented device with Armstrong's games and relies on Dr. MacLean and Mr. Lim to support its argument. PO Resp. 40–41. We disagree with Patent Owner because Liebenow states explicitly that it is focused on “compact digital information appliances [that] will become increasingly common fixtures of everyday life.” Ex. 1003 ¶ 3. In addition, as discussed *supra* in Part II.E., both of Patent Owner's experts Mr. Lim and Dr. MacLean acknowledged during cross examination that adding games to Liebenow's device makes it more desirable. Furthermore, as discussed *supra* in Part II.E., Mr. Lim acknowledged during cross examination that one could load games into the Liebenow device at the time of the invention. Mr. Lim also testified that tablet devices at the time would support games, and that companies consistently attempted to enter the consumer space. Ex. 1041, 21:19–24:18, 23:3–24:18, 43:21–25, 46:24–50:10, 57:2–17, 62:10–63:22, 78:17–79:7. Mr. Lim even testified that Liebenow might be used in a consumer market, and there might be motivation to do so depending “on your risk tolerance.” *Id.* at 115:7–116:16, 117:13–118:21.

Patent Owner argues that adding games to Liebenow would have required “thousands of engineers and software developers working together.” PO Resp. 41–42. Patent Owner, however, seems to suggest that combining Liebenow and Armstrong requires designing and developing a new gaming platform from the ground up. *Id.* This is not required because nothing in the claims of the '313 patent requires a specific platform that Liebenow does not already teach. Adding Armstrong is just to add games to

Liebenow's device, which as discussed *supra* in Part II.E., both of Patent Owner's experts Mr. Lim and Dr. MacLean acknowledged during cross examination that adding games to Liebenow's device makes it more desirable. In addition, as discussed *supra* in Part II.E., Mr. Lim acknowledged during cross examination that one could load games into the Liebenow device at the time of the invention. Moreover, Dr. Welch opines that it would be straightforward for a person having ordinary skill in the art at the time the invention was made to use the existing input elements in Liebenow with the mappings in Armstrong to support games. Ex. 1042 ¶¶ 44–45.

Patent Owner argues that the combination of Liebenow and Armstrong fails to teach claims 44, 45, 47, and 48 because they depend from claims 37 and 40. PO Resp. 43. We disagree with Patent Owner because the Petition maps out how Liebenow discloses claim 37 and how the combination of Liebenow and Armstrong teach claim 40. Pet. 13–25, 50–55.

Patent Owner argues that Mr. Lim asserts the combination of Liebenow and Armstrong would result in an awkward, unworkable combination that a person having ordinary skill in the art would not have wanted to attempt because the combination fails to teach a front surface input. PO Resp. 43. We disagree with Patent Owner because claims 37 and 40 do not require a front or a back surface, even though Liebenow teaches inputs on a front and back surface as discussed *supra* in Part II.E. Moreover, one having ordinary skill in the art at the time the invention was made would have known that Armstrong's game functions could be implemented with Liebenow's input elements. Ex. 1042 ¶¶ 44–45.

G. Obviousness Over Liebenow and Hedberg

Petitioner contends that claims 50 and 51 are unpatentable under 35 U.S.C. § 103 based on Liebenow and Hedberg. Pet. 56–59. To support its contentions, Petitioner provides a detailed showing mapping limitations of claims 50 and 51 to structures taught by Liebenow and Hedberg. Pet. 56–59. Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1008) to support its position.

Claims 50 and 51

Each of claims 50 and 51 depends from claim 37. Each of claims 50 and 51 recites that the hand-held device includes an accelerometer or gyroscope. Petitioner relies on Hedberg for its description of a gyroscope or accelerometer included in a hand-held device. Pet. 58–59. Petitioner concludes that one of ordinary skill in the art would have recognized that the addition of a gyroscope and/or an accelerometer would have increased the ability to control the Liebenow hand-held device. Pet. 57; Ex. 1008 ¶ 68.

Patent Owner argues that Hedberg is not analogous art because it is neither in the same field of endeavor as the '313 patent nor reasonably pertinent to the particular problem addressed by the '313 inventors. PO Resp. 5–14, 43. We have considered Patent Owner's arguments, but do not find them persuasive.

The test for determining whether a prior art reference constitutes analogous art to the claimed invention is: (1) whether the prior art is from the same field of endeavor, regardless of the problem addressed, or (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which

the inventor is involved. *See In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

Patent Owner conflates the two prong analogous art test. In defining the field of invention of the '313 patent, Patent Owner looks to the problems solved by the inventors and argues that the field of endeavor of the '313 patent is ergonomic and versatile data input on a hand-held device. PO Resp. 11–14. Such a showing is insufficient to establish the field of endeavor.

In determining the field of endeavor, we look to the '313 patent's written description and claims, including the structure and function of the invention. *Bigio*, 381 F.3d at 1326. And, we agree with Petitioner that in defining the field of invention, and in determining the relevance of Hedberg to the obviousness inquiry, here a broad approach should be taken. Pet. Reply 4–6. Indeed, the Supreme Court provided guidance in determining the applicability of a reference's teachings in an obviousness inquiry. In *KSR Int'l Co. v. Teleflex Inc.*, the Court explained that if a feature has been used to improve one device, and a person of ordinary skill in the art would have recognized that it would improve a similar device in that field or another, implementing that feature on the similar device is likely obvious. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

Here, the appropriate scope of the field of endeavor is hand-held devices with one or more input elements. Ex. 1001, 1:5–11, 17:4–32, 19:56–20:17 (claims 15, 37). Patent Owner characterizes Hedberg as being in the field of viewing or displaying systems. PO Resp. 11–14. However, in arriving at that description, Patent Owner too narrowly characterizes the Hedberg invention. Hedberg is within the field of endeavor because it

teaches hand-held electronic devices, with one or more input elements.
Ex. 1007, (54), 6:34–7:7, 7:15–20, Fig. 5.

Because we find that Hedberg is within the same field of endeavor as the claimed invention, we need not consider Patent Owner’s arguments regarding whether Hedberg is reasonably pertinent to the particular problem with which the inventors are involved. PO Resp. 14.

We have considered Patent Owner’s arguments regarding why Liebenow and Hedberg should not be combined. PO Resp. 43–46. The arguments are not persuasive. In particular, Patent Owner argues that Hedberg focuses on displaying and viewing on an electronic device and is not concerned with data entry on an electronic device. *Id.* at 44–46. As such, Patent Owner argues, one would not want to incorporate the displaying and viewing teachings of Hedberg into the Liebenow data entry device. *Id.* at 45–46. Patent Owner, and Patent Owner’s expert Dr. McLean, focus too narrowly on the strict disclosures of the references and why the physical embodiments of the references could not be combined. *See, e.g.*, Ex. 2007 ¶¶ 131, 136, 139, 142, 143. Patent Owner’s arguments are not persuasive for the same reasons provided already regarding Patent Owner’s misapplication of the law on obviousness based on bodily incorporation. Based on the record before us, and weighing the evidence, we give substantial weight to Dr. Welch’s testimony that use of inertial sensors such as gyroscopes and accelerometers in handheld devices to enable device motion as input was known at the time of the invention and that using such sensors to control the display of a hand held device would increase the usability of the device. Ex. 1008 ¶¶ 43–44; Ex. 1042, ¶¶ 16–22.

H. Objective Evidence of Nonobviousness

Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).

Notwithstanding what the teachings of the prior art would have suggested to a person of ordinary skill in the art at the time of the claimed invention, the totality of evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that the claimed invention would not have been obvious to one with ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). Secondary considerations may include any of the following: long-felt but unresolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise.

There must be a demonstrated “nexus” between the merits of the claimed invention and the evidence of secondary considerations before that evidence is accorded substantial weight in an obviousness determination. *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573, 1575 (Fed. Cir. 1984); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1539 (Fed. Cir. 1983); *see also In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996); *In re Fielder*, 471 F.2d 640, 642 (CCPA 1973). “Nexus” is a legally and factually sufficient connection between the objective evidence and the claimed invention, such that the objective evidence should be considered in determining nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988). In the absence of an established nexus with the claimed invention, secondary consideration factors such as commercial success, satisfaction of a long-felt but unresolved need,

licensing and copying by others are not entitled to much, if any, weight and generally have no bearing on the legal issue of obviousness. *See In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 1577 (Fed. Cir. 1985).

The burden of showing that there is a nexus lies with the Patent Owner. *Id.*; *see Paulsen*, 30 F.3d at 1482.

Patent Owner argues that secondary considerations show that the '313 patent claims are not obvious. PO Resp. 46–50. In particular, Patent Owner argues that Petitioner has not pointed to a prior art reference meeting the limitations of claims 1 and 12.⁸ *Id.* at 47. Patent Owner's argument is misplaced insofar as an inquiry into secondary considerations is concerned, and in any event, has been addressed. As explained above, Pallakoff in combination with Ishihara, Pallakoff in combination with Ishihara and Liebenow, Liebenow in combination with Ishihara, Armstrong, or Hedberg meet the limitations of the challenged claims.

Patent Owner also argues that both mixed-use hand-held game devices and hand-held game devices utilizing touch technology failed prior to the time of the invention of the '313 patent. *Id.* at 49. In particular, Patent Owner argues that in 2003, Nokia made a mobile phone hand-held device with gaming capability, but the product was a failure. *Id.* Patent Owner also argues that Sega and Tiger Games made devices that were either

⁸ Patent Owner argues that Petitioner has not pointed to a prior-art reference showing the limitations in claims 1 and 12. As discussed *supra* in Part I.A., claims 1 and 12, however, are not challenged in this proceeding. Moreover, Patent Owner quoted language in the Patent Owner Response and attributed the quoted language to claims 1 and 12 of the '313 patent; it is not apparent to us, however, where within the '313 patent that Patent Owner found this quoted language. Patent Owner's arguments, therefore, are misplaced.

not commercially released or were commercial failures. *Id.* at 49–50 (citing Ex. 2009 ¶ 44). Patent Owner does not explain sufficiently why the products were commercial failures or why they were not released commercially, and in any event, why such events are even relevant to the inquiry. The products were made, thus, demonstrating that others were able to make the products and did not fail trying to do so. That the products were not commercially successful or were not released commercially has not been shown to be particularly relevant to the secondary considerations inquiry.

Patent Owner also argues that it was not until after the claimed invention that a hand-held gaming device with a touchscreen, the Nintendo DS, was commercially successful. *Id.* at 50 (citing Ex. 2009 ¶ 45). To the extent that Patent Owner is asserting copying, Patent Owner fails to show a nexus between the claimed invention and the alleged copied device, the Nintendo DS. Patent Owner has not presented sufficient evidence that the Nintendo DS is a commercial embodiment of the invention disclosed in the claims.

Conclusion

We have considered the entirety of the evidence before us submitted by Patent Owner as indicia of nonobviousness. On balance, the evidence of obviousness outweighs the evidence of nonobviousness, with respect to the challenged claims. The evidence of obviousness is strong and the evidence of nonobviousness is weak, for the reasons discussed above. All of Patent Owner's arguments have been considered. Petitioner has proved, by a preponderance of the evidence that: claims 15 and 20 are unpatentable over the combination of Pallakoff and Ishihara; claim 16 is unpatentable over the combination of Pallakoff, Ishihara, and Liebenow; claims 37–42, 46, and 49

are unpatentable over the combination of Liebenow and Ishihara; claims 44, 45, 47, and 48 are unpatentable over the combination of Liebenow and Armstrong; and claims 50 and 51 are unpatentable over the combination of Liebenow and Hedberg.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 15 and 20 of the '313 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff and Ishihara; claim 16 of the '313 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff, Ishihara, and Liebenow; claims 37–42, 46, and 49 of the '313 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Liebenow and Ishihara; claims 44, 45, 47, and 48 of the '313 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Liebenow and Armstrong; and claims 50 and 51 are unpatentable under 35 U.S.C. § 103(a) as obvious over Liebenow and Hedberg.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 15, 16, 20, 37–42, and 44–51 of the '313 patent are held unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2015-00533
Patent 7,218,313 B2

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