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Paper 47
Entered: November 29, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOSHIBA AMERICA INFORMATION SYSTEMS, INC.
and APPLE INC.
Petitioner,

v.

GLOBAL TOUCH SOLUTIONS, LLC,
Patent Owner.

Case IPR2015-01603
Patent 7,498,749 B2

Before JUSTIN BUSCH, LYNNE E. PETTIGREW, and BETH Z. SHAW, *Administrative Patent Judges*.

SHAW, *Administrative Patent Judge*.

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

I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Toshiba America Information Systems, Inc. and Apple Inc. and (collectively, "Petitioner") challenge the patentability of claims 1, 2, 4–7, 9–

12, 14, 15, 20, 22, and 24 of U.S. Patent No. 7,498,749 B2 (Ex. 1001, "the '749 patent"), owned by Global Touch Solutions, LLC ("Patent Owner"). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that claims 1, 2, 4–7, 9–12, 14, 15, 20, 22, and 24 of the '749 patent are unpatentable.

A. Procedural History

Petitioner filed a Petition for *inter partes* review of claims 1, 2, 4–7, 9–12, 14, 15, 20, 22, and 24 of the '749 patent. Paper 1 ("Pet."). Patent Owner did not file a Preliminary Response. On December 2, 2015, we instituted an *inter partes* review of claims 1, 2, 4–7, 9–12, 14, 15, 20, 22, and 24 of the '749 patent on all asserted grounds of unpatentability. Paper 10 ("Institution Decision" or "Dec."). After institution, Patent Owner filed a Patent Owner Response, Paper 16 ("PO Resp."), and Petitioner filed a Reply to the Patent Owner Response, Paper 19 ("Pet. Reply"). A consolidated oral hearing was held for this case and several others on August 3, 2016. A transcript of the hearing has been entered into the record. Paper 44 ("Tr.").

B. Related Matters

Petitioner identifies the following district court proceedings that may be affected by a decision in this proceeding: *Global Touch Solutions, LLC v. Toshiba Corp.*, No. 3:15cv2746-JD (N.D. Cal.); *Global Touch Solutions, LLC v. VIZIO, Inc.*, No. 3:15cv2747-JD (N.D. Cal.); *Global Touch Solutions, LLC v. Apple Inc.*, No. 3:15cv2748-JD (N.D. Cal.); *Global Touch Solutions, LLC v. Motorola Mobility LLC*, No. 3:15cv2749-JD; *Global*

Touch Solutions, LLC v. Microsoft Corp., No. 3:15cv2750-JD (N.D. Cal.). Paper 6. Petitioner also identifies the following petitions filed for *inter partes* review, which are related to patents in the same family as the '749 patent: IPR2015-01023, IPR2015-01024, IPR2015-01025, IPR2015-01147, IPR2015-01148, IPR2015-01149, IPR2015-01150, IPR2015-01151, IPR2015-01171, IPR2015-01172, IPR2015-01173, IPR2015-01174, IPR2015-01175, and IPR2015-01616. Pet. 3, 4; Paper 6, 3–4.

C. The '749 Patent

The '749 patent is directed to portable electronic devices that operate on exhaustible power sources such as batteries. Ex. 1001, Abstract. A visible indicator such as a light emitting diode (LED) can be used to indicate the condition of the battery. *Id.* at 9:32–40, Fig. 11.

D. Claims

Independent claim 1 (Ex. 1001, 12:14–36), which is the only independent claim at issue here, reads:

> 1. An electronic unit for use with a product comprising connections for a power source and at least one energy consuming load, said unit comprising:
>
> (a) a microchip connected to a user interface switch structure, said structure comprising at least one switch, being a touch sensor type switch that includes a sense pad;
>
> (b) a visible indicator controlled by the microchip to provide at least an indicator activation function when a signal is received through said user interface switch, wherein the indicator is active when the load is not activated by the user;
>
> (c) wherein the microchip at least partially implements the touch sensor switch and the user interface has at least one of:
>
> (i) an automatic delayed deactivation of a function a predetermined period after the function was activated

> with an activation command received from the touch sensor switch;
>
> (ii) the indicator, in response to the microchip receiving a user interface switch signal, activated to indicate conditions of the product; and
>
> (iii) a touch sensor switch sense pad being integral with a housing of the product.

E. Grounds of Unpatentability Instituted for Trial

We instituted a trial on the ground that claims 1, 2, 4–7, 9–12, 14, 15, 20, 22, and 24 of the '749 patent (the "challenged claims") are unpatentable based on all the asserted grounds:

References	Basis	Challenged Claim(s)
Beard[1] and Rathmann[2]	35 U.S.C. § 103(a)	1, 2, 4–7, 11, 12, 15, and 22
Beard, Rathmann, and Danielson[3]	35 U.S.C. § 103(a)	14
Beard, Rathmann, and Yoshida[4]	35 U.S.C. § 103(a)	20 and 24
Beard, Rathmann, and Lewis[5]	35 U.S.C. § 103(a)	9 and 10

Dec. 4.

[1] U.S. Patent 5,898,290, issued Apr. 27, 1999 (Ex. 1005, "Beard").
[2] U.S. Patent 5,955,869, issued Sept. 21, 1999 (Ex. 1006, "Rathmann").
[3] U.S. Patent 5,710,728, issued Jan. 20, 1998 (Ex. 1007, "Danielson").
[4] U.S. Patent 5,894,580, issued Apr. 13, 1999 (Ex. 1008, "Yoshida").
[5] U.S. Patent 4,123,631, issued Oct. 31, 1978 (Ex. 1009, "Lewis").

II. DISCUSSION

A. Claim Construction

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 Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (holding that 37 C.F.R. § 42.100(b) "represents a reasonable exercise of the rulemaking authority that Congress delegated to the Patent Office"). 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). 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). Absent such a clear, deliberate and precise definition, it is one of the "cardinal sins" of patent law to import limitations from an embodiment in the specification into the claims. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1320 (Fed. Cir. 2005) (en banc).

In the Petition, Petitioner proposed a construction for "energy consuming load." Pet. 9. Patent Owner did not file a Preliminary Response. In the Institution Decision, we determined the term "energy consuming load" did not require express construction, and we did not expressly construe any other claim terms. Dec. 5.

Patent Owner proposes a construction for "energy consuming load" and for "function." PO Resp. 7–11, 14–16.

1. "energy consuming load"

Both Petitioner and Patent Owner agree that the "energy consuming load" of the preamble is limiting. Pet. 23; PO Resp. 4–7; Pet. Reply 4 n.2. Patent Owner argues that "energy consuming load" means only a "load that is under the control of the microchip." PO Resp. at 8. Petitioner disagrees, and argues that Patent Owner's construction attempts to improperly import limitations from the Specification into the claims. Pet. Reply at 4–5. Moreover, Petitioner argues that Patent Owner's own expert confirms that the ordinary meaning of "energy consuming load" is any part of the product that consumes energy when the product is used. *Id.* at 5 (citing Ex. 1037, 102:1–5).

For the following reasons, we agree with Petitioner that, under the broadest reasonable construction, the term "energy consuming load" means any part of the product that consumes energy when the product is used.

We begin our analysis with the language of the claims. The claims do not recite that the energy consuming load receives power under control of the microchip. Moreover, independent claim 21, from which challenged claims 22 and 24 depend, does not even recite a microchip at all. Ex. 1001, 14:12–23. Patent Owner's expert agrees that nothing in the claim language requires the energy consuming load to receive power under control of the microchip. Ex. 1037, 94:14–95:2.

We turn now to the written description. Patent Owner argues that "everywhere an 'energy consuming load' is referred to, it is a load that is under control of the microchip." PO Resp. 8. This argument is unconvincing because "energy consuming load" is not explicitly referred to anywhere in the written description. At oral argument, counsel for Patent

Owner acknowledged that there is "no explicit lexicography definition" for the term energy consuming load. Tr. 93:15. Rather, the written description merely refers to a "load," which is also not defined explicitly. *See* Ex. 1001, 6:52–57.

Thus, we must determine whether the patentee limited the meaning of a term that is not even mentioned in the written description, through statements made in the written description. A specification may only be used to limit a claim if a patentee has disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002).

We have reviewed Patent Owner's references to the Specification as presented in the Patent Owner Response and do not find any expressions of manifest restriction requiring us to limit the claims. First, Patent Owner argues that the '749 patent's description of an intelligent flashlight "identifies the bulb as the source of a 'load' so significant that it needs to be put under the control of a microchip." PO Resp. 11 (citing Ex. 1001, 6:53–57). The cited portion of the Specification contains no such statement. Rather, the cited excerpt merely reads "Microchip 103 also transfers sufficient power through means of a current switch (not shown in FIG. 1) to load 105 which can be, for example, a resistor-type bulb in the case of a flashlight to provide illumination." Ex. 1001, 6:53–57. This sentence merely states that the microchip transfers sufficient power through a current switch to a load, which can be a resistor-type bulb. We are unpersuaded that this sentence in the Specification indicates that the patentee intended to limit

the "energy consuming load" to a load that must be under control of the microchip.

The only other portion of the Specification that Patent Owner directs us to is the '749 patent's discussion of prior art flashlights, regarding which Patent Owner argues "the bulb is often mentioned . . . but never referred to as an 'energy consuming load' because these bulbs are not under the control of a microchip." PO Resp. 11 (citing Ex. 1001, 1:53, 2:6, 2:53, cols. 2–3). We are not persuaded that the Specification's discussion of prior art flashlights is sufficient expression of manifest restriction requiring us to limit the challenged claims in the manner Patent Owner proposes.

Patent Owner argues that a load under the control of the microchip is the "very character of the invention" that requires us to limit the claims. PO Resp. 11–12 (citing *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1370 (Fed. Cir. 2003)). However, we cannot redraft the claims for the Patent Owner to try to cover unclaimed features described in the Specification, even if the feature was found in every embodiment. *See Ventana Med. Sys., Inc. v. BioGenex Labs., Inc.*, 473 F.3d 1173, 1181 (Fed. Cir. 2006) (refusing to read limitation found in all embodiments in the specification into the claims because "[w]hen the claim addresses only some of the features disclosed in the specification, it is improper to limit the claim to other, unclaimed features"); *see also E-Pass Techs., Inc. v. 3COM Corp.*, 343 F.3d 1364, 1370 (Fed. Cir. 2003) (refusing to read feature of every embodiment from specification into the claims because "[a]n invention may possess a number of advantages or purposes, and there is no requirement that every claim directed to that invention be limited to encompass all of them"). Moreover, we are unpersuaded by Patent Owner's argument that the energy

consuming load being a load that is under the control of the microchip is the "very character of the invention" because, as discussed above, Patent Owner does not direct us to any statements in the Specification that support this conclusion.

Patent Owner does not allege that any prosecution history is helpful to ascertain the meaning of the "energy consuming load." *See* Tr. 72:9–14. Petitioner points out that claims of Patent Owner's related patents in fact contradict Patent Owner's proposed construction. Pet. Reply 9–11. When the patentee wanted to include a requirement that the microchip control the flow of power, it did so expressly and without leaving it implied in the term "energy consuming load." For example, claim 52 of related U.S. Patent No. 7,329,970 recites "using the microchip to control the connection of the power source to the load." Ex. 1038 (claim 52).

We have considered all of the parties' arguments and supporting evidence regarding the construction of "energy consuming load" as recited in the challenged claims. For the reasons discussed, we agree with Petitioner that the scope of "energy consuming load" is not limited to a load that is under the control of the microchip, as asserted by Patent Owner.

2. "function"

Claim 1 recites the automatic delayed deactivation of a "function." Dependent claims 22 and 24 depend from claim 21, which is not challenged in this *inter partes* review. For reference, claim 21 includes:

> (a) activating the indicator in response to a user interface switch activation signal;
>
> (b) activating the indicator when the load is not activated by the user; and

> (c) performing an automatic delayed deactivation of a function that was activated in response to an activation signal received via the user interface switch.

Ex. 1001, 14:17–23. The parties dispute whether "a function" can be the visible indicator or whether "a function" must be a function other than the activation of the indicator. Patent Owner argues that it "is not necessary to confine the 'function' . . . to any specific function." PO Resp. 16. Patent Owner argues further that the function "simply is not the visible indicator function." *Id.* at 15–16. To support this argument, Patent Owner refers to the language of claim 21, arguing that the function must be a function "other than the already noted activation of the visible indicator" because "[t]o suggest otherwise would be to render the discussion of steps (a) and (b) superfluous because if the delayed deactivation of step (c) was intended to be the deactivation of the visible indicator, those steps would be unnecessary." *Id.* at 15.

Petitioner contends, and we agree, that a plain reading of the claim language shows that Patent Owner's proposed construction is incorrect. Pet. Reply 15. Specifically, in claim 21, step (a) states that the indicator is activated "in response to a user interface switch activation signal" and step (c) explicitly ties the function that is deactivated to one "that was activated in response to an activation signal received via the user interface switch." Ex. 1001, 14:1–18. Similarly, claim 1 recites "an automatic delayed deactivation of a function a predetermined period of time after the function was activated with an activation command received from the touch sensor switch." Ex. 1001, 12:28–31. Thus, the claims state that the activated indicator is one of the functions that can be deactivated. Petitioner argues, and we agree, that "function" is a broad term that encompasses any type of

function, while "activating the indicator" is a specific type of function. Pet. Reply 17. Petitioner cites Patent Owner's expert's testimony for support. *Id.* (citing Ex. 1036, 118:21–119:3). Moreover, the Specification refers to "battery strength monitoring" as one example of a function. *Id.* at 18 (citing Ex. 1001, 8:44–49, 1:41–43). Additionally, an original claim in the application to which the '749 patent claims priority shows that when the patentee wished to include a requirement that related to an "*other* function," it did so expressly. *Id.* (citing Ex. 1042, 25 (claim 1), 29–30 (claims 28 and 36)).

We agree with Petitioner that Patent Owner's attempt to narrow the term "function" to exclude activation of a visible indicator is contrary to the claims, Specification, and the testimony of Patent Owner's expert witness. We have considered all of the parties' arguments and supporting evidence regarding the construction of "function." For the reasons discussed, we agree with Petitioner that the broadest reasonable interpretation of "function" is not limited to a function other than activating the visible indicator, as asserted by Patent Owner.

B. Obviousness of Claims 1, 2, 4–7, 11, 12, 15, and 22 over the Combination of Beard and Rathmann

Petitioner contends that claims 1, 2, 4–7, 11, 12, 15, and 22 are unpatentable under 35 U.S.C. § 103(a) as obvious over Beard and Rathmann. Pet. 31–55. Relying on the testimony of Mr. Beard, who is one of the inventors of the Beard reference, Petitioner explains how the combination of Beard and Rathmann allegedly teaches all the claim limitations. *Id.* (citing Ex. 1003).

1. Beard

Beard describes an intelligent battery pack with a microcontroller and battery indicators for use with a portable electronic device. Ex. 1005, 1:18–21; *see also* Ex. 1003 ¶ 68. The microcontroller responds to a touch-sensing circuit that detects changes in impedance or capacitance when an operator touches one or two contacts. Ex. 1005, 11:12–16; *see also* Ex. 1003 ¶ 68. Figure 11 of Beard is reproduced below.

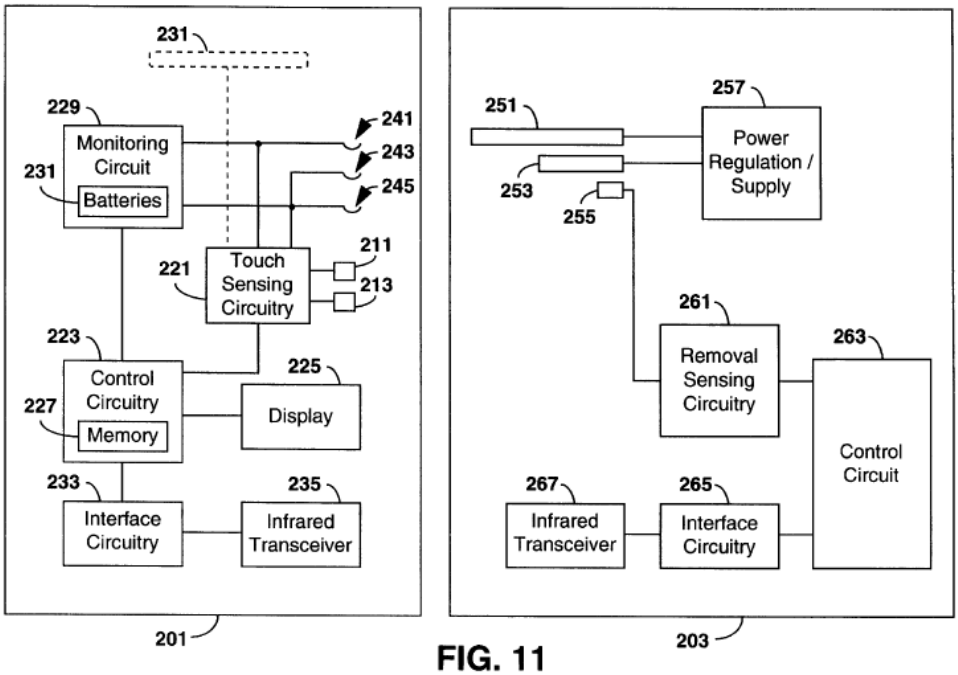


FIG. 11

Figure 11 depicts a battery pack 201 that provides an operator with an indication of battery capacity whether or not it is inserted into portable electronic device 203. Ex. 1005, 11:10–13. When fully inserted, the battery pack contacts 241, 243 and 245 engage the corresponding contacts 251, 253 and 255**,** and, if sufficient power is available, the device 203 may enter a fully operational state when the operator desires. *Id.* at 11:67–12:4.

2. Rathmann

Rathmann describes a "smart battery for use in an intelligent device having power management capabilities." Ex. 1006, 1:12–16; 1:65–3:30. Rathmann's indicator is comprised of LEDs. In response to a signal from the battery pack's user interface, four LEDs illuminate sequentially to indicate remaining battery charge. Ex. 1006, Fig. 3, 16:24–36; *see* Ex. 1003 ¶ 87.

3. Claim 1

Petitioner asserts that the combination of Beard and Rathmann teaches all of the limitations of independent claim 1. For the following reasons, Petitioner has shown that the combination of Beard and Rathmann teaches all the limitations of claim 1.

> *An electronic unit for use with a product comprising connections for a power source and at least one energy consuming load, said unit comprising:*

Petitioner contends that Beard discloses battery pack 201 of Figure 11 and electrical connections that connect the battery pack to the energy consuming part of device 203, which teaches the claimed "product comprising connections for a power source" as recited in claim 1. Pet. 32 (citing Ex. 1005, 11:10–12). Petitioner contends that Beard discloses that the product comprises "at least one energy consuming load" because Beard discloses that the battery pack delivers electric charge energy to portable electronic device 203, which includes a load, such as any of the exemplary energy consuming components depicted in device 203 in Figure 11. *Id.* at 33 (citing Ex. 1005, 11:57–61).

We agree with and adopt Petitioner's contentions regarding Beard's teachings of this limitation. *Id.* Patent Owner's only argument with respect

to claim 1 is that Beard does not teach at least one "energy consuming load" because the data terminal in Figure 3 of Beard is not under the control of a microchip of Beard's battery pack. PO Resp. 12–13. Patent Owner's argument, however, depends on its proposed construction of "energy consuming load" as limited to a load under the control of a microchip, a construction which we have not adopted. *See id.* at 13.

> *(a) a microchip connected to a user interface switch structure, said structure comprising at least one switch, being a touch sensor type switch that includes a sense pad*

Beard discloses the claimed user interface touch sensor switch structure because Beard teaches a pair of contacts 211 and 213, and a touch sensing circuit 221 that detects an impedance charge across the contacts and activates a control circuit 223 to service the request. Pet. 33–34 (citing Ex. 1005, 11:12–22, Fig. 11).

> *(b) a visible indicator controlled by the microchip to provide at least an indicator activation function when a signal is received through said user interface switch, wherein the indicator is active when the load is not activated by the user*

Beard describes a visible indicator controlled by the microchip to provide at least an indicator activation function when a signal is received through said user interface switch, and wherein the indicator is active when the load is not activated by the user. Pet. 35–38. For example, Beard discloses a display of battery capacity, which Petitioner contends is the visible indicator. Pet. 35 (citing Ex. 1005, 11:12–22). Further, "battery pack 201 provides an operator with an indication of battery capacity whether or not it is inserted into a portable electronic device 203." *Id.* at 32 (citing Ex. 1005, 11:10–12). Rathmann also "discloses additional detail about activating a visible indicator (between one and four LEDs that illuminate to

indicate battery capacity in successive 25% intervals relative to a full charge of 100%) in response to a user interface switch activation signal when the load is not activated by the user." *Id.* at 37 (citing Ex. 1006, 16:24–29).

> *(c) wherein the microchip at least partially implements the touch sensor switch and the user interface has at least one of*

Beard discloses that the microchip at least partially implements the touch sensor switch. Pet. 38 (citing Ex. 1005 at 11:12–22). Although the claim only requires that "the user interface has at least one of" the following features, Petitioner contends that Beard discloses all three. Pet. 39. Patent Owner does not specifically address these limitations. We agree with and adopt Petitioner's contentions regarding Beard's teachings of these limitations. *See* Pet. 39–42. We address each limitation in turn.

> *(i) an automatic delayed deactivation of a function a predetermined period after the function was activated with an activation command received from the touch sensor switch*

Beard discloses that the charge status information display automatically deactivates the indication after ten seconds, which teaches an automatic delayed deactivation of a function a predetermined period after the function was activated with an activation command received from the touch sensor switch, as recited in claim 1. *Id.* at 39 (citing Ex. 1005, 10:51–56).

> *(ii) the indicator, in response to the microchip receiving a user interface switch signal, activated to indicate conditions of the product*

Beard discloses displaying battery charge status is activated in response to the microchip receiving an activation command of a single touch contact in Figure 9 received from the touch sensor switch. Pet. 40 (citing

Ex. 1005, Fig. 9, 10:48–50). Beard discloses that the indicator is activated to indicate conditions of the product because Beard discloses that the indicator displays the remaining capacity of the battery pack. *Id.* (citing Ex. 1005, Figs. 5–6; 6:63–7:5; Ex. 1003 ¶ 45).

(iii) a touch sensor switch sense pad being integral with a housing of the product

Beard discloses "a touch sensor switch sense pad being integral with [the] housing of the product," as recited in claim 1. Pet. 41. Figure 8 of Beard is reproduced below.

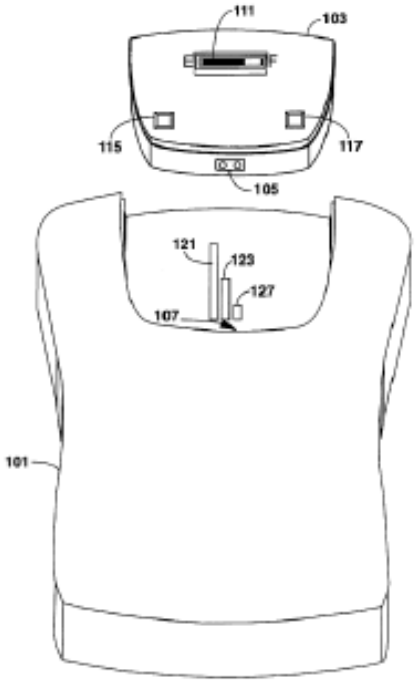


FIG. 8

Figure 8 of Beard depicts battery pack 103 that may be inserted in a slot in the bottom of portable terminal 101 to power the terminal. Ex. 1005, Fig. 8, 9:14–16. Thus, contacts 115 and 117 are located on the back of the product, integral with the housing of the product. Pet. 41, 42 (citing Ex. 1005, Fig. 8, 9:17–23; Ex. 1003 ¶ 156).

We agree with and adopt Petitioner's contentions regarding Beard and Rathmann's teachings of the limitations of claim 1 as set forth in the Petition. *See* Pet. at 31–42. Patent Owner presents no additional arguments for claim 1 other than its argument addressed above with respect to "energy consuming load." *See* PO Resp. 1–14. For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over the combination of Beard and Rathmann.

4. Dependent Claims 2, 4–7, 11, 12, 15, and 22

We agree with and adopt Petitioner's contentions that the combination of Beard and Rathmann teaches all of the limitations of dependent claims 2, 4–7, 11, 12, 15, and 22.[6] *See* Pet. 42–55. As support, Petitioner provides detailed explanations as to how the combination of Beard and Rathmann meets each claim limitation, as well as reasons why one with ordinary skill in the art would have combined the disclosures of the references. *Id.* Patent Owner presents no additional arguments for claims 2, 4–7, 11, 12, and 15 beyond its arguments with respect to claim 1, from which they ultimately depend. We address Patent Owner's argument with respect to dependent claim 22 below.

We agree with and adopt Petitioner's contentions regarding Beard and Rathmann's teachings of the limitations of claim 21, from which claim 22 depends. *See* Pet. 47–54. Claim 22 recites "wherein the indicator is

[6] Claim 22 depends from independent method claim 21. In IPR2015-01172, we found claim 21 obvious over Beard and Rathmann. *Apple Inc. v. Global Touch Solutions, LLC*, Case IPR2015-01172, Paper 57 (PTAB Nov. 16, 2016).

implemented using LED technology and the method further comprises that the indication represents conditions of the product." Ex. 1001, 14:24–26. For these limitations, Petitioner points to Beard's disclosure that its indicator uses "LEDs [that] sequentially illuminate to thereby indicate to the operator the amount of capacity remaining therein." Ex. 1005, 7:3–5, 7:6–40; Ex. 1003 ¶ 208.

Patent Owner contends that Beard and Rathmann do not teach the limitations of claim 22. PO Resp. 15–17. In particular, Patent Owner argues that the delayed deactivation must be the deactivation of some function *other than* the activation of the visible indicator. PO Resp. 15. Patent Owner argues that while it "is not necessary to confine the 'function' . . . to any specific function. . . . it simply is not the visible indicator function." *Id.* at 15–16. Patent Owner's argument, however, depends on its proposed construction of "function" in independent claim 21, from which claim 22 depends, as limited to a function other than activating the visible indicator—a construction which we have not adopted. *See id.*

We agree with Petitioner that the combination of Beard and Rathmann teaches the limitations in claims 2, 4–7, 11, 12, 15, and 22. *See* Pet. 42–55. We agree with and adopt Petitioner's articulated reasoning with rational underpinning for combining the references. Pet. 21–25. For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that 1, 2, 4–7, 11, 12, 15, and 22 would have been obvious over the combination of Beard and Rathmann.

C. Obviousness of Claims 9, 10, 14, 20, and 24 over Beard and Rathmann in Combination with Other References

Petitioner contends that claims 9, 10, 14, 20, and 24 are unpatentable under 35 U.S.C. § 103(a) as obvious over Beard and Rathmann in combination with other references. Pet. 55–60. Relying on the testimony of Mr. Beard, Petitioner explains how the combination of Beard and Rathmann with other references allegedly teaches all the limitations in these claims. *Id.* (citing Ex. 1003). Patent Owner presents no additional arguments for claims 9, 10, 14, and 20 beyond its arguments with respect to claim 1, from which they ultimately depend. We address Patent Owner's argument with respect to dependent claim 24 below.

1. Danielson

Mr. Beard is a co-inventor of the Danielson patent. Danielson describes a "portable data collection terminal system." Ex. 1007, Abstract, Fig. 2. Danielson describes various aspects of such terminal devices, including embodiments that have audio and radio frequency circuitry, a keyboard, or an on/off switch. *Id.* at 8:55–57, 22:58–60, 22:65–66.

2. Claim 14

We agree with and adopt Petitioner's contentions that the combination of Beard, Rathmann, and Danielson teaches all of the limitations of dependent claim 14. Pet. 56. Danielson describes a product that "can contain a PCMCIA card with an antenna for communicating over radio waves," "a radio frequency transceiver," and "circuitry for delivering audio," which teaches "the product comprises RF circuitry and/or audible sound signal generating electronics," as recited in dependent claim 14. *See id.* (citing Ex. 1007, 25:21–24; 24:64–55:35; 11:51–53; Fig. 20).

We agree with and adopt Petitioner's articulated reasoning with rational underpinning for combining Beard, Rathmann, and Danielson. Pet. 26–28. For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that claim 14 would have been obvious over the combination of Beard, Rathmann, and Danielson.

3. Yoshida

Yoshida describes a display control unit to change automatic turn-off time of a display unit. Ex. 1008, Abstract. Yoshida describes the use of touch switches with battery-operated devices. *See id.* at 3:16–26; Ex. 1003 ¶ 92. Yoshida describes using a touch sensor on a mouse and a keyboard to determine whether a device is in use. Ex. 1008, 3:27–37.

4. Claims 20 and 24

We agree with and adopt Petitioner's contentions that the combination of Beard, Rathmann, and Yoshida teaches all of the limitations of dependent claims 20 and 24. Pet. 56–57. Dependent claim 20 recites "[a]n electronic unit according to claim 1, wherein a deactivating command selection depends at least on the time period between switch operations exceeding a minimum period." Ex. 1001, 14:8–11. Yoshida describes that if the touch sensor is not touched (and thus the device is not being operated), an automatic turn-off timer is set. Pet. 57 (citing Ex. 1008 9:5–29; Ex. 1003 ¶ 219). Yoshida describes that "[i]f the timer reaches 0, the device deactivates the display." *Id.* Yoshida teaches that "if the keyboard or mouse is operated (as determined by the touch sensor) the off-timer is reset." *Id.* (citing Ex. 1008, 8:24–9:29; Ex. 1003 ¶ 219). Deactivation of Yoshida's display therefore depends on whether the timer-off period is exceeded between a user's touches of the touch sensor. *Id.* (citing Ex. 1003 ¶ 219).

Dependent claim 24[7] recites "[t]he method of claim 21, wherein a deactivation function is selected based on at least the time period between switch operations exceeding a minimum period." Ex. 1001, 14:29–31. Petitioner contends that Yoshida describes "that a deactivation function is selected based on at least the time period between switch operations exceeding a minimum period." Pet. 58 (citations omitted). Patent Owner contends that Beard and Rathmann do not teach the limitations of claim 24. PO Resp. 15–17. As with dependent claim 22, however, Patent Owner's argument depends on its proposed construction of "function" in independent claim 21, from which claim 24 depends, as limited to a function other than activating the visible indicator—a construction which we have not adopted. *See id.*

We agree with Petitioner that the combination of Beard, Rathmann, and Yoshida teaches all the limitations of dependent claims 20 and 24. We agree with and adopt Petitioner's articulated reasoning with rational underpinning for combining Beard, Rathmann, and Yoshida. Pet. 28–30. For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that claims 20 and 24 would have been obvious over the combination of Beard, Rathmann, and Yoshida.

5. Lewis

Lewis describes touch switches that can be implemented using a conductive fluid. Ex. 1009, 2:10–3:16, Abstract.

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[7] As with claim 22, dependent claim 24 also depends from independent method claim 21. In IPR2015-01172, we found claim 21 obvious over the combination of Beard and Rathmann. *Apple Inc. v. Global Touch Solutions, LLC*, Case IPR2015-01172, Paper 57 (PTAB Nov. 16, 2016).

6. Claims 9 and 10

Petitioner asserts, and we agree, that the combination of Beard, Rathmann, and Lewis teaches all of the limitations of dependent claims 9 and 10. Claim 9 recites that "electrically conductive fluid and/or flexible tape comprising electrically conductive material is used in the implementation of the user interface that is attached to the microchip." Ex. 1001, 13:5–8. Lewis describes details about the construction of touch sensors, such as that "conductive type ink" is used to define an area of each of the touch pads. Pet. 58, 59 (citing Ex. 1009, 2:34–38). Claim 10 recites that "the power supply, the load, the microchip, the user interface switch and the indicator are all enclosed in and/or attached to the product housing and wherein the indicator comprise[s] at least an LED." Ex. 1001, 13:9–13. With respect to claim 10, Beard describes that control circuitry 223 and batteries 231 are located within battery pack 201 shown in Figure 11 of Beard, and that the indicator of Beard uses an LED. Pet. 60 (citing Ex. 1005, Fig. 11, 11:7–30; 4:63-67, Fig. 5, 6:57–7:40).

For the foregoing reasons, we agree with Petitioner that the combination of Beard, Rathmann, and Lewis teaches all the limitations of dependent claims 9 and 10. We agree with and adopt Petitioner's articulated reasoning with rational underpinning for combining Beard, Rathmann, and Lewis. Pet. 30–31. For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that claims 9 and 10 would have been obvious over the combination of Beard, Rathmann, and Lewis.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 1, 2, 4–7, 9–12, 14, 15, 20, 22, and 24 of the '749 patent are unpatentable.

IV. ORDER

Accordingly, it is:

ORDERED that claims 1, 2, 4–7, 9–12, 14, 15, 20, 22, and 24 of U.S. Patent No. 7,498,749 B2 have been shown to be 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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