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Paper 8
Entered: April 11, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CAREFUSION CORPORATION,
Petitioner,

v.

BAXTER INTERNATIONAL, INC.,
Patent Owner.

Case IPR2017-00202
Patent 5,764,034

Before RICHARD E. RICE, ROBERT J. WEINSCHENK, and AMANDA F. WIEKER, *Administrative Patent Judges.*

WIEKER, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Petitioner, CareFusion Corporation, filed a Petition requesting an *inter partes* review of claims 1–4 and 9–12 of U.S. Patent No. 5,764,034 (Ex. 1001, "the '034 patent"). Paper 1 ("Pet."). In response, Patent Owner, Baxter International, Inc., filed a Preliminary Response. Paper 6 ("Prelim. Resp."). We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." *See also* 37 C.F.R. § 42.4(a).

Upon consideration of the information presented in the Petition and Preliminary Response, and for the reasons set forth below, we determine that Petitioner has demonstrated that there is a reasonable likelihood that claims 9–12, but not claims 1–4, are unpatentable. Accordingly, we institute an *inter partes* review of claims 9–12 of the '034 patent based on the grounds identified in the Order section of this Decision.

A. Related Matters

According to the parties, infringement of the '034 patent is alleged in the following proceeding: *Baxter International, Inc. v. CareFusion Corporation and Becton, Dickinson and Company*, No. 1:15-cv-9986 (N.D. Ill.) (the "Related Litigation"). Pet. 2; Paper 5, 1.

The '034 patent is also involved in PTAB proceeding IPR2016-01460. Pet. 2; Paper 5, 1.

B. The '034 Patent

The '034 patent is directed to a battery gauge for an infusion pump that "provides an estimate of the amount of time left on the battery by

monitoring not only the voltage available from the battery, but also the amount of current flowing from the battery." Ex. 1001, 2:12–25. Figure 11 is reproduced below.

FIG. 11

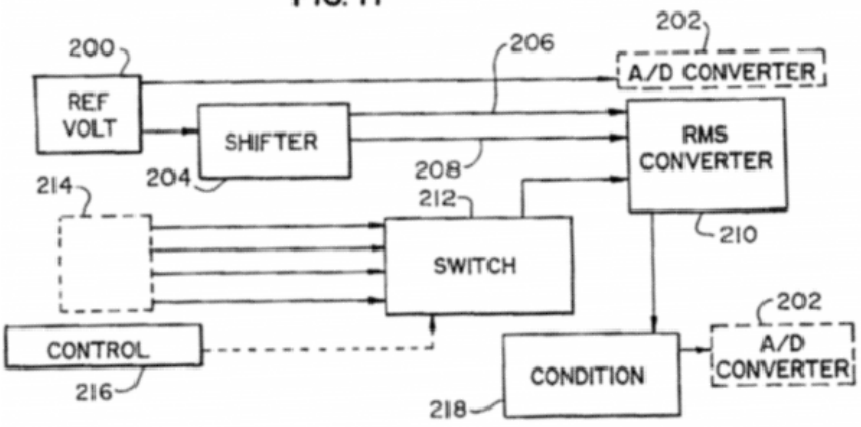

Figure 11 depicts a block diagram of the battery gauge circuit. *Id.* at 2:47–49. Circuit 216 controls switch 212 to select the voltage or current range 214 to be measured, e.g., high-voltage, low-voltage, high-current, or low-current. *Id*. at 9:38–42, 10:55–56. The selected signal is sent to RMS converter 210 and conditioning circuit 218, before being input to A/D (analog-to-digital) converter 202 of a slave microprocessor for analysis. *Id.* at 9:43–47. Reference voltage 200 is also sent to RMS converter 210 and A/D converter 202. *Id.* at 9:25–28, Fig. 11. Additionally, a coarse voltage signal (not shown) is supplied to the slave microprocessor. *Id.* at 11:13–23.

These signals are used to generate visual and audible indicators of battery status. *Id.* at 5:12–18, 5:35–37, 8:26–39, 11:39–41. For example, a "Battery Alarm occurs when the battery voltage falls below a critically determined value," e.g., 10.8 volts. *Id.* at 11:46–49, 13:21–30, Fig. 14 (step 14). A "Battery Alert is generated when less than a predetermined time is left until the Alarm is generated," e.g., 30 minutes. *Id.* at 11:43–46, 13:36–52, 14:50–56, Fig. 14 (step 17).

C. Illustrative Claims

Challenged claims 1 and 9 are independent claims. Ex. 1001, 15:36–50, 16:25–40. Challenged claims 2–4 depend directly from independent claim 1. *Id.* at 15:51–59. Challenged claims 10–12 depend directly or indirectly from independent claim 9. *Id.* at 16:40–48.

Claims 1 and 9, reproduced below, are illustrative:

> 1. An infusion pump comprising:
>
> a pump drive mechanism for applying the pumping action to a liquid for infusion in a patent;
>
> a battery for powering the pump drive mechanism;
>
> a circuit which monitors the voltage and current from the battery;
>
> a circuit responsive to the monitoring circuit which determines the remaining time of charge in the battery;
>
> a battery alarm which occurs when the remaining time of charge in the battery is below a predetermined level;
>
> a battery low alert which occurs when the remaining time of charge in the battery is below a predetermined level but above the battery alarm level; and
>
> display means for displaying the remaining time of charge in the battery.

Id. at 15:36–50.

> 9. A method of infusing a liquid into a patient comprising:
>
> infusing the liquid into the patient by use of an electrically powered mechanism;
>
> powering the electronically powered mechanism with a battery;
>
> monitoring the voltage of the battery;

> monitoring the current from the battery;
>
> determining from the voltage and the current the remaining time of charge in the battery;
>
> alarming when the remaining time of charge in battery is below a predetermined level;
>
> alerting when the remaining time of charge in battery is below a predetermined level but above the battery alarm level; and
>
> displaying the remaining time of charge in the battery.

Id. at 16:25–40.

D. Prior Art Relied Upon

Petitioner relies upon the following prior art references. Pet. 18.

Name	Reference	Date	Exhibit No.
Jenkins	US 3,985,133	Oct. 12, 1976	Ex. 1004
Stitch	US 5,295,078	Mar. 15, 1994	Ex. 1005
Krohn	US 5,225,763	July 6, 1993	Ex. 1006
EDN	Malcolm McClure, *Energy gauges add intelligence to rechargeable batteries*, EDN, May 26, 1994		Ex. 1007
LTC1325	Linear Technology, *LTC1325 Microprocessor-Controlled Battery Management System* (1994)		Ex. 1008

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability. Pet. 18.

References	Basis	Challenged Claims
Jenkins and Stitch	§ 103(a)	1–4 and 9–12
Jenkins, Stitch, and Krohn	§ 103(a)	1–4 and 9–12
Jenkins, Stitch, Krohn, LTC1325, and EDN	§ 103(a)	1–4 and 9–12

II. ANALYSIS

A. Claim Interpretation

The parties agree that the '034 patent has expired. Pet. 7, 13–14; Prelim. Resp. 5. "[T]he Board's review of the claims of an expired patent is similar to that of a district court's review." *In re Rambus, Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012). Therefore, we apply the principles set forth by the Court of Appeals for the Federal Circuit in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Accordingly, the "words of a claim 'are generally given their ordinary and customary meaning'" as understood by a person of ordinary skill in the art at the time of the invention. *Id.* at 1312 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "In determining the meaning of the disputed claim limitation[s], we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Phillips*, 415 F.3d at 1315 (quoting *Vitronics*, 90 F.3d at 1582). Extrinsic evidence is "less significant than the intrinsic record in determining the legally operative meaning of claim language." *Id.* at 1317 (internal quotation marks omitted).

1. "display means"

Challenged claim 1 recites "display means for displaying the remaining time of charge in the battery." Ex. 1001, 15:49–50. Petitioner contends this phrase is a means-plus-function limitation under 35 U.S.C. § 112, sixth paragraph, and construes this limitation in accordance with

positions put forth by Patent Owner in the Related Litigation. Pet. 15–16 (citing Ex. 1011, APP0407). Specifically, Petitioner agrees that "the function is 'displaying the remaining time of charge in the battery,' and the structure disclosed in the '034 patent is an LCD." *Id.* at 16. Patent Owner does not construe this limitation in its Preliminary Response.

On this record, we agree with Petitioner's construction. For purposes of this Decision, we determine that the recited function is "displaying the remaining time of charge in the battery," and the corresponding structure is an LCD. *See, e.g.*, Ex. 1001, 3:11–16 (disclosing "liquid crystal display (LCD) area 23 which conveys information about the pump to the user"), 6:17–25 (disclosing "battery icon 122 . . . [which] includes a gauge 124 which graphically demonstrates the amount of amp hours remaining in the rechargeable auxiliary battery"), 9:5–9 (discussing a battery information screen), Fig. 6a, Fig. 10b.

2. Additional Constructions

Petitioner proposes that we also construe the following claim language: "a circuit responsive to the monitoring circuit which determines the remaining time of charge in the battery" (claim 1), "means for sampling" (claim 2), and "means for alternatively sampling" (claim 3). Pet. 15–17. We find, however, that we need not provide express constructions of this language for purposes of this Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (stating that claim terms only need to be construed to the extent necessary to resolve the case).[1]

[1] These limitations were construed in IPR2016-01460. Ex. 2011, 6–11.

B. Obviousness over Jenkins and Stitch

Petitioner contends that claims 1–4 and 9–12 of the '034 patent are unpatentable under 35 U.S.C. § 103(a) over Jenkins and Stitch. Pet. 18–33. In particular, Petitioner explains how it believes Jenkins and Stitch render obvious the subject matter of the challenged claims, and presents rationales to combine the references' teachings. *Id.* Petitioner also relies upon the Declaration of Yangming Xu (Ex. 1003, the "Xu Declaration") to support its positions. *Id.* Patent Owner counters, *inter alia*, that the cited prior art fails to disclose or suggest all claim limitations, and that Petitioner fails to present a plausible rationale for combining the references. Prelim. Resp. 12–29, 37–60. Patent Owner relies upon the Declaration of Mr. Warren P. Heim (Ex. 2001, the "Heim Declaration") to support its arguments. *Id.*

We have reviewed the parties' contentions and evidence and, on this record, are persuaded that Petitioner has shown a reasonable likelihood of prevailing on its assertion that claims 9–12, but not claims 1–4, are obvious over Jenkins and Stitch.

1. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness.

Graham v. John Deere Co., 383 U.S. 1, 17–18 (1966).

2. Level of Ordinary Skill in the Art

Petitioner contends a person of ordinary skill in the art of the '034 patent would have had "education and research/industry experience in biomedical engineering with at least 2 years' experience designing hardware, software and/or firmware for electrical devices in the biomedical industry." Pet. 10. Patent Owner contends such a person would have had "an engineering degree and at least six years of experience designing medical devices using electronics and electro-mechanical components powered by batteries." Prelim. Resp. 4.

At this stage of the proceeding, we determine 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).

3. Overview of Jenkins (Ex. 1004)

Jenkins discloses an infusion pump. Ex. 1004, Abst. The pump includes a low battery detector that "detects when the voltage level of the [pump] battery is below a certain predetermined value." *Id.* at 18:63–19:15. Accordingly, "an alarm signal [is provided] when there is approximately one hour running time for the pump from the charge remaining on the battery." *Id.* at 3:65–68, 8:22–26. Battery alarm indicator 48, located on the front panel of the pump, provides a visual indication of low battery status. *Id.* at 5:45–52, 8:3–7, Fig. 1. When the battery alarm is activated, pump operation is not impacted. *Id.* at 3:68–4:1. "If, however, the pump is operated beyond the [one hour] alarm period without plugging in the battery charger, ultimately the battery is discharged so that there is insufficient power to drive the pump and this activates an occlusion alarm in addition to the

battery alarm." *Id.* at 4:1–6. Occlusion indicator 50, located on the front panel of the pump, provides a visual indication of occlusion status. *Id.* at 5:53, 8:3–7, 8:26–35, Fig. 1.

4. *Overview of Stitch (Ex. 1005)*

Stitch discloses an uninterruptable power system in which the remaining battery runtime can be determined accurately. Ex. 1005, Abst. Stitch's Figure 1 is reproduced below.

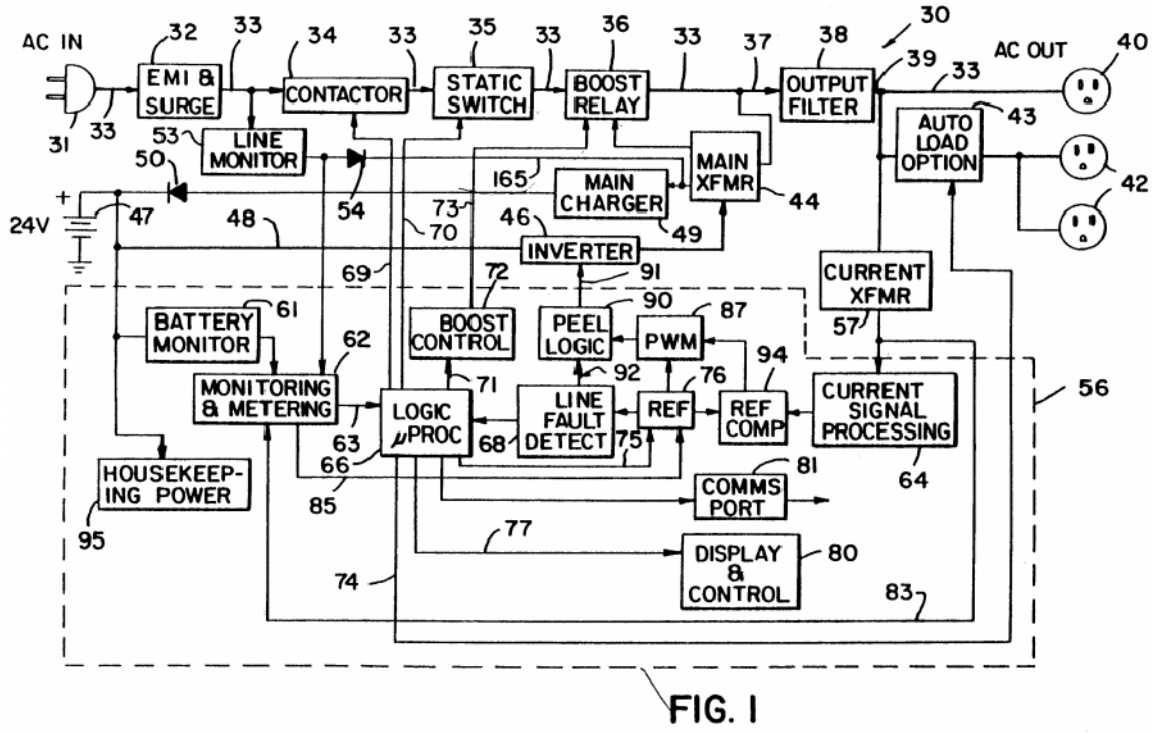

FIG. 1

Figure 1 presents a block diagram of uninterruptable power system 30, connected between an AC power source (at inlet plug 31) and a critical load, e.g., a computer (at output terminal 40). *Id.* at 4:56–59, 4:64–67, 5:2–6. Power system 30 includes inverter 46 and battery 47. "When power from the AC power mains fails, an inverter 46 is turned on, and DC power is supplied to the inverter from an auxiliary power supply battery 47 on a DC bus 48." *Id.* at 5:20–23.

Stitch explains that "battery monitor 61 is used to monitor the voltage of the battery 47." *Id.* at 5:58–61. Additionally, current transformer 57 is connected to AC output power line 39 to obtain "information indicative of the current being delivered by the back-up power system 30 to the power consuming load equipment (the load current)." *Id.* at 5:49–54. To determine remaining battery runtime, microprocessor 66 executes a formula that includes, *inter alia*, the measured voltage and current values. *Id.* at 6:47–7:8. Accordingly, a highly accurate determination of battery runtime is obtained. *Id.* at 3:3–5.

5. Discussion

Petitioner contends that Jenkins and Stitch render obvious claims 1–4 and 9–12. Pet. 18–33. For many claim limitations, Petitioner provides citations to portions of both Jenkins and Stitch. *See, e.g.*, *id.* at 22–33; Prelim. Resp. 47–49, 51–57. Petitioner explains, however, that it would have been obvious for a person of ordinary skill in the art to have combined "the infusion pump system of Jenkins with the battery alarm and alert features of Stitch." Pet. 21. With this explanation, read in light of the citations provided in Petitioner's claim chart, Petitioner identifies sufficiently the teachings of the references upon which it relies. Accordingly, we are unpersuaded by Patent Owner's argument that the Petition fails to satisfy the requirements of *Graham v. John Deere Co.*, 383 U.S. 1 (1966). Prelim. Resp. 47–49.

Claims 1–4

With respect to independent claim 1, Petitioner contends that Jenkins discloses a pump with a pump drive mechanism, a battery, a circuit that monitors the voltage from the battery, a circuit responsive to the monitoring

circuit that determines the remaining time of charge in the battery, a battery alarm, and a battery alert. Pet. 19, 22–28. Petitioner relies on Stitch's disclosure of, *inter alia*, a circuit that monitors voltage and current, and display means. *Id.* at 23–25, 28. Petitioner concludes that it would have been obvious to incorporate Stitch's battery monitoring features into Jenkins's pump. *Id.* at 21–22.

We have reviewed Petitioner's contentions and evidence, but are persuaded by Patent Owner's argument that the Petition does not show sufficiently that Jenkins and Stitch render obvious the claimed "display means." Prelim. Resp. 21–22. As discussed in Section II(A)(1) above, Petitioner contends that the structure disclosed by the'034 patent as performing the claimed function of "displaying the remaining time of charge in the battery" is an LCD. *See* Pet. 15–16. The Petition relies on Stitch as disclosing the claimed display means, stating:

> Stich describes that the run time . . . "may be displayed to an operator." In particular, Stich states that the remaining runtime "is made available by the microprocessor 66 for display to the user through the user interface 80." Stich also provides that the display can be an LED display.

Pet. 28 (quoting Ex. 1005, 3:35–36, 8:36–38; citing Ex. 1005, 6:15). Importantly, however, the cited user interface or "LED display" (i.e., a light emitting diode display) is not the structure identified by Petitioner as corresponding to the claimed display means, i.e., a LCD (i.e., a liquid crystal display). *Id.* at 16. Nor does Petitioner contend that LED and LCD displays are equivalent. *See*, *e.g.*, Pet. 28; *see also* Prelim. Resp. 21. Accordingly, Petitioner has not shown that Jenkins and Stitch render obvious a "display means," as properly construed and as required by claim 1, and claims 2–4 which depend therefrom.

We have reviewed the parties' contentions and evidence, and we are persuaded that Petitioner has not established a reasonable likelihood that it will prevail on its assertion that claims 1–4 would have been obvious over Jenkins and Stitch.

Claims 9–12

Independent claim 9 is a method claim that corresponds generally to apparatus claim 1. *Compare* Ex. 1001, 16:25–40, *with id.* at 15:36–50. Petitioner relies on the contentions made with respect to claim 1. Pet. 22–28 (treating claim 1), 31–32 (incorporating analysis of claim 1).

With respect to the limitation of claim 9 requiring "monitoring the current from the battery," Petitioner cites portions of Jenkins and Stitch. Pet. 23–25. As an initial matter, we agree with Patent Owner that Jenkins does not disclose monitoring the *current* from the battery, and that Petitioner's general contention that such monitoring would have been obvious is conclusory. *See* Pet. 23; Prelim. Resp. 11–12, 49–51. For example, that both voltage and current are "capable of being measured" (Ex. 1003 ¶ 20), "could be used to calculate the run time" (*id.* ¶ 10), and are related by Ohm's law (*id.*) does not provide a reasoned basis for Petitioner's conclusion, based on Jenkins alone, that a person of ordinary skill in the art would have modified Jenkins to monitor current in addition to monitoring voltage. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) ("[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.").

However, Petitioner also relies on Stitch as teaching the claimed step "monitoring the current from the battery," relying on Stitch's disclosure of

monitoring "[o]utput current supplied to the load." Pet. 23–25 (quoting Ex. 1005, 3:16–23). On the current record, despite Patent Owner's opposing argument that monitoring output load current is not the same as "monitoring the current from the battery," we are persuaded by Petitioner at this stage of the proceedings. Prelim. Resp. 17–18. Although Patent Owner's argument and evidence raise a question as to whether the *value* of the current monitored by current transformer 57, near the output load, is identical to that discharged by the battery, this is not determinative at this stage of the proceeding because the claims require simply "monitoring the current from the battery." *See* Prelim. Resp. 14–16; Ex. 2001 ¶¶ 65, 67, 69. We are not persuaded that claim 9 either requires monitoring "current *discharged* from the battery" (*see* Ex. 2001 ¶ 67 (emphasis added); Prelim. Resp. 17), or requires that the monitoring take place *at the battery* itself (Ex. 2001 ¶ 69).

Petitioner has shown sufficiently that Stitch "monitor[s] the current from the battery." Stitch explains that "DC power is supplied to the inverter [46] from an auxiliary power supply battery 47 on a DC bus 48. The inverter supplies AC voltage to the primary of the transformer 44, which then provides output power on the output line 37" and to the output load at outlet 41. Ex. 1005, 5:20–26. Patent Owner is correct that Stitch monitors the current delivered to the output load at the "opposite end" of the circuit from the battery. Prelim. Resp. 14–15; Ex. 1005, Abst., 3:14–18, 5:49–54. However, the current measured at that location originated at the battery, i.e., it is "the current from the battery," as claimed. *See*, *e.g.*, Ex. 1005, 5:20–26. Indeed, Patent Owner does not argue that the output load current came from any source other than battery 47.

With respect to the limitation of claim 9 requiring "determining from the voltage and the current the remaining time of charge in the battery," Petitioner identifies relevant teachings of both Jenkins and Stitch. Pet. 25–26. We are persuaded, at this stage of the proceeding, that Petitioner has shown sufficiently that Stitch teaches this limitation. Stitch discloses monitoring voltage, with battery monitor 61, and monitoring output load current, as discussed above. Ex. 1005, 5:49–54, 5:57–61. Stitch explains that these measurements are used to determine the remaining time of charge in the battery. *Id*. at 3:14–26 ("The remaining run-time available from the battery is then determined in a procedure which utilizes the measure battery voltage, the measured output current (or an equivalent time such as output power or battery current), and system specifications."), 6:47–68. We have considered Patent Owner's arguments, which do not allege that Stitch fails to teach this limitation. *See* Prelim. Resp. 16–18.

With respect to the limitations of claim 9 requiring "alarming when the remaining time of charge in battery is below a predetermined level" and "alerting when the remaining time of charge in battery is below a predetermined level but above the battery alarm level," Petitioner identifies relevant teachings of both Jenkins and Stitch. Pet. 26–28. We are persuaded, at this stage of the proceeding, that Petitioner has shown sufficiently that Jenkins teaches these limitations. First, when approximately one hour of battery life remains, Jenkins teaches that a battery alarm is activated, including battery alarm indicator 48. *See id*. at 27; Ex. 1004, 3:65–4:6, 5:52, 8:21–30. Second, Jenkins teaches that when the pump is operated beyond the one-hour battery alarm period, an occlusion alarm is activated, including occlusion indicator 50. *See* Pet. 26–27; Ex. 1004, 4:1–6,

5:53, 8:25–40. Petitioner has shown sufficiently that activation of the battery alarm 48 constitutes "alerting when the remaining time of charge in battery is below a predetermined level," (i.e., when the remaining time of charge is less than one hour), "but above the battery alarm level," (i.e., above the occlusion level at which the battery is discharged and the remaining time of charge is zero), and that activation of the occlusion alarm 50 constitutes "alarming when the remaining time of charge in battery is below a predetermined level," (i.e., when the remaining time of charge is zero).

We have considered Patent Owner's argument that the Petition relies on the same disclosures of "alarm/output indicator 48 and occlusion indicator 50" for two different elements of the claims, namely, the "alerting" and "alarming" limitations. Prelim. Resp. 18–19. As discussed above, however, we are persuaded that activating Jenkins's battery alarm 48 satisfies the "alerting" limitation and activating Jenkins's occlusion alarm 50 satisfies the "alarming" limitation. The same indicator is not relied upon for both limitations. *Cf.* Prelim. Resp. 19. Additionally, Patent Owner's argument that Jenkins's occlusion indicator 50 concerns only "the pump motor stalling," not the remaining time of charge, is also unpersuasive because it does not account for the entirety of Jenkins's disclosure. *Id.* at 19–21. Jenkins explains that if the pump is operated beyond the one-hour battery alarm window, "the battery discharges and there is insufficient power to drive the pump which in turn activates the occlusion alarm." Ex. 1004, 8:25–30. Although the occlusion alarm activates when the pump has stalled, this activation is also based on "the battery discharg[ing]." *See id.* We are persuaded, at this stage of the proceedings, that this satisfies the limitation of

"alarming when the remaining time of charge in battery is below a predetermined level," i.e., zero. We are not persuaded that claim 9 requires alarming based on a second "voltage trip point," as Patent Owner suggests. Prelim. Resp. 20.

Patent Owner also argues that Petitioner fails to provide a plausible rationale to combine the references. Prelim. Resp. 37–43. For example, Patent Owner argues that "the battery monitoring functionality in Jenkins and Stitch are directed to different applications," wherein Jenkins concerns a low voltage pump and Stitch concerns a high voltage load. *Id.* at 38–40. We have considered Patent Owner's position, however, we conclude that the Petition shows sufficiently that a person of ordinary skill in the art would have considered these references to be reasonably pertinent, both to each other and to a problem with which the '034 patent is concerned, e.g., monitoring battery life. *Compare* Pet. 21 ("Jenkins and Stich are each directed to electronic devices with battery monitoring functionality . . . [that] warn the user when the remaining time of charge left on the battery ran low."), *with id.* at 7–10 (summarizing prosecution of the '034 patent and its battery monitoring functionality, which indicates low remaining time of charge); *see also* Prelim. Resp. 3 ("The '034 Patent [] is generally directed to a method and apparatus for providing battery monitoring in a medical infusion pump."). Indeed, regardless of the uses to which Jenkins and Stitch put their respective batteries, both references concern technology that monitors the remaining life of those batteries. *See, e.g.*, Ex. 1004, Abst.; Ex. 1005, Abst.

Patent Owner also contends that the Petition fails to explain any relative shortcomings in either Jenkins or Stitch, and fails to explain why a

person of ordinary skill in the art "would have modified the alleged functionality in Jenkins for indicating the remaining time of battery life and alarming and alerting the user when that time ran low with the alleged identical functionality in Stich." Prelim. Resp. 40–42. We have considered Patent Owner's position, however, we conclude that although the Petition explains that both Jenkins and Stitch concern battery monitoring functionality, the Petition does not contend that their functionality is identical, as Patent Owner argues. Pet. 21. For example, the Petition acknowledges that Jenkins does not monitor current, or use such a measure when determining remaining time of charge of the battery. *See id.* at 23.[2] Stitch discloses such functionality, which enables "highly accurate" runtime determination. Ex. 1005, 3:3–23. Therefore, the combination put forth in the Petition does not propose a modification that is based on "identical functionality" from Jenkins and Stitch.

Patent Owner also argues that the Petition provides generic statements of case law and "leaves it to the Patent Owner and this Board to decipher from vague generalizations what specific teachings and components from each are to be allegedly combined." Prelim. Resp. 42. On the current record and as discussed above, Petitioner shows sufficiently that Jenkins and Stitch address similar problems and that Stitch includes battery monitoring features that differ from those disclosed by Jenkins, for example, monitoring current from the battery and using that in the runtime determination. Pet. 21–22. Furthermore, Petitioner contends that combining these features into Jenkins's infusion pump is, *inter alia*, "[u]se of [a] known technique to

[2] For similar reasons, we do not agree that Petitioner fails to identify any differences between the claims and prior art. Prelim. Resp. 47.

improve similar devices in the same way." *Id.* at 22. We understand that such a modification would improve Jenkins's pump by enabling a more accurate determination of battery run-time. *See* Ex. 1005, Abst., 3:3–23. We have considered Patent Owner's opposing arguments, but at this stage of the proceeding, we are persuaded that a skilled artisan would have found it obvious to incorporate Stitch's battery monitoring features into Jenkins's system to improve the similar device.

Having decided that Jenkins and Stitch evince a reasonable likelihood that challenged claim 9 is unpatentable on this ground, we exercise our discretion under 37 C.F.R. § 42.108 to have the review on this ground proceed on challenged dependent claims 10–12, which depend from claim 9. In doing so, we seek to achieve finality of review at the Board, with respect to these claims and references, and to avoid parallel or serial review in the district court.

Accordingly, we have reviewed this proposed ground of unpatentability, as well as Patent Owner's arguments and evidence against this ground, and we are persuaded, at this stage of the proceeding and on the record before us, that Petitioner has established a reasonable likelihood that it will prevail on its assertion that claims 9–12 would have been obvious over Jenkins and Stitch.

6. Summary

Accordingly, we institute an *inter partes* review of claims 9–12 of the '034 patent on this ground. We do not institute an *inter partes* review of claims 1–4 on this ground.

C. Obviousness based on Jenkins, Stitch, and Krohn

Petitioner contends that claims 1–4 and 9–12 of the '034 patent are unpatentable under 35 U.S.C. § 103(a) over Jenkins, Stitch, and Krohn. Pet. 33–43. In particular, Petitioner explains how it believes the references render obvious the subject matter of the challenged claims, and presents rationales to combine the references' teachings. *Id.* Petitioner also relies upon the Xu Declaration to support its positions. *Id.* Patent Owner contends, *inter alia*, that the Petition fails to provide a plausible rationale for combining Krohn with Jenkins and Stitch. Prelim. Resp. 29–32, 37–38, 43–45.

We have reviewed the parties' contentions and evidence and, on this record, are not persuaded that Petitioner has shown a reasonable likelihood of prevailing on its assertion that claims 1–4 and 9–12 are obvious over Jenkins, Stitch, and Krohn.

1. Overview of Krohn (Ex. 1006)

Krohn discloses an infusion pump having a control circuit that monitors the voltage level of rechargeable batteries. Ex. 1006, 1:17–24, 4:57–59. Krohn explains that the circuit compares the battery voltage to certain predetermined levels. *Id.* at 6:51–59. The circuit also gives "a low battery warning message . . . [and] a final 20 second warning message is given before the pump is shut off." *Id.* at 8:10–17.

2. Discussion

Petitioner contends that Jenkins, Stitch, and Krohn render obvious claims 1–4 and 9–12. Pet. 33–43. The Petition identifies relevant portions of Krohn with respect to every limitation of the challenged claims, and contends that it would have been obvious to combine the references. *Id.*

Patent Owner counters, *inter alia*, that the Petition fails to provide a plausible rationale for combining Krohn with Jenkins and Stitch. Prelim. Resp. 37–38, 43–45. We have reviewed Petitioner's contentions and evidence, however, we are persuaded by Patent Owner's argument that the Petition does not show sufficiently that a person of ordinary skill in the art would have combined Jenkins, Stitch, and Krohn.

Specifically, when explaining the proposed combination, the Petition states:

> a [person of ordinary skill in the art ("POSITA")] would have readily understood the motivation to combine the infusion pump system of Jenkins with the battery alarm and alert features of Stitch. Because Krohn is also directed to an infusion pump with battery monitoring and alarming/alerting functionality, a POSITA would have been equally motivated to combine its infusion system with that of Jenkins and Stich.

Pet. 35. However, the Petition fails to identify any specific features of Krohn that would have corrected any deficiency, or potential deficiency, in the combination of Jenkins and Stitch, and fails otherwise to explain with sufficient specificity what Krohn would have added to that combination.

Furthermore, the Petition fails to explain sufficiently the "equal[] motivat[ions]" that would have led a person of ordinary skill in the art to make such a combination. For example, the Petition explains that Jenkins and Krohn concern "infusion pumps that monitor battery charge and alert the user when the remaining battery run time is low," and that Stitch concerns "an improved battery run time monitoring circuit." Pet. 35. The Petition also explains that "it is common for engineers to look to devices that include similar features and functionality to the device being developed" and, therefore, "it would have been obvious for a POSITA to incorporate the

battery monitor and alert features of Krohn and Stich into the infusion pump disclosed by Jenkins. Such a combination is merely a substitution of one known element for another to obtain predictable results." *Id.* at 35–36.

However, this explanation merely demonstrates that the references may have been pertinent to problems sought to be solved by the '034 patent; it does not demonstrate that a person of ordinary skill in the art would have found it obvious to combine *specific features* of Krohn with the modified infusion pump of Jenkins and Stitch. Although it may be true that engineers frequently look to other products having desired functionality, *see id.*, this does not provide adequate reasoning to explain why it would have been obvious to combine *specific features* of the references in this case. *See, e.g., Samsung Display Co., Ltd. v. Gold Charm Ltd.*, IPR2015-01499, slip op. at 15–16 (PTAB Dec. 29, 2015) (Paper 12) ("Merely asserting that these prior art references are analogous art to each other, however, does not suffice as an articulated reason with a rational underpinning to combine their respective teachings—more is required to support the legal conclusion of obviousness."); *see also* Prelim. Resp. 44–5.

Even if Petitioner's proposed combination were viewed as "a substitution of one known element for another to obtain predictable results," the Petition does not explain reasonably which of Krohn's features or functionalities would substitute for which elements of Jenkins and/or Stitch. In other words, Petitioner identifies teachings of Krohn with respect to every limitation of the challenged claims. If Krohn's teachings were substituted for each of those limitations, Petitioner's reliance on Jenkins and Stitch—for any limitation of the claims—would be eliminated. Further, such a substitution would eliminate certain features required by the claims because,

for example, Petitioner does not establish sufficiently that Krohn monitors current, as required by independent claims 1 and 9. *See* Pet. 36–37 (identifying Krohn's disclosure of monitoring voltage), 42; Prelim. Resp. 44.

Therefore, we determine that the Petition fails to demonstrate a reasonable likelihood of success with respect to the combination over Jenkins, Stitch, and Krohn.

3. *Summary*

Accordingly, we do not institute an *inter partes* review of claims 1–4 or 9–12 of the '034 patent on this ground.

D. Obviousness based on Jenkins, Stitch, Krohn, LTC1325, and EDN

Petitioner contends that claims 1–4 and 9–12 of the '034 patent are unpatentable under 35 U.S.C. § 103(a) over Jenkins, Stitch, Krohn, LTC1325, and EDN. Pet. 43–56. In particular, Petitioner explains how it believes the references render obvious the subject matter of the challenged claims, and presents rationales to combine the references' teachings. *Id.* Petitioner also relies upon the Xu Declaration to support its positions. *Id.* Patent Owner contends, *inter alia*, that the Petition fails to provide a plausible rationale for combining LTC1325 and EDN with Jenkins, Stitch, and Krohn. Prelim. Resp. 32–38, 45–47.

We have reviewed the parties' contentions and evidence and, on this record, are not persuaded that Petitioner has shown a reasonable likelihood of prevailing on its assertion that claims 1–4 and 9–12 are obvious over Jenkins, Stitch, Krohn, LTC1325, and EDN.

1. *Overview of LTC1325 (Ex. 1008)*

LTC1325 is a datasheet for the LTC1325 chip, which provides "an integrated battery management system." Ex. 1008, 1. In a "gas gauge

mode, the average voltage across [a] sense resistor can be measured to determine the average battery load current." *Id.* at 9, 15. After being measured, the voltage is filtered, amplified, and converted by an analog-to-digital (ADC) converter. *Id.* at 15. A "microprocessor can then accumulate the ADC measurements and do a time average to determine the total charge leaving the battery." *Id.*

2. Overview of EDN (Ex. 1007)

EDN discloses improved energy gauges for rechargeable batteries. Ex. 1006, 125. According to EDN, prior art battery gauges were unreliable because they measured only voltage. *Id.* More accurate gauges measure current and integrate it over time. *Id.* at 125–126. Such measurement requires a current-sensing device (e.g., a low-value resistor in series with the current path and over which the voltage drop is measured), an analog-to-digital converter, and a processor. *Id.* at 126.

EDN discloses that battery information, including percentage of remaining charge, instantaneous readings of voltage or current, and low battery warnings, may be transmitted to a host by serial link. *Id.* at 128.

3. Discussion

Petitioner contends that Jenkins, Stitch, Krohn, LTC1325, and EDN render obvious claims 1–4 and 9–12. Pet. 43–56. The Petition identifies relevant portions of LTC1325 and EDN with respect to certain limitations of the challenged claims, and contends that it would have been obvious to combine the references. *Id.* Patent Owner counters, *inter alia*, that the Petition fails to provide a plausible rationale for combining LTC1325 and EDN with Jenkins, Stitch, and Krohn. Prelim. Resp. 37–38, 45–47. We have reviewed Petitioner's contentions and evidence, however, we are

persuaded by Patent Owner's argument that the Petition does not show sufficiently that a person of ordinary skill in the art would have combined Jenkins, Stitch, Krohn, LTC1325, and EDN.

Specifically, when explaining the proposed combination, the Petition states:

> a POSITA . . . would have readily understood the motivation to combine the infusion pump system of Jenkins with the specific [battery] alarm and alert features of Krohn and Stitch. A POSITA would likewise have understood the motivation to combine the infusion pump of Jenkins, Krohn, and Stich with the battery monitoring functionality and features disclosed in LTC1325 and EDN.

Pet. 47. However, as discussed above, Petitioner has not persuaded us that a person of ordinary skill in the art would have combined the teachings of Krohn with the teachings of Jenkins and Stitch. Petitioner's reliance on Krohn in this ground suffers from the same deficiency. Additionally, and for similar reasons, Petitioner has not persuaded us that a person of ordinary skill in the art would have combined the teachings of LTC1325 and EDN with the teachings of Jenkins, Stitch, and Krohn. Petitioner fails to identify any specific teaching of LTC1325 or EDN that would have corrected any deficiency, or potential deficiency, in the combination of Jenkins, Stitch, and Krohn, and fails otherwise to explain with sufficient specificity what LTC1325 or EDN would have added to the asserted combination of Jenkins, Stitch, and Krohn.

Furthermore, the Petition fails to explain sufficiently the "motivation" that would have led a person of ordinary skill in the art to modify Jenkins, Stitch, and Krohn with unspecified features of LTC1325 and EDN. For example, the Petition explains that "methods for calculating the capacity of a

battery by integrating current over time have existed since at least the late 19th century" and, therefore, "'coulomb counting' as taught in LTC1325 and EDN would thus have been a basic part of a POSITA's background knowledge." Pet. 47 (citing Ex. 1003 ¶ 6). The Petition also explains that "because rechargeable batteries are not unique to infusion pumps, it would have been obvious for a POSITA to combine teachings for battery monitors in other electronic devices with the battery system of an infusion pump." *Id.* at 48 (citing Ex. 1003 ¶ 16). However, this explanation merely demonstrates that LTC1325 and EDN may have been pertinent to problems sought to be solved by the '034 patent; it does not demonstrate that a person of ordinary skill in the art would have found it obvious to combine *specific features* of LTC1325 and EDN with Jenkins, Stitch, and Krohn. Although it may be true that a skilled artisan possesses background knowledge of current, *see* Ex. 1003 ¶ 6, or would have considered battery monitors in other electronic devices, *id.* at ¶ 16, this does not provide adequate reasoning to explain why it would have been obvious to combine *specific features* of the references in this case.

The Petition also states that the LTC1325 chip described in LTC1325 is a "'drop in' solution for battery monitoring functionality that could be combined with a circuit in a microprocessor-controlled device." Pet. 47–48. However, to the extent Petitioner relies on LTC1325 as a "drop in" solution for battery monitoring functionality to be inserted into the combination of Jenkins, Stitch, and Krohn, such a combination would eliminate certain features required by the claims because, for example, Petitioner does not establish sufficiently that LTC1325 determines the remaining time of charge, as required by independent claims 1 and 9. *See* Pet. 50–51, 54–55;

Prelim. Resp. 33–34.

The Petition also alleges that the combination of LTC1325 and EDN with Jenkins, Stitch, and Krohn "is merely 'combining prior art elements according to known methods to yield predictable results.'" *Id.* at 48. However, even if viewed as a combination of known elements, the Petition does not explain reasonably *what specific elements* of LTC1325 and EDN would be combined with Jenkins, Stitch, and Krohn.

Therefore, we determine that the Petition fails to demonstrate a reasonable likelihood of success with respect to the combination over Jenkins, Stitch, Krohn, LTC1325, and EDN.

3. *Summary*

Accordingly, we do not institute an *inter partes* review of claims 1–4 or 9–12 of the '034 patent on this ground.

III. CONCLUSION

For the foregoing reasons, we are persuaded that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail in showing that claims 9–12 of the '034 patent are unpatentable. At this stage of the proceeding, the Board has not made a final determination with respect to the patentability of the challenged claims, nor with respect to claim construction.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted based on the following ground:

A. claims 9–12 of the '034 patent as unpatentable under 35 U.S.C. § 103(a) over Jenkins and Stitch.

FURTHER ORDERED that no other ground of unpatentability asserted in the Petition is authorized for this *inter partes* review; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this Decision.

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