

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 IPR2015-00396
Patent 7,218,313 B2

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

MEDLEY, *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 1 and 3–14 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 1 and 3–14 of U.S. Patent No. 7,218,313 B2 (Ex. 1001, “the ’313 patent”). Paper 2 (“Pet.”). Patent Owner, Aplix IP 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 1 and 3–14, 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.

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, and 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, claim 1 is the only independent claim. Claims 3–14 depend either directly or indirectly from claim 1.

Claim 1, reproduced below, is illustrative.

1. 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 having a plurality of input elements on a first surface configured to receive input from a human user through manipulation of the plurality of input elements, wherein at least one of the input elements on the first surface is configured to selectively map to one or more input functions of the set of functions associated with the selected one of the plurality of applications;

a second input assembly having one or more input elements on a second surface configured to be manipulated by one or more of the human user's fingers, wherein at least one of the input elements on the second surface is further configured to be selectively mapped to one or more input functions of the set of functions corresponding to the selected one of the plurality of applications, further wherein the plurality of input elements on the first surface and the one or more input elements on the second surface are arranged so as to substantially optimize a biomechanical effect of the human user's hand; and

wherein at least one of the input elements of the second input assembly is a sensor pad configured to selectively represent a plurality of delineated active areas, wherein manipulation of a delineated active area causes the input function of one or more input elements of the first input assembly to change.

Ex. 1001, 15:46–16:10.

E. Grounds of Unpatentability

We instituted an *inter partes* review of claims 1 and 3–14 on the following grounds:

Claims	Basis	References
1, 3, 5, 6, 8–10, and 12	§ 103(a)	Pallakoff, ¹ Ishihara, ² and Martin ³
4	§ 103(a)	Pallakoff, Ishihara, and Liebenow ⁴
7	§ 103(a)	Pallakoff, Ishihara, and Armstrong ⁵
11	§ 103(a)	Pallakoff, Ishihara, and Willner ⁶
13 and 14	§ 103(a)	Pallakoff, Ishihara, and Hedberg ⁷

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 Pallakoff, US 2002/0163504 A1, Pub. Nov. 7, 2002 (Ex. 1006).

² Ishihara, JP 2002/77357, Pub. Mar. 15, 2002 (Ex. 1007).

³ Martin et al., US 6,563,487 B2, Iss. May 13, 2003 (Ex. 1009).

⁴ Liebenow et al., US 2002/0118175 A1, Pub. Aug. 29, 2002 (Ex. 1008).

⁵ Armstrong, US 6,469,691 B1, Iss. Oct. 22, 2002 (Ex. 1010).

⁶ Willner et al., US 5,874,906, Iss. Feb. 23, 1999 (Ex. 1011).

⁷ Hedberg, PCT WO 99/18495, Pub. Apr. 15, 1999 (Ex. 1012).

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 constructions for the following claim terms: “a plurality of delineated active areas” (claim 1) and “substantially optimize a biomechanical effect of the human user’s hand” (claim 1). Pet. 6–10. In our Decision to Institute, we determined that it was not necessary to construe “a plurality of delineated active areas” (claim 1) and agreed with Petitioner’s construction for “substantially optimize a biomechanical effect of the human user’s hand” (claim 1). Dec. 6–7. Neither party has indicated that our determinations in that regard were improper and we do not perceive any

reason or evidence that now compels any deviation from our initial determinations. Accordingly, the following construction applies 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

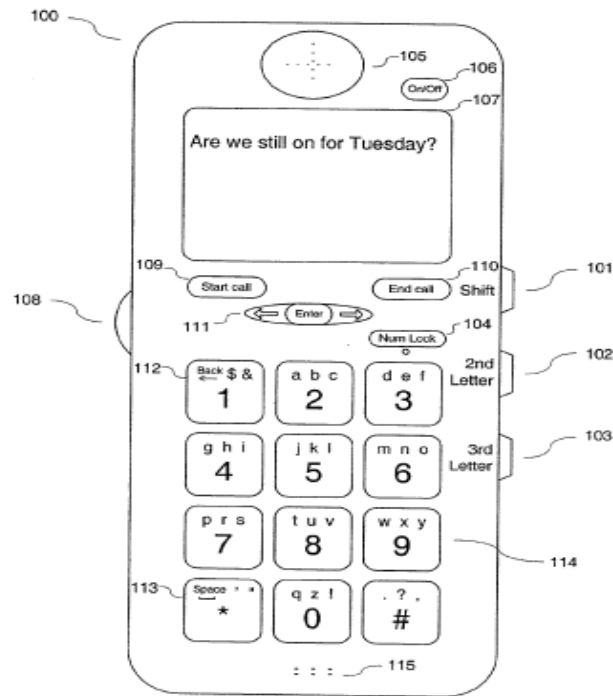
C. Obviousness Over Pallakoff, Ishihara, and Martin

Petitioner contends that claims 1, 3, 5, 6, 8–10, and 12 are unpatentable under 35 U.S.C. § 103 based on Pallakoff, Ishihara, and Martin. Pet. 46. To support its contentions, Petitioner provides a detailed showing, mapping limitations of claims 1, 3, 5, 6, 8–10, and 12 to structures described by the prior art. *Id.* at 29–44, 46–50. Petitioner also relies upon the Declaration of Dr. Gregory F. Welch (Ex. 1013) to support its position.⁸

Pallakoff describes an electronic hand-held device, such as personal digital assistants (“PDAs”), hand-held computers, smart-phones, Web-phones, pagers, instant-messaging devices, and input-devices connected to field equipment, having multiple keys on its face (face-keys), and one or more buttons on the side (“side-buttons” or “modifier buttons”). Ex. 1006, ¶¶ 1, 15, 16. Figure 1 of Pallakoff is reproduced below.

⁸ Patent Owner argues that the Board should give Dr. Welch’s testimony little weight. PO Resp. 18–20. We are not persuaded by the arguments. The evidence to which we are directed does not support the conclusion that Dr. Welch is not a credible witness. *See id.*

Figure 1 -- Phone handset that enables fast typing



As shown in Figure 1 of Pallakoff, a cell phone handset 100 has a display 107, a “Shift” side-button 101, a “2nd Letter” side-button 102, and a “3rd Letter” side-button 103. *Id.* ¶ 17. Handset 100 also includes face-keys such as 112 and 113. *Id.* ¶¶ 194, 198. A user types a character by pressing one of the face-keys either alone or in combination with side-buttons for typing different characters, either with one hand or in combination with the left and right hand. *Id.* ¶¶ 1, 15, 16, 193.

Pallakoff further describes, in connection with the hand-held device, a storage system for storing a plurality of software processes (applications), and a processor for running software processes (applications). *Id.* ¶¶ 20, 24, 196, 199, 208.

Ishihara describes a hand-held electronic device such as a mobile phone, with a display screen on the front surface and a touch panel switch 37 on the back surface. Ex. 1007, Abstract. The touch panel switch 37, located

on the back of the mobile phone, is push-pressure operated to correspond to the requisite position of the desired item among items displayed in the display area 33, located on the front of the mobile phone. *Id.* ¶¶ 50–52.

Martin describes an electronic control device such as a game controller, mouse, remote control device, or other type of device, coupled to a host computer. Ex. 1009, Abstract. The control device includes a housing, a direction pad, and a computer-controlled actuator. *Id.* Direction pad 18 can provide an output haptic feedback (e.g., force feedback or tactile feedback) such as tactile sensations to the user who is contacting the direction pad. *Id.* at 1:51–53, 4:50–52. In particular, using one or more actuators and sensors coupled to the direction pad, a variety of force sensations, such as jolts, vibrations, and textures can be output to the user who is contacting the button. *Id.* at 4:60–65. Forces can be based on position of the direction pad in a degree of freedom, and/or on the location or state of a controlled object in the graphical environment of the host computer, and/or independent of direction pad position or object state. *Id.* at 4:65–5:2.

Claim 1 requires a hand-held electronic device comprising a memory configured to store a plurality of applications where each application is associated with a set of functions and a processor configured to process a selected one of the plurality of applications. Ex. 1001, 15:46–51. For these limitations, Petitioner contends that Pallakoff discloses a hand-held device (e.g., Fig. 1) including a memory for storing applications and a processor to process the applications. Pet. 32; Ex. 1006, Abstract, ¶¶ 1, 4, 11, 20, 196. As pointed out by Petitioner, Pallakoff describes a processor that runs email, instant messaging, calculator, and web browsing applications. Pet. 29; Ex.

1006 ¶¶ 24, 208. Petitioner further contends that each application is associated with a set of functions. *See, e.g.*, Pet. 29–30. We are persuaded by Petitioner’s showing, and adopt it as our own, that Pallakoff discloses a hand-held electronic device including a memory for storing applications and a processor to process the applications, where each application is associated with a set of functions.

Petitioner also contends that Pallakoff describes a first input assembly having a plurality of input elements on a first surface (e.g., Pallakoff Fig. 1), where at least one of the input elements is configured to map to one or more input functions associated with one of the applications (e.g., for text application, pressing the “2” key results in a lowercase a). Pet. 34–35; Ex. 1006 Abstract, ¶¶ 18 and 187. We are persuaded by Petitioner’s showing, and adopt it as our own, that Pallakoff discloses a first input assembly as claimed.

Claim 1 further recites a second input assembly having one or more input elements on a second surface. Petitioner relies on Pallakoff’s modifier buttons (e.g., Fig. 1, side buttons 101, 102, 103) to meet the one or more input elements on a second surface of the second input assembly limitations. Pet. 36. Moreover, Petitioner relies on Ishihara to meet the limitation that one of those input elements (of the second input assembly — side buttons) be a sensor pad as claimed. *Id.* at 38. Petitioner argues that a person having ordinary skill in the art at the time of the invention would have appreciated that Pallakoff’s side buttons could be implemented using the delineated active areas taught by Ishihara and that doing so would improve Pallakoff’s device in the same way as Ishihara’s device. Pet. 31 (citing Ex. 1013 ¶¶ 50–56).

Patent Owner argues that Pallakoff's modifier buttons are not configured to be selectively mapped to functions corresponding to the selected one of the plurality of applications required by claim 1. PO Resp. 28–30. In particular, Patent Owner argues that claim 1 requires the input elements of the second input assembly to be mapped to application-specific functions, foreclosing Pallakoff's side buttons from meeting that limitation because such side buttons operate the same way across applications. *Id.* (citing Ex. 2007 ¶¶ 106–108). We disagree with Patent Owner that claim 1 requires the second input elements to be mapped to application-specific functions. There is nothing in the language of claim 1 that recites application-specific functions, or functions that must change depending on the application. Moreover, Patent Owner does not direct us to support in the Specification of the '313 patent for its narrow construction of claim 1 as requiring application-specific functions.

Claim 1 requires one (or more) input element (of the second input assembly) be mapped to one (or more) input function(s) corresponding to the selected application of the plurality of applications. Petitioner contends, and we agree, that this limitation is met, for example, by the description in Pallakoff of typing the “2” key with the “2nd Letter” modifier button (one input of the second assembly) and the “Shift” modifier button (another input of the second assembly), resulting in an uppercase “B” for the selected text application. Pet. 36–37; Ex. 1006 ¶ 18. Claim 1 does not require that the input element of the selected application, e.g., Pallakoff's modifier buttons, function differently with other applications as it does with the selected application. In any event, Patent Owner does not address the description in Pallakoff that appears to describe such application-specific functions, and

that Petitioner relied upon in its Petition. *See, e.g.*, Pet. 37–38; Ex. 1006 ¶ 178 (describing that a device’s software can change the interpretation of the pressing and releasing of keys, modifier buttons, and controls based on context, and further describing this in the context of a web-based application, email application, and text message application).

Patent Owner argues that Ishihara’s touchpad is not “configured to selectively represent a plurality of delineated active areas” as required by claim 1. PO Resp. 30–31. Patent Owner’s argument, however, is based on construing the phrase to require a variety of different shapes and sizes of areas that can be configured in software. *Id.* at 31. We are not persuaded that we should construe the phrase so narrowly. First, the testimony to which we are directed in support of the argument is inconsistent with the argument. Indeed, Dr. MacLean testifies that “selectively represent” means “selectively provide where those areas are” as a virtual, software construct; or alternatively means “selectively render to the user where those areas are defined in software.” Ex. 2007 ¶ 117. Dr. MacLean, however, does not testify that “configured to selectively represent a plurality of delineated active areas” requires a variety of different shapes and sizes of areas that can be configured in software as Patent Owner argues in its Patent Owner Response. PO Resp. 31. Moreover, the argument and Dr. MacLean’s testimony are not commensurate in scope with the language of claim 1, are conclusory, and are not supported by record evidence. Neither Patent Owner nor Dr. MacLean directs attention to where in the Specification of the ’313 patent there is a definition for the disputed phrase or even support for the narrow constructions advanced. Petitioner explains, and we agree, that Ishihara describes a touch panel switch 37 (i.e., sensor pad) configured to

selectively represent a plurality of delineated active areas (e.g., convex area 38) which are shown (represented) on display 33. Pet. 38–40; Ex. 1007 Abstract, ¶¶ 50, 57, 59, 61.

For claims 6 and 8–10, each of which depends either directly or indirectly from claim 1, Petitioner relies on the combinations of Pallakoff and Ishihara (claim 10) and Pallakoff, Ishihara, and Martin (claims 6, 8, and 9) to meet the additional limitations of claims 6 and 8–10. Pet. 42–43, 48–50. We agree with Petitioner’s showing, which we adopt as our own, that the combinations of Pallakoff and Ishihara (claim 10) and Pallakoff, Ishihara, and Martin (claims 6, 8, and 9) disclose the additional limitations of claims 6 and 8–10. Patent Owner does not argue these claims separately. PO Resp. 31–34.

Claims 3, 5, and 12

Claim 3 depends from claim 1 and recites “wherein the processor receives signals generated by the input elements of first or second input assemblies when manipulated by the human user.” Ex. 1001, 16:15–18. Petitioner contends that software on Pallakoff’s processor receives and interprets signals generated by input elements when manipulated by the user, directing attention to paragraphs 23 and 24 of Pallakoff. Pet. 41. Pallakoff describes that when a user presses any given button or key, firmware on the device sends a unique code corresponding to the pressed button or key to a queue to be read by software running on the device. Ex. 1006 ¶ 23. Software on the device continuously looks for new codes to appear in the queue, reads those codes, and interprets them as typing. *Id.* ¶ 24. The software can be implemented as part of the device’s firmware or can run on a processor that also runs a high level operating system. *Id.* We are not

persuaded by Patent Owner’s implicit argument that claim 3 requires a direct connection between the processor and the input elements. PO Resp. 32 (“Pallakoff’s description makes clear that the codes are generated and sent by ‘firmware,’ not by the input elements themselves.”). Nothing in claim 3 requires a direct connection between the input elements and the processor. As long as the signals from the input elements are received by the processor, it is of no moment that the same signals are first received by firmware or software that runs on the processor.

Claim 5 depends directly from claim 1 and recites “wherein at least one of the input elements of the second input assembly is a rotary sensor.” Ex. 1001, 16:25–27. Petitioner contends that Pallakoff’s thumb-wheel for any of 108, 208, 308, or 408 on the sides of Pallakoff’s handheld devices are rotary sensors (input elements) of the second input assembly. Pet. 42. Patent Owner agrees that Pallakoff’s thumb-wheel is a rotary sensor, but argues that it would not have been obvious to locate the thumb-wheel on the back of the handheld device—what Patent Owner contends Petitioner designates as the second surface in its Petition. PO Resp. 32–33; Ex. 2007 ¶ 121.

The argument is not persuasive because the Petition indicates that the second surface could be the sides or back of the Pallakoff device, directing attention to paragraph 196 of Pallakoff. Pet. 38. Patent Owner and Dr. MacLean do not address Petitioner’s assertion that the second input assembly, and second surface may be the side surface, as opposed to the back surface. Moreover, Pallakoff itself would have conveyed to a person of ordinary skill in the art at the time of the invention 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. 1006 ¶¶ 196, 200, 323.

Claim 12 depends directly from claim 1 and recites “wherein the processor is further configured to be communicatively coupled to a host electronic device.” Ex. 1001, 16:62–64. Petitioner contends that Pallakoff describes this feature by the description of a user being able to access email, instant messaging, Web pages, remotely hosted applications, and other services. Pet. 43; Ex. 1006 ¶¶ 196, 328.

Patent Owner directs attention to Figure 8 of the ’313 patent as showing a host computer 824 accessible through a local area network 822 and argues that claim 12 requires a host computer connected through a local area network. PO Resp. 34. We are not persuaded by Patent Owner’s arguments (*id.*) because claim 12 does not recite that the processor is communicatively coupled to a host device *through a local area network* or that the host device be part of a local area network. Based on the record before us, Petitioner has shown by a preponderance of the evidence that Pallakoff describes claim 12 as explained above and Petitioner has not rebutted sufficiently Petitioner’s showing.

We now address Petitioner’s reasons for combining Pallakoff, Ishihara, and Martin (Pet. 31, 47–48) and Patent Owner’s arguments that the references should not be combined. PO Resp. 20–28.

Petitioner provides reasons for combining Pallakoff and Ishihara by explaining that a person having ordinary skill in the art at the time of the invention would have incorporated Ishihara’s touch panel into Pallakoff’s handheld device to improve similar devices in the same way. Pet. 31; Ex. 1013 ¶¶ 50–56. In support of that assertion, Dr. Welch testifies that a skilled

artisan would have recognized that Ishihara would have improved the Pallakoff handheld device in that positions of modifier buttons on the back surface touch panel could be configured using software instead of requiring the user to physically change the positions of the modifier buttons using sliding panels. Ex. 1013 ¶ 54.

Petitioner provides reasons for combining Martin with Pallakoff and Ishihara by explaining that a person having ordinary skill in the art at the time of the invention would have recognized that a directional pad as taught by Martin (for claim 6) was well known as an input element on handheld devices and including one would have been obvious as a matter of design choice. Pet. 47–48; Ex. 1013 ¶¶ 61–63. Petitioner also provides reasons for combining Martin with Pallakoff and Ishihara by explaining that a person having ordinary skill in the art at the time of the invention would have realized the benefits of incorporating an actuator into the device of Pallakoff to provide haptic feedback to a user (for claims 8 and 9). *Id.*

Patent Owner argues that the Petition points to no specific reason why a person skilled in the art would want to combine Pallakoff and Ishihara. PO Resp. 20–21. We disagree because the Petition does provide specific reasons for making the combinations as discussed immediately above. Pet. 31, 47–48 (citing Ex. 1013 ¶¶ 50–56, 61–63).

Patent Owner also 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 21–23. 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. 1006 ¶¶ 196, 200, 323.

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. 23–24. 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 described in Pallakoff need be maintained when combining Pallakoff with Ishihara. *See, e.g.*, PO Resp. 23–24; Ex. 2007 ¶¶ 73, 74, 76. 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 as suggested by Ishihara would defeat

Pallakoff's goal of enabling fast typing. PO Resp. 24–26. Patent Owner's arguments are 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.

We also have considered Patent Owner's arguments, and evidence in support thereof, that it would not have been obvious to put Martin's d-pad on the back of Pallakoff's back surface. PO Resp. 26–28. In particular, Patent Owner argues that the favored location for a cursor control is on the front surface, not on the back surface. *Id.*

We do not give much weight to the testimony to which we are directed in support of the arguments presented at pages 26–28 of Patent Owner's Response, because such testimony is either conclusory or focused on physically combining the references without consideration of the skill set of a person of ordinary skill in the art. For example, Dr. MacLean opines that because Martin's directional pad (d-pad) is on the front of Martin's device, one would not put it on the back of Pallakoff's device because it would not be a simple substitution, and placing d-pads on back surfaces is uncommon. Ex. 2003 ¶¶ 147–149. Neither Patent Owner nor Dr. MacLean provide evidence in support of such statements. Dr. MacLean does not explain why putting a d-pad on the back of a hand-held device as opposed to on the front of such a device would be beyond the skill set of a person of ordinary skill in the art. Moreover, Patent Owner (and Dr. MacLean) are of the apparent perception that bodily incorporation is required to make a substitution of one thing for the other. But that is not the case, as we have

explained above. *See Keller*, 642 F.2d at 413. Here, the replacement of Pallakoff's cursor on the back of its device (or side) with a d-pad like the one shown in Martin would have been obvious to a person of ordinary skill in the art at the time of the invention. This is a matter of replacing one known thing for another.

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, Ishihara, and Martin. Pallakoff describes a hand-held device with input elements and an application as claimed. Ishihara describes a sensor pad and Martin describes a directional pad and actuators (vibratory units). We are persuaded by a preponderance of the evidence that modifying the Pallakoff hand-held device to include specifically a sensor pad, directional pad, and actuators 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, Ishihara, and Liebenow

Petitioner contends that claim 4 is unpatentable under 35 U.S.C. § 103 based on Pallakoff, Ishihara, and Liebenow. Pet. 44. To support its contentions, Petitioner provides a detailed showing mapping limitations of claim 4 to structures described by Pallakoff, Ishihara, and Liebenow. *Id.* at

44–46. Petitioner also relies upon the Declaration of Dr. Gregory F. Welch (Ex. 1013) to support its position.

Liebenow describes 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. 1008, Abstract. Liebenow further describes, 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 4 depends directly from claim 1 and recites that the hand-held device includes an input controller that receives signals generated by input elements of the first or second input assemblies and converts the signals into a form suitable to be interpreted by the processor. Ex. 1001, 16:19–24.

Petitioner relies on Liebenow for its description of input controllers included in a hand-held device. Pet. 44–46. Petitioner concludes that one of ordinary skill in the art would have recognized that the addition of an input controller to the Pallakoff and Ishihara handheld device would have reduced demands on the microprocessor and improve interactive responsiveness of the device. Pet. 45; Ex. 1013 ¶¶ 34, 59.

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. 34–35. 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 35–36.

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 4 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 Pallakoff, Ishihara, and Armstrong

Petitioner contends that claim 7 is unpatentable under 35 U.S.C. § 103 based on Pallakoff, Ishihara, and Armstrong. Pet. 50–53. To support its contentions, Petitioner provides a detailed showing mapping limitations of claim 7 to structures described by the prior art. *Id.* Petitioner also relies upon the Declaration of Dr. Gregory F. Welch (Ex. 1013) to support its position.

Armstrong describes a handheld electronic device, such as a PDA, with a display and a number of input elements for accepting user inputs. Ex. 1010, 2:5–15, 6:4–16. Armstrong further describes that the input element(s) include a resilient dome cap(s) for providing tactile feedback to the finger depressing the surface of the depressible surface. *Id.* at Abstract.

Claim 7 depends directly from claim 1 and recites that the hand-held device includes at least one palpable detent associated with at least one of

the input elements of the first or second input assemblies to provide tactile feedback to the user. Ex. 1001, 16:31–36. Petitioner relies on Armstrong for a description of an input element with a resilient dome cap. Pet. 51–52. Petitioner concludes it would have been obvious to a person having ordinary skill in the art to incorporate Armstrong’s input elements with resilient dome cap to provide tactile feedback to a user. *Id.* at 52; Ex. 1013 ¶¶ 68, 69.

We agree with Petitioner’s showing, which we adopt as our own, that Armstrong in combination with Pallakoff and Ishihara discloses at least one palpable detent associated with at least one of the input elements as claimed in claim 7 and that combining Armstrong with Pallakoff and Ishihara would have been desirable for the reasons provided by Petitioner. Patent Owner does not argue for the separate patentability of claim 7. PO Resp. 36.

F. Obviousness Over Pallakoff, Ishihara, and Willner

Petitioner contends that claim 11 is unpatentable under 35 U.S.C. § 103 over the combination of Pallakoff, Ishihara, and Willner. Pet. 53–56. To support its contentions, Petitioner provides a detailed showing mapping limitations of claim 11 to structures described by the prior art. *Id.* Petitioner also relies upon the Declaration of Dr. Gregory F. Welch (Ex. 1013) to support its position.

Willner describes a hand-held device with inputs for a variety of applications including video games. Ex. 1011, 1:6–10, 3:44–67, Figs. 1 and 5. The front surface of the hand-held device includes a variety of input elements including directional pads 110 and 112, which are mapped to game functions related to directional input. *Id.* at 7:36–47; Fig. 2. The back surface includes input elements such as switch pushbuttons 186, 188, 190, 192, 194, and 196 that are mapped to game functions such as weapon fire

and game character maneuvers including jumping and flying. *Id.*

Claim 11 depends directly from claim 1 and recites that the selected one of the plurality of applications is a game application and at least one of the plurality of input elements of the first assembly and at least one of the input elements of the second input assembly are each configured to map to one or more game functions. Petitioner relies on Willner for at least its description of a hand-held electronic device with input elements on the front, and back surfaces of the hand-held device. Pet. 54–55. Petitioner concludes it would have been obvious to a person having ordinary skill in the art to have modified the Pallakoff hand-held device to execute game applications as taught by Ishihara and Willner, and to have further included input elements on the surfaces of the handheld device to correspond to specific game functions. Pet. 55; Ex. 1013 ¶¶ 73, 74.

Patent Owner argues that Willner 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. 3–14. We are not persuaded by Patent Owner's arguments.

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 test, essentially only addressing whether Willner is reasonably pertinent to the particular problem with which

the inventors of the '313 patent were involved. *See, e.g.*, PO Resp. 9–10 (“The devices of Willner and the '313 patent are in different product categories [because the '313 patent] addresses the problem of controlling ‘game functions’ in an integrated, portable handheld electronic device [and because] Willner addressed a different problem involving different embodiments, functions, and structure.”); Ex. 2009 ¶ 103 (Mr. Lim arriving at the field of endeavor for the prior art reference and the invention by looking at the problems solved by each). Such a showing is insufficient, because if the prior art reference is in the same field of endeavor, the test is satisfied, regardless of whether the prior art reference addresses the same problem identified by the inventors.

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 Willner to the obviousness inquiry, here a broad approach should be taken. Pet. Reply 3–4. Indeed, the Supreme Court provided guidance in determining the applicability of a reference's teachings in an obviousness inquiry. In *KSR International 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. 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, claim 1. Willner is within the field of endeavor because it describes hand-held

electronic devices, such as game controllers, with one or more input elements associated with various game controls. Ex. 1011, 1:5–10; 2:24–67. Moreover, we disagree with Patent Owner that Willner is not within the same field of endeavor as the '313 patent because it is directed to peripheral devices and not standalone devices. PO Resp. 11. Peripheral devices, such as the described game controller in Willner, are within the field of endeavor set forth in the '313 patent, as it too covers peripheral type devices, such as game controllers, remote controls, and bar code readers. Ex. 1001, 1:5–11.

Because we find that Willner is from the same field of endeavor as the claimed invention and provides relevant teachings to a person of ordinary skill in the art at the time of the invention, we need not consider Patent Owner's arguments regarding whether Willner is reasonably pertinent to the particular problem with which the inventors are involved.

We have considered Patent Owner's arguments that Willner does not meet the limitations of claim 11 because Willner does not teach mapping front and back surface input elements to game-application functions or teach that manipulation of a second-surface input element causes a game function mapped to a first-surface input element to change. PO Resp. 41–45. The arguments are misplaced. In essence, Patent Owner argues that Willner alone fails to disclose all of the limitations of claim 11. *See, e.g.*, PO Resp. 43–44 (arguing that Willner does not teach game functions mapped to both front and back surface input elements). However, one cannot show nonobviousness “by attacking references individually” where the rejections are based on combinations of references. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 426 (CCPA 1981)). In this case, such arguments are not sufficient to rebut Petitioner's showing

that the *combination* of Pallakoff, Ishihara, and Willner describes all of the claimed features of claim 11.

We also have considered Patent Owner's arguments regarding why there would be no reason to combine Pallakoff, Ishihara, and Willner. PO Resp. 36–41. As explained above, Petitioner articulates a reasonable rationale with supporting evidence for combining Pallakoff, Ishihara, and Willner. We are not persuaded by Patent Owner's arguments that because Willner and Pallakoff are of different form factors, a person having ordinary skill in the art would not look to Willner for teachings on how to modify Pallakoff. *Id.* at 37–40. We have considered the evidence in support of Patent Owner's arguments, but do not give such evidence much weight because the evidence is based on incorporating physically all technicalities of Willner into Pallakoff. *See, e.g.*, Ex. 2009 ¶¶ 101–104. 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. *Keller*, 642 F.2d at 413.

Nor are we persuaded by Patent Owner's arguments that Willner teaches away from combining with Pallakoff because Willner, unlike Pallakoff, does not take a chordal approach to minimizing the number of keys on the handheld device. PO Resp. 40–41. We have considered Patent Owner's arguments and evidence to which we are directed and determine that Patent Owner has not shown sufficiently that Willner criticizes, discredits, or otherwise discourages implementing a gaming function on Pallakoff's handheld device.

For all of the above reasons, we agree with Petitioner's showing, and adopt it as our own, that Willner in combination with Pallakoff and Ishihara disclose the limitations of claim 11 and that including Willner's gaming function to the handheld device of Pallakoff, would have been desirable for the reasons provided by Petitioner.

G. Obviousness Over Pallakoff, Ishihara, and Hedberg

Petitioner contends that claims 13 and 14 are unpatentable under 35 U.S.C. § 103 over the combination of Pallakoff, Ishihara, and Hedberg. Pet. 56–59. To support its contentions, Petitioner provides a detailed showing mapping limitations of claims 13 and 14 to the prior art. *Id.* Petitioner also relies upon the Declaration of Dr. Gregory F. Welch (Ex. 1013) 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. Ex. 1012, 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.

Claim 13 depends directly from claim 1 and recites that at least one of the input elements of the second input assembly comprises an accelerometer. Claim 14 depends directly from claim 1 and recites that at least one of the input elements of the second input assembly comprises a gyroscope. Petitioner relies on Hedberg for its description of a gyroscope or accelerometer included in a hand-held device. Pet. 56–59. 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. 58; Ex. 1013 ¶¶ 77, 78.

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. 14–17, 45. We are not persuaded by Patent Owner's arguments.

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 is ergonomic and versatile data input on a hand-held device. *Id.* Such a showing is insufficient to establish the field of endeavor. As explained above, we determine that the field of endeavor is hand-held devices with one or more input elements. Ex. 1001, 1:5–11, claim 1.

Patent Owner characterizes Hedberg as being in the field of viewing or displaying systems. PO Resp. 15–16. 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. 1012, Title, 6:34–7:7, 7:15–20, Fig. 5, claim 1.

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. 16–17.

We agree with Petitioner's showing, which we adopt as our own, that Pallakoff and Ishihara in combination with Hedberg discloses a gyroscope or

accelerometer as claimed in claims 13 and 14 and that adding a gyroscope or accelerometer to the Pallakoff and Ishihara combination would have been desirable for the reasons provided by Petitioner. Patent Owner does not otherwise argue for the separate patentability of claims 13 and 14. PO Resp. 45.

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, 1471–1472 (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. *See id.*; *see also In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994).

Patent Owner argues that secondary considerations show that the '313 patent claims are not obvious. PO Resp. 45–50. In particular, Patent Owner argues that Petitioner has not pointed to a prior art reference meeting the challenged claims. PO Resp. 46–47. 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 the other various secondary prior art references, 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 not commercially released or were commercial failures. *Id.* (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 49 (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, including the evidence of obviousness and the evidence of failure of others and commercial success submitted by Patent Owner as an 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 1, 3, 5, 6, 8–10, and 12 are unpatentable over Pallakoff, Ishihara, and Martin; claim 4 is unpatentable over the combination of Pallakoff, Ishihara, and Liebenow; claim 7 is unpatentable over Pallakoff,

Ishihara, and Armstrong; claim 11 is unpatentable over Pallakoff, Ishihara, and Willner; and claims 13 and 14 are unpatentable over Pallakoff, Ishihara, and Hedberg.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 1, 3, 5, 6, 8–10, and 12 of the '313 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff, Ishihara, and Martin; claim 4 is unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff, Ishihara, and Liebenow; claim 7 is unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff, Ishihara, and Armstrong; claim 11 is unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff, Ishihara, and Willner; and claims 13 and 14 are unpatentable under 35 U.S.C. § 103(a) as obvious over Pallakoff, Ishihara, and Hedberg.

IV. ORDER

In consideration of the foregoing, it is
ORDERED that claims 1 and 3–14 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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