

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 IPR2015-00476
Patent 7,218,313 B2

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

MOORE, *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 21–24, 26–29, 52–56 and 58–60 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 21–24, 26–29, 52–56, and 58–60 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 21–24, 26–29, 52–56, and 58–60 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 (“Pet. Reply”)). Patent Owner filed a Motion for Observations (Paper 25) 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. 59–60.

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, 7:7–11. 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 21 and 52 are the only independent claims. Claims 22–24 and 26–29 directly or indirectly depend either from claim 21 and claims 53–56 and 58–60 directly or indirectly depend from claim 52.

Claim 21, reproduced below, is illustrative.

21. A method for configuring a human interface and input system for use with a hand-held electronic device configured to run a plurality of applications, each application associated with a set of functions, the method comprising:

disposing on a first surface a first input assembly having a plurality of input elements configured to receive input from a human user through manipulation of the plurality of input elements, wherein at least one of the input elements of the first input assembly is further configured to map to more than one input function associated with a selected one of the plurality of applications;

disposing on a second surface a second input assembly having 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 further configured to selectively map to one or more input functions associated with the selected application; and

arranging the plurality of input elements of the first input assembly and the one or more input elements of the second input assembly to substantially optimize a biomechanical effect of the human user's hand.

Ex. 1001, 17:50–18:6.

E. Grounds of Unpatentability

We instituted an *inter partes* review of claims 21–24, 26–29, 52–56, and 58–60 on the following grounds:

Claims	Basis	References
21–24, 26, 52–56, and 58	§ 103(a)	Pallakoff ¹ and Liebenow ²
27	§ 103(a)	Pallakoff and Armstrong ³
28, 29, 59, and 60	§ 103(a)	Pallakoff and Hedberg ⁴

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).

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,

¹ US 2002/0163504 A1, Nov. 7, 2002 (Ex. 1004).

² US 2002/0118175 A1, Aug. 29, 2002 (Ex. 1005).

³ US 6,469,691, Oct. 22, 2002 (Ex. 1007).

⁴ WO 99/18495, Apr. 15, 1999 (Ex. 1008).

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) (“limitations 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 constructions for the following claim terms: “a plurality of delineated active areas” (claims 24 and 56) and “substantially optimize a biomechanical effect of the human user’s hand” (claims 21 and 52). Pet. 6–10. In our Decision to Institute, we determined that it was not necessary to construe “a plurality of delineated active areas” and “substantially optimize a biomechanical effect of the human user’s hand.” Dec. 6–7. 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. Additionally, no other terms need to be construed explicitly for the purpose of this Decision.

C. Obviousness Over Pallakoff and Liebenow

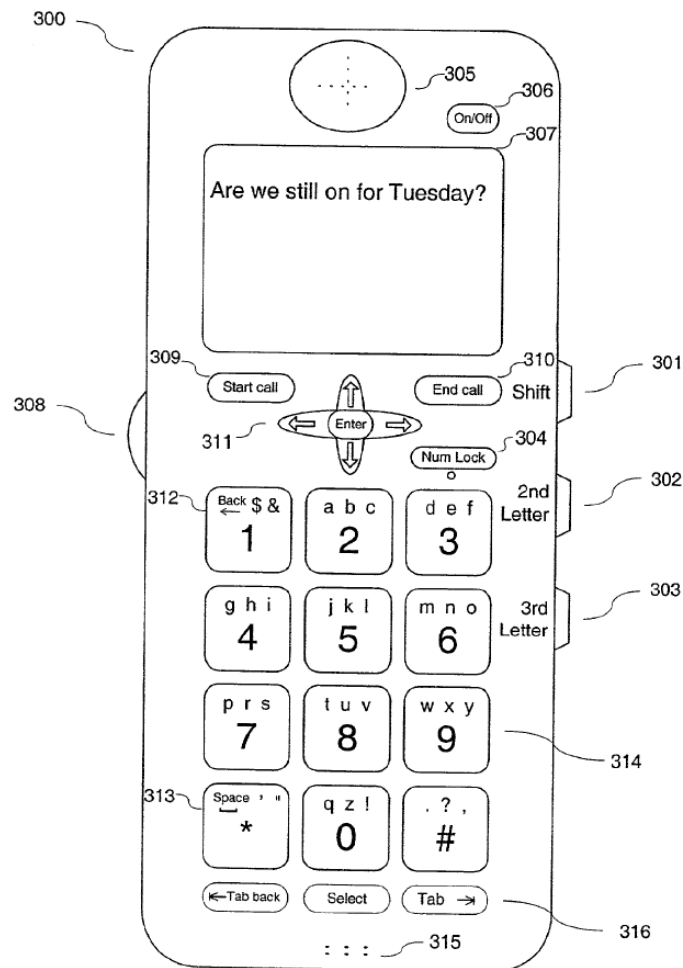
Petitioner asserts that claims 21–24, 26, 52–56, and 58 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Pallakoff and Liebenow. Pet. 37. To support its contentions, Petitioner provides detailed explanations as to how the prior art meets each claim

limitation. *Id.* at 23–36, 40–46. Petitioner also relies upon a Declaration of Dr. Gregory F. Welch, who has been retained by Petitioner for the instant proceeding. Ex. 1009.

Pallakoff teaches a handheld electronic device having “face keys” on the front surface and “modifier buttons,” which are also referred to as “side-buttons,” on the side or back. Ex. 1004, Abstract, ¶¶ 15, 196, Fig. 1. The primary embodiment taught in Pallakoff relates to a cellular telephone; however, Pallakoff also teaches that the invention could also be applied to a PDA or handheld computer. *Id.* at Abstract, ¶ 16. The handheld device includes a processor that runs email, instant messaging, calculator, and web browsing applications. *Id.* ¶¶ 24, 208.

Figure 3 of Pallakoff is reproduced below.

Figure 3 -- "Web-phone" handset that enables fast typing,
and fast application navigation



As shown in Figure 3 above and taught in Pallakoff, the user types characters or invokes functions by pressing the keys on the front surface while simultaneously holding one or more modifier buttons with his or her fingers. Ex. 1004 at Abstract. For example, pressing the "2" key alone results in a lowercase "a" being input into an application. *Id.* ¶¶ 17–19, Fig. 1. Similarly, pressing the "2" key in addition to the "Shift" modifier button 101 results in an uppercase "A," pressing the "2" key in addition to the "2nd Letter" modifier button 102 results in a lowercase "b," etc. *Id.*

Additionally, Pallakoff teaches that the user holds the device in one hand and manipulates the modifier buttons with the fingers of the hand holding the device. *Id.* at Abstract, ¶ 193. In one arrangement, fingers of the other hand manipulate the face keys. *Id.* However, Pallakoff also suggests that the user may use the thumb or fingers to manipulate the input elements to enable one-handed operation. *Id.* ¶ 193.

Pallakoff teaches that specific keys may be mapped to more than one function of a particular application. *Id.* ¶ 322. For example, Pallakoff teaches that the “a” face key on the front surface may be mapped to up to eight different functions of an e-mail application. *Id.*

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. 1005, Abstract. Figure 1 of Liebenow is reproduced below.

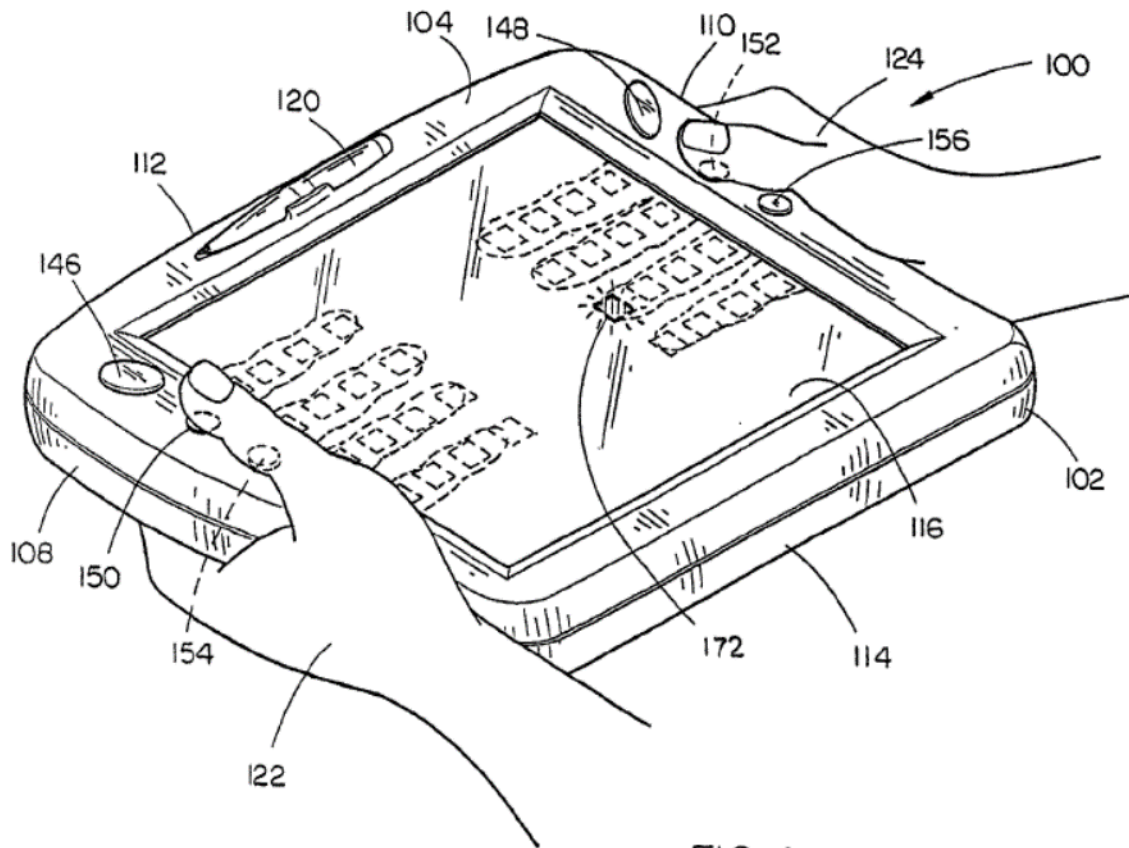


FIG. 1

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 106. *Id.* ¶ 25. One or more function keys such as 150, 152, and 154 may be mounted on front surface 104 and may be manipulated by a user's thumb. 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.

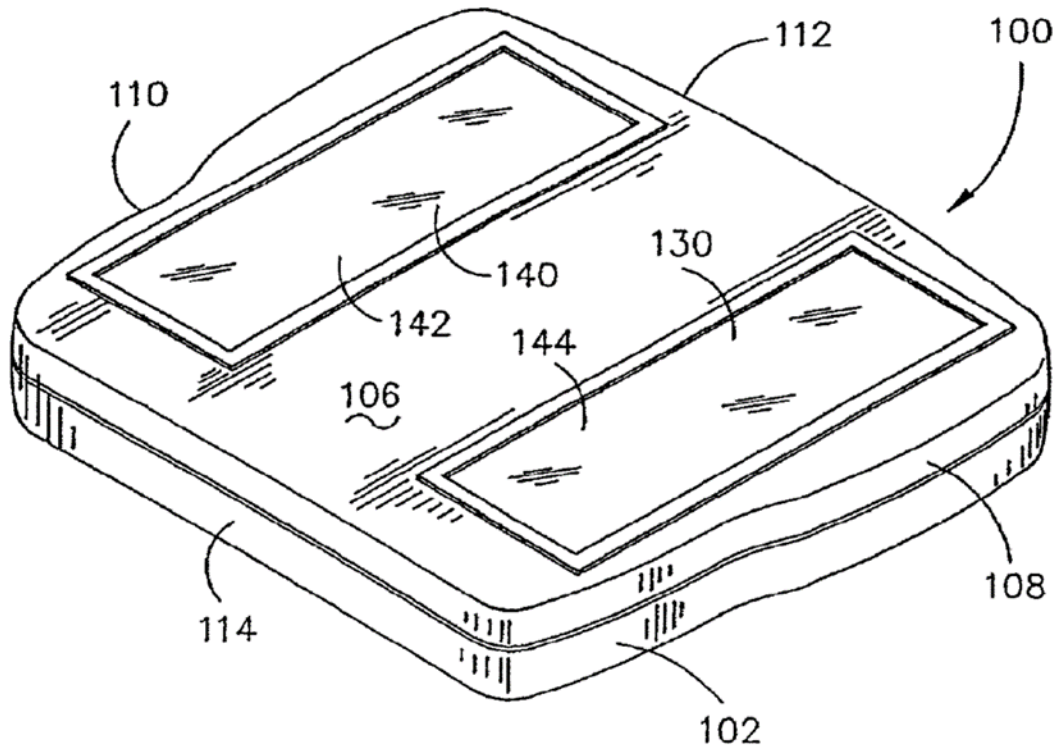


FIG. 5

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 (with the user's fingers, for example) 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 further 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.

Claim 21

Claim 21 recites “disposing on a first surface a first input assembly having a plurality of input elements configured to receive input from a human user through manipulation of the plurality of input elements, wherein at least one of the input elements of the first input assembly is further configured to map to more than one input function associated with a selected one of the plurality of applications.” For these limitations, Petitioner contends that Pallakoff teaches a first surface with a plurality of face keys. Pet. 28; Ex. 1004 ¶¶ 15, 199, Figs. 1–4. As pointed out by Petitioner, Pallakoff teaches a processor that runs email, instant messaging, calculator, and web browsing applications. Pet. 26, 29; Ex. 1004 ¶¶ 2, 22, 187, 208, 322, Figs. 1–4. Petitioner further contends that each application is mapped to a set of functions. *See, e.g.*, Pet. 30–31. We are persuaded by Petitioner’s showing, and adopt it as our own, that Pallakoff teaches “disposing on a first surface a first input assembly having a plurality of input elements configured to receive input from a human user through manipulation of the plurality of input elements, wherein at least one of the input elements of the first input assembly is further configured to map to more than one input function associated with a selected one of the plurality of applications.”

Claim 21 further recites “disposing on a second surface a second input assembly having 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 further configured to selectively map to one or more of the input functions associated with the selected application." For these limitations, Petitioner contends that Pallakoff teaches a second surface (e.g., the side or back surface) with a plurality of modifier buttons. Pet. 32; Ex. 1004 ¶¶ 196, Figs. 1–4. As pointed out by Petitioner, Pallakoff teaches a processor that runs email, instant messaging, calculator, and web browsing applications. Pet. 29; Ex. 1004 ¶¶ 2, 22, 187, 208, 322, Figs. 1–4. Petitioner further contends that each application is mapped selectively to a set of functions. *See, e.g.*, Pet. 32–34. We are persuaded by Petitioner's showing, and adopt it as our own, that Pallakoff teaches "disposing on a second surface a second input assembly having 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 further configured to selectively map to one or more of the input functions associated with the selected application."

Claim 21 further recites "arranging the plurality of input elements of the first input assembly and the one or more input elements of the second input assembly to substantially optimize a biomechanical effect of the human user's hand." For these limitations, Petitioner contends that Pallakoff teaches face keys on the front of the device and modifier buttons on the side and/or back of the device and includes a thumb wheel to take advantage of the user's thumb. Pet. 34. We are persuaded by Petitioner's showing, and adopt it as our own, that Pallakoff teaches "arranging the plurality of input elements of the first input assembly and the one or more input elements of

the second input assembly to substantially optimize a biomechanical effect of the human user's hand.”

Claim 52

Independent claim 52 is similar in scope to independent claim 21. Petitioner argues these claims collectively, choosing claim 21 as representative. *See, e.g.*, Pet. 35–36. Petitioner relies on Pallakoff to meet the limitations of claim 52. Accordingly, the discussion above with respect to claim 21 equally applies to claim 52. Thus, based on the record before us, Petitioner has shown by a preponderance of the evidence that Pallakoff teaches the limitations of claim 52.

Claims 22–24, 26, 53–56, and 58⁵

For claims 22–24, 26, 53–56, and 58, each of which directly or indirectly depends either from claims 21 or 52, Petitioner relies on the combinations of Pallakoff and Liebenow to meet the additional limitations of claims 22–24, 26, 53–56, and 58. We agree with Petitioner's showing, which we adopt as our own, that the combination of Pallakoff and Liebenow

⁵ 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 21, 22, 52, 53, and 54. PO Resp. 3–5. 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 epitome of obviousness.’”) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

teaches the additional limitations of claims 22–24, 26, 53–56, and 58. Patent Owner does not argue that any limitations are not met by the prior art. PO Resp. 17. *Rationale for the Combination of Pallakoff and Liebenow*

Patent Owner does not make arguments, that the prior art does not meet the limitations of claims 21–24, 26, 52–56, and 58. Patent Owner focuses on the combinability of Pallakoff and Liebenow. Thus, we now address Petitioner’s reasons for combining Pallakoff, and Liebenow (Pet. 40–41) and Patent Owner’s arguments that the references should not be combined. PO Resp. 17–25.

As to claims 28, 29, 59, and 60, Patent Owner initially argues in conclusory fashion that Pallakoff and Liebenow should not be combined. PO Resp. 15–17. Patent Owner argues that its declarants were more judicious in determining which combinations should be combined and that Petitioner’s declarant Dr. Welch took extreme positions and could not remember many things. PO Resp. 16. We have considered this argument. We find Dr. Welch to be credible, thus, Patent Owner’s argument is not persuasive.

Petitioner provides reasons for combining Pallakoff and Liebenow by explaining that a person having ordinary skill in the art at the time of the invention would have incorporated Liebenow’s input/output system 516 having one or more controllers into Pallakoff’s handheld device to improve similar devices in the same way. Pet. 40; Ex. 1009 ¶¶ 50–55. In support of that assertion, Dr. Welch testifies that a skilled artisan would have recognized that Liebenow would have improved the Pallakoff handheld device in that positions of modifier buttons on the back surface touch panel could be more easily customized. Ex. 1009 ¶ 51.

Petitioner further provides reasons for combining Pallakoff with Liebenow by explaining that a person having ordinary skill in the art at the time of the invention would have recognized that including a network adapter (for claim 58) would have been obvious as a matter of design choice. Pet. 41; Ex. 1009 ¶ 55.

Patent Owner points out that Pallakoff is a small device with a small keypad for typing on the front surface and Liebenow is a large device with a full size keyboard on the rear surface. PO Resp. 18. Additionally, Patent Owner points out that Pallakoff's buttons are on the side and designed to be used in combination, while Liebenow's modifier buttons are on a different surface than the touch pad (the touch pad is only on the rear not the side) and are not used in combination with the touch pad. *Id.* at 18, 21. Patent Owner argues that the "[P]etition's proposed combination would require a person of ordinary skill in the art to take Pallakoff and Liebenow, with all these differences, and make a complicated combination to teach '313 claims 24 and 56. PO Resp. 19. Patent Owner also argues that Pallakoff teaches away from implementing modifier buttons on the back of the hand held device for the reasons stated above. *Id.* at 20–21. 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). 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. Moreover, Pallakoff teaches that the location of the face-keys and

side-buttons may be arranged in different locations, including on the sides or back of the handheld device. Ex. 1004 ¶¶ 196, 200, 323.

Patent Owner next argues “[i]t would not be possible to implement the proposed new, back-located modifier buttons implemented on a smooth touch panel such as Liebenow’s.” PO Resp. 21. Grasp stability would be reduced, and it would be harder for the user to find the modifier buttons without any tactile clues as to their location or identity. *Id.* at 22. We disagree because Patent Owner does not argue 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. In addition, it is of no moment that the combination would, in some aspects, be inferior.

Patent Owner next argues that Liebenow’s touchpad could not be substituted for Pallakoff’s modifier buttons and be able to perform the operations required in Pallakoff because Liebenow’s touchpad would not recognize two different areas being pressed simultaneously. PO Resp. 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 (CCPA 1981). For example, Patent Owner and Dr. MacLean are of the apparent impression that the operation of pressing two modifier buttons simultaneously as taught in Pallakoff need be maintained when combining Pallakoff with Liebenow. *See, e.g.*, PO Resp. 22; Ex. 2007 ¶¶ 81–90. But 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 locating Pallakoff's modifier buttons on the back of the handheld device using a touchpad as suggested by Liebenow would defeat Pallakoff's ergonomic requirements because it would be hard to find the buttons and re-adjust one's grip and would, thus, the combination would not achieve the claimed advantage. PO Resp. 22–23. Patent Owner's arguments are not persuasive. Patent Owner does not argue 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, in some aspects, be inferior.

Patent Owner finally 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. 23–25. 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 mobile handset device. *Id.*

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.

In summary, we have considered all of Patent Owner’s arguments and are not persuaded by any of Patent Owner’s arguments that it would not have been obvious to a person of ordinary skill in the art at the time of the invention to combine Pallakoff and Liebenow. Pallakoff describes a hand-held device with input elements and an application as claimed. Liebenow describes a touchpad on the back side and controllers. We are persuaded by a preponderance of the evidence that modifying the Pallakoff hand-held device to include specifically a touchpad on the back side and controllers would have been within the level of a person of ordinary skill in the art. Moreover, as explained by Petitioner, adding such features to the Pallakoff device would have increased the functionality and desirability of the hand held device. A person with ordinary skill in the art is “a person of ordinary creativity, not an automaton,” and “in many cases . . . will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *KSR*, 550 U.S. at 420–21.

D. Obviousness Over Pallakoff and Armstrong

Petitioner contends that claim 27 is unpatentable under 35 U.S.C. § 103 based on Pallakoff and Armstrong. Pet. 52. To support its contentions, Petitioner provides a detailed showing mapping limitations of claim 27 to structures described by Pallakoff and Armstrong. *Id.* at 52–55. Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1009) to support its position.

Petitioner relies on Armstrong for its description of positioning an input element with a “resilient dome cap(s) for providing tactile feedback to the finger depressing the depressible surface” on a hand-held electronic device. Pet. 54; Ex. 1007, 3:16–31, 4:51–62. Specifically, Petitioner relies

on Armstrong’s input elements that provide tactile feedback to meet the limitation of claim 27 to “a palpable detent with at least one input element . . . so as to provide tactile feedback when manipulated by the human user.” Pet. 28–29. Petitioner concludes that one of ordinary skill in the art would have recognized that the hand-held device of Pallakoff’s input elements could be replaced with input elements that provide tactile feedback, like Armstrong’s input elements, as a simple substitution of one known element for another known element. Pet. 53–54; Ex. 1008 ¶¶ 68–69.⁶ Based on the record before us, Petitioner has shown by a preponderance of the evidence, and adopt that showing as our own, that the combination of Pallakoff and Armstrong describe “a palpable detent with at least one input element of the first input assembly or the second input assembly so as to provide tactile feedback when manipulated by the human use.”

E. Obviousness Over Pallakoff and Hedberg

Petitioner contends that claims 28, 29, 59, and 60 are unpatentable under 35 U.S.C. § 103 based on Pallakoff and Hedberg. Pet. 57. To support its contentions, Petitioner provides a detailed showing mapping limitations of claims 28, 29, 59, and 60 to structures described by Liebenow and Hedberg. *Id.* at 57–59. Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1009) to support its position.

Hedberg describes a hand-held display device that includes control buttons 3 on the display connected to control circuits and a gyroscope 6 incorporated in the display device and connected to the control circuits.

⁶ The Petition contains a typographical error in the cited portion. The Petitioner refers to Griffin instead of Pallakoff. We read that portion as if it refers to Pallakoff.

Ex. 1008, Abstract. The display device is responsive to movements in the space for displaying an image in different magnification and/or in different parts. *Id.* Hedberg describes that an equilibrium of force accelerometer may be used in place of the gyroscope. *Id.* at 3:26–32.

Each of claims 28 and 29 depends directly from claim 21. Each of claims 59 and 60 depends directly from independent claim 52.

Analogous Art

We first address whether Hedberg is analogous art. 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. 6–14. 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. 13–14. 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 6–7. 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, 1:12–29, claim 21. Patent Owner characterizes Hedberg as being in the field of viewing or displaying systems. PO Resp. 12–14. But in arriving at that description, Patent Owner too narrowly characterizes the Hedberg invention. Hedberg is within the field of endeavor because it describes hand-held electronic devices, with one or more input elements. Ex. 1008, Title, 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. 14–15.

Claim 28, 29, 59, and 60

Claims 28 and 59 recite that the hand-held device includes an accelerometer. Claims 29 and 60 recite that the hand-held device includes a gyroscope. Petitioner relies on Hedberg for its description of a gyroscope or accelerometer included in a hand-held device. Pet. 55–59. 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 Pallakoff hand-held device. Pet. 57; Ex. 1009 ¶¶ 72–73. Thus, based on the record before us, Petitioner has shown by a preponderance of the evidence that Pallakoff and Hedberg teach the limitations of claims 28, 29, 59, and 60.

As to claims 28, 29, 59, and 60, Patent Owner argues in conclusory fashion that Pallakoff and Hedberg should not be combined. PO Resp. 15–17. Patent Owner argues only that its declarants were more judicious in determining which combinations should be combined and that Petitioner’s declarant Dr. Welch took extreme positions and could not remember many things. PO Resp. 16. We have considered Patent Owner’s argument regarding why Pallakoff and Hedberg should not be combined. We find Dr. Welch to be credible, thus, Patent Owner’s argument is not persuasive.

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. 1009 ¶¶ 72–73. We agree with Petitioner’s showing, which we adopt as our own, that Pallakoff in combination with

Hedberg teaches a gyroscope or accelerometer as recited in claims 28, 29, 59, and 60 and that adding a gyroscope or accelerometer to the Pallakoff device would have been desirable for the reasons provided by Petitioner.

F. 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, 1471–1472 (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 In re Paulsen*, 30 F.3d at 1482.

Patent Owner argues that secondary considerations show that the '692 patent claims are not obvious. PO Resp. 25–28. In particular, Patent Owner argues that Petitioner has not pointed to a prior art reference meeting the limitations of the challenged claims. *Id.* at 26, 27. 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 Liebenow, 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 29. 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 not commercially released or were commercial failures. *Id.* at 30 (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 30 (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 21–24, 26, 52–56, and 58 are unpatentable over the combination of Pallakoff and Liebenow; claim 27 is unpatentable over the combination of Pallakoff and Armstrong; and claims 28, 29, 59, and 60 are unpatentable over the combination of Pallakoff and Hedberg.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 21–24, 26, 52–56, and 58 of the '313 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff and Liebenow; claim 27 of the '313 patent is unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff and Armstrong; and claim 28, 29, 59, and 60 of the '313 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff and Hedberg.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 21–24, 26–29, 52–56, 58–60 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.

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