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Paper No. 27
Entered: April 25, 2019

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PRECOR INCORPORATED,
Petitioner,

v.

GREEN FITNESS EQUIPMENT COMPANY, LLC,
Patent Owner.

Case IPR2018-00085
Patent 8,884,553 B2

Before JAMESON LEE, JEREMY J. CURCURI, and DANIEL J. GALLIGAN, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* JEREMY J. CURCURI.

Opinion Concurring filed by *Administrative Patent Judge* JAMESON LEE.

CURCURI, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background and Summary

Precor Incorporated ("Petitioner") filed a Petition (Paper 1, "Pet.") to institute *inter partes* review of claims 1–17 of U.S. Patent No. 8,884,553 B2 (Ex. 1001, "the '553 patent"). We instituted review of claims 1–17 on all grounds asserted in the Petition. Paper 8 ("Decision on Institution"). Green Fitness Equipment Company, LLC ("Patent Owner") filed a Patent Owner Response. Paper 10 ("PO Resp."). Petitioner filed a Reply. Paper 18. Oral hearing was held on December 19, 2018. A copy of the transcript for the oral hearing has been entered as Paper 26 ("Tr.").

We determine that Petitioner has shown by a preponderance of the evidence that each of claims 1–17 is unpatentable.

B. Related Matters

The '553 patent is asserted by Patent Owner against Petitioner in Civil Action No. 3:17-cv-00245-RTB-KSC (S.D. Cal.). Pet. 90; Paper 6, 1.

C. The '553 Patent

The '553 patent describes: "Electrical equipment requires regular lubrication, airflow and maintenance to ensure an efficient operation. Such electrical equipment includes gym equipment, such as cardiovascular exercise equipment including treadmills, steppers, ellipticals, exercise bikes, rowing machines, and the like." Ex. 1001, col. 1, ll. 15–19. The '553 patent further describes:

> [A]s the lubrication wears out, more friction and more stress are caused on the various components of the electrical equipment. This increased stress causes more power to be utilized by the electrical equipment to perform work that is performed using less power when the electrical equipment is well lubricated, is

> maintained, and/or has a sufficient airflow. An increased power input results in increased current input.

Ex. 1001, col. 1, ll. 29–36.

The ’553 patent describes the invention as a current monitor that indicates a condition of attached electrical equipment. A light emitting diode (LED) may be activated based on a determined range in which current drawn by the equipment lies. Ex. 1001, col. 1, ll. 53–63. The ’553 patent further describes:

> For example, activation of green LEDs can indicate normal functioning of the electrical equipment, activation of one or more amber/yellow LEDs can indicate that lubrication of the electrical equipment is required soon as the power being used by the electrical equipment is increasing, and activation of one or more red LEDs can indicate that lubrication of the electrical equipment is required and that the electrical equipment should not be used, such as to avoid damage/failure due to overheating of the electrical/electronic circuitry associated with the electrical equipment.

Ex. 1001, col. 1, l. 63–col. 2, l. 5.

The ’553 patent further describes “[t]he electrical circuit can include a latching mechanism that can enable the color of the activated one or more light emitting diodes to be retained after the electrical equipment stops being used.” Ex. 1001, col. 2, ll. 25–28.

Figure 1 of the ’553 patent is reproduced below.

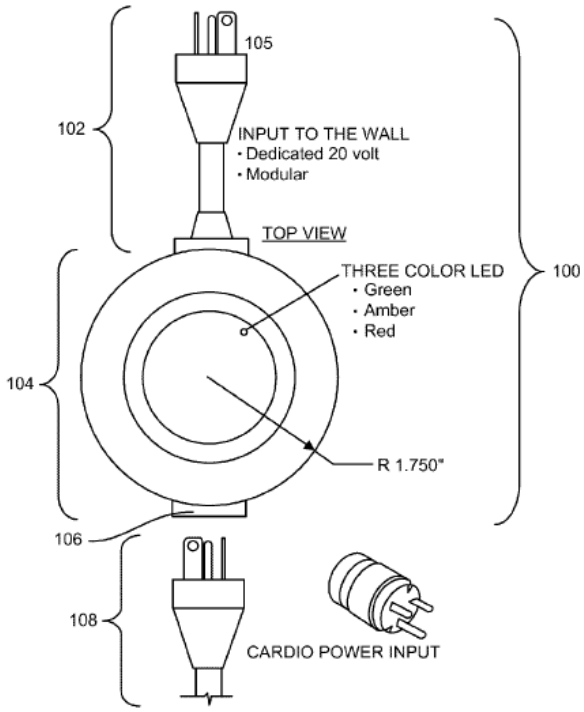


FIG. 1

Figure 1 illustrates a current monitoring apparatus 100 including current monitor 104. Plug 108 from the attached electrical equipment is received at receptacle 106, and plug 105 of connector 102 connects to a wall socket. Current monitor 104 includes a three-color LED display area for displaying a color (green, amber, or red) based on a determined range in which current drawn by the equipment lies. Ex. 1001, col. 6, ll. 1–34.

Independent claims 1, 7, and 13 of the ’553 patent, reproduced below, are illustrative of the claims at issue.

1. A method comprising:

obtaining, at an electrical circuit and in accordance with a current requirement of an electrical equipment, current from a power source;

comparing, using the electrical circuit, the obtained current with at least one of a first threshold and a second threshold;

if the obtained current is less than a first threshold, activating one or more light emitting diodes of a first color;

if the obtained current is equal to or more than the first threshold and is less than a second threshold, activating one or more light emitting diodes of a second color; and

if the obtained current is equal to or more than the second threshold, activating one or more light emitting diodes of a third color, wherein the electrical circuit includes a latching mechanism that enables the color of the activated one or more light emitting diodes to be retained after the electrical equipment stops being used.

Ex. 1001, col. 12, ll. 21–38.

7. A method comprising:

obtaining, at an electrical circuit and in accordance with a current requirement of an electrical equipment, alternating current from a power source;

converting the alternating current to direct current;

measuring, using the electrical circuit, the direct current; and

displaying a color corresponding to a range of current of a plurality of ranges of current in which the direct current lies, wherein the electrical circuit includes a latching mechanism that enables the displayed color to be retained after the electrical equipment stops being used.

Ex. 1001, col. 12, l. 58–col. 13, l. 2.

13. An electrical circuit comprising:

an alternating current to direct current converter configured to convert received alternating current to a direct current;

> at least one comparator configured to compare the direct current to one or more thresholds used to identify a corresponding range of current or ranges of current; and
>
> a light emitting diode drive configured to activate one or more light emitting diodes of a color corresponding to the identified further comprising: one or more latches configured to enable the electrical circuit to retain the color corresponding to the identified range of current after an electrical equipment requiring the received alternating current stops being used.

Ex. 1001, col. 14, ll. 1–13.[1]

D. Evidence Relied upon by Petitioner

Petitioner relies on the following references:

Digitrip	Eaton – Cutler-Hammer – November 2003 Owner's Manual, "Instructions for Digitrip Models 1150V and 1150V*i* Trip Units for use only in Cutler-Hammer Type VCP-T, VCP-TR and T-VAC, T-VACR Circuit Breakers"	July 2004[2]	Ex. 1004

[1] By a Certificate of Correction dated August 28, 2018, the phrase "corresponding range of current *of* ranges of current" was changed to "corresponding range of current *or* ranges of current." The parties have jointly stipulated the following: "The corrected language of claim 13, as reflected in the Certificate of Correction dated August 28, 2018, has no impact on the arguments already made by the parties in this proceeding, and there is no need for either party to make supplemental argument in that regard." Paper 25.

[2] The '553 patent has a filing date of October 19, 2011. Based on the record,

Lagree	U.S. Patent No. 6,055,145	Apr. 25, 2000	Ex. 1005
Klein	U.S. Patent No. 5,796,349	Aug. 18, 1998	Ex. 1006
Yewell	U.S. Patent No. 5,900,804	May 4, 1999	Ex. 1007
Wang	U.S. Patent No. 7,397,267 B2	July 8, 2008	Ex. 1008
Simpson	U.S. Patent No. 6,049,143	Apr. 11, 2000	Ex. 1009

Petitioner also relies on the Declaration of Steven Kahle. (Ex. 1003).

E. The Asserted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 4–5).

Reference(s)	Basis	Claim(s)
Yewell and Wang	§ 103(a)	1, 3–9, 11–14, 16, and 17
Yewell, Wang, and Simpson	§ 103(a)	2, 10, and 15
Yewell, Wang, and Klein	§ 103(a)	8 and 9
Digitrip	§ 102(b)	1–3, 5–10, 12–15, and 17
Digitrip and Lagree	§ 103(a)	3, 6, 9, and 12–17
Digitrip alone or in view of Simpson	§ 103(a)	4, 11, and 16
Digitrip, Lagree, and Simpson	§ 103(a)	16
Digitrip and Klein	§ 103(a)	8 and 9
Digitrip, Lagree, and Klein	§ 103(a)	9

Petitioner has shown that Digitrip is a prior art printed publication under 35 U.S.C. § 102(b). *See* Pet. 9 (citing Ex. 1010 ¶ 4). Patent Owner does not argue substantively that Digitrip is not a printed publication. *See generally* PO Resp.

II. ANALYSIS

A. The Law on Anticipation and Obviousness

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN v. VeriSign, Inc*., 545 F.3d 1359, 1371 (Fed. 2008). Although the elements must be arranged or combined in the same way as in the claim, "the reference need not satisfy an *ipsissimis verbis* test," i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. 2009).

A patent 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,[3] if in evidence. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

The parties have jointly stipulated the following: "A person of ordinary skill in the art would have had a bachelor's degree in electrical engineering or physics and two years of work experience focusing on the

[3] Patent Owner does not present such arguments or evidence in the Patent Owner Response.

design of electrical equipment, including experience using current monitors and knowledge of their design." Paper 25. We have no reason to determine otherwise, and we adopt the parties' stipulated level of ordinary skill in the art in our analysis.

C. Claim Construction

For petitions filed before November 13, 2018, the Board interprets claims in an unexpired patent using the "broadest reasonable construction in light of the specification of the patent." 37 C.F.R. § 42.100(b) (2017); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016).[4] Consistent with the broadest reasonable construction standard, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). There are, however, two exceptions to that rule: "1) when a patentee sets out a definition and acts as his own lexicographer," and "2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *Thorner v. Sony Comp. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). Indeed, "the claims must 'not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.'" *Williamson v.*

[4] A recent amendment to this rule does not apply here because the Petition was filed on October 16, 2017, prior to November 13, 2018, the effective date of the rule change. *See Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018).

Citrix Online, LLC, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (quoting *Innova/Pure Water, Inc., v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004)).

1. Conditional limitations

We first address the issue of claim scope in light of the Board's precedential decision in *Ex parte Schulhauser*, Appeal No. 2013-007847 (PTAB Apr. 28, 2016) ("*Schulhauser*"). In *Schulhauser*, the Board held that conditional steps in process claims need not be carried out when conditions precedent to those steps are not satisfied to be within the broadest reasonable interpretation of the claim. *Schulhauser*, slip op. at 8.

Here, claim 1 is a method claim, and the claim recites several conditional limitations with mutually exclusive conditions precedent. That is, the recited "activating one or more light emitting diodes of a first color" is required to be performed only "if the obtained current is less than a first threshold"; the recited "activating one or more light emitting diodes of a second color" is required to be performed only "if the obtained current is equal to or more than the first threshold and is less than a second threshold"; and the recited "activating one or more light emitting diodes of a third color" is required to be performed only "if the obtained current is equal to or more than the second threshold."

The broadest reasonable interpretation of claim 1, therefore, requires satisfaction of only one of the conditional limitations, not all.

Patent Owner does not argue that *Schulhauser* does not apply. *See generally* PO Resp.; *see also* Tr. 35:10–14 (counsel for Patent Owner stating that *Schulhauser* is "good law").

2. "electrical equipment"

Each of independent claims 1, 7, and 13 recites "electrical equipment." Ex. 1001, col. 12, ll. 23, 60; col. 14, l. 12.

Petitioner reads "electrical equipment" onto, for example, "an assortment of electrical equipment, including building motors and building ventilation fans." Pet. 47 (citing Ex. 1003 ¶ 112). Implicit in this position is that "electrical equipment" is not limited to exercise equipment, and that "electrical equipment," according to its plain meaning, is equipment that uses electricity as a power source.

Patent Owner asserts "'[e]lectrical equipment' should be construed as equipment (1) requiring regular lubrication and (2) facilitating user exercise." PO Resp. 4. Patent Owner, in the alternative, asserts "'electrical equipment' could be simply construed as 'exercise equipment' in light of the specification." PO Resp. 4. In support of its assertion, Patent Owner argues that "[e]very example of electrical equipment provided in the '553 patent is exercise equipment." PO Resp. 7. Further, in support of its assertion, Patent Owner argues "[t]he specification of the '553 patent also does not contemplate electrical equipment such as 'large industrial motors, like motors for buildings, and building ventilation fans.'" PO Resp. 7 (quoting Ex. 1003 ¶ 112).

In its Reply, Petitioner argues "[e]lectrical equipment has a plain and ordinary meaning (that even [Patent Owner] understands and uses) and needs no further construction." Reply 1. According to Petitioner, "[t]he '553 patent contains no such clear intention to so limit the claims. Indeed, [Patent

Owner] never even alleges the patentee acted as his own lexicographer or disavowed claim scope." Reply 4.

We must be careful not to read limitations from the specification into the claims. "It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp*., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (citations omitted). "[I]f we once begin to include elements not mentioned in the claim, in order to limit such claim . . . , we should never know where to stop." *McCarty v. Lehigh Valley R.R. Co.*, 160 U.S. 110, 116 (1895). "[I]t is 'not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit a claim term beyond its ordinary meaning.'" *Aria Diagnostics, Inc. v. Sequenom, Inc.*, 726 F.3d 1296, 1301 (Fed. Cir. 2013) (quoting *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330 (Fed. Cir. 2012)). "[E]ven if a specification has only one embodiment, its claims will not be confined to that example unless the patentee has demonstrated a clear intention to limit the claim scope using words or expression of manifest exclusion or restriction." *Id.* (internal quotation and citation omitted). In this case, there is no such disavowal. The specification of the '553 patent also contains no special definition, coined by the named inventors as their own lexicographers, for the term "electrical equipment."

Therefore, we agree with Petitioner and construe the term "electrical equipment" according to its plain meaning as equipment that uses electricity as a power source.

3. "current requirement of"

Independent claims 1 and 7 each recite "current requirement of an electrical equipment." Ex. 1001, col 12, ll. 23, 60.

Petitioner reads "current requirement of an electrical equipment" onto, for example, "current obtained from the power source" in Digitrip. Pet. 49.

Patent Owner concedes that whatever current is drawn by the electrical equipment is the "current requirement of the electrical equipment." *See* Tr. 40:25–41:4.

The phrase "current requirement of an electrical equipment" is sufficiently broad to cover whatever current is drawn by the electrical equipment.

4. "threshold"

Patent Owner asserts that, "in the context of the claimed invention, 'threshold' should be understood to be 'a current value above which something is true or will take place and below which it is not or will not,' even if it is not expressly construed." PO Resp. 10.

In its Reply, Petitioner argues Patent Owner's "construction is . . . overly restrictive, because it forecloses the possibility that 'something' could happen if the current value is below the threshold." Reply 10.

First, as we previously stated in the Decision on Institution, we agree that, in the context of the challenged claims, threshold is a "current value." Decision on Institution 9. But that is based on other language in the claims pertaining to what is being compared to the threshold, e.g., an obtained current (claim 1), and not based on any intrinsic meaning of the term "threshold." *Id*.

Second, we understand Patent Owner's position to be that in order for a current value to be "threshold" current value, there must be an action associated with the threshold that either takes place or does not take place, depending on a result of something being compared to the threshold. We do not agree with Patent Owner. Any associated action that occurs when a current value is above (or below) the threshold is based on other language in the claims and not based on any intrinsic meaning of the term "threshold." For instance, if a claim were to recite that if the current value exceeds a first threshold, do nothing, then no action needs to occur.

The term "threshold" need not be expressly construed.

5. "previously deactivated one or more light emitting diodes are disabled from reactivation/activation until the latching mechanism is reset" (Claims 6 (reactivation) and 12 (activation))

This issue actually pertains to independent claims 1 and 7. *See* Pet. 11–13; PO Resp. 10–12. According to Petitioner, claims 1 and 7 do not require deactivation of any LED. Pet. 12. According to Patent Owner, they do require deactivation of one or more LEDs. PO Resp. 11–12.

We do not agree with Patent Owner that the claim language in claims 1 and 7 inherently requires deactivation of LEDs. Although deactivation of LEDs may be preferred, deactivation is not required by the claim language.

As we previously stated in the Decision on Institution, claim 1 specifies conditions for activating LEDs, not for deactivating them. Decision on Institution 9. Claim 7 does not even recite using light emitting diodes. *Id*.

On this record, we do not agree with Patent Owner that claims 1 and 7 require deactivating LEDs.

D. Alleged Unpatentability Relying at Least in Part on Yewell and Wang

1. Yewell

Yewell relates to "indicating the approximate level of power consumption of an appliance and allowing the optional automatic controlling the delivery of power to the appliance." Ex. 1007, col. 1, ll. 7–10. The appliance is described as a block heater; other alternative appliances are mentioned. Ex. 1007, col. 4, ll. 55–61.

Figure 2 of Yewell is reproduced below.

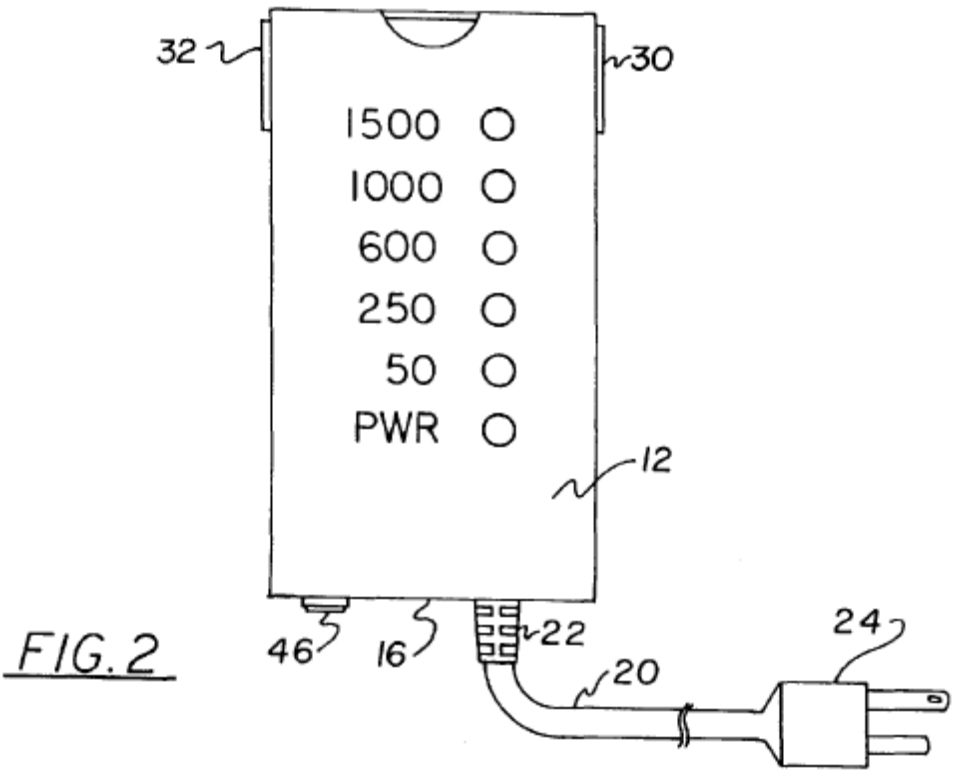


FIG. 2

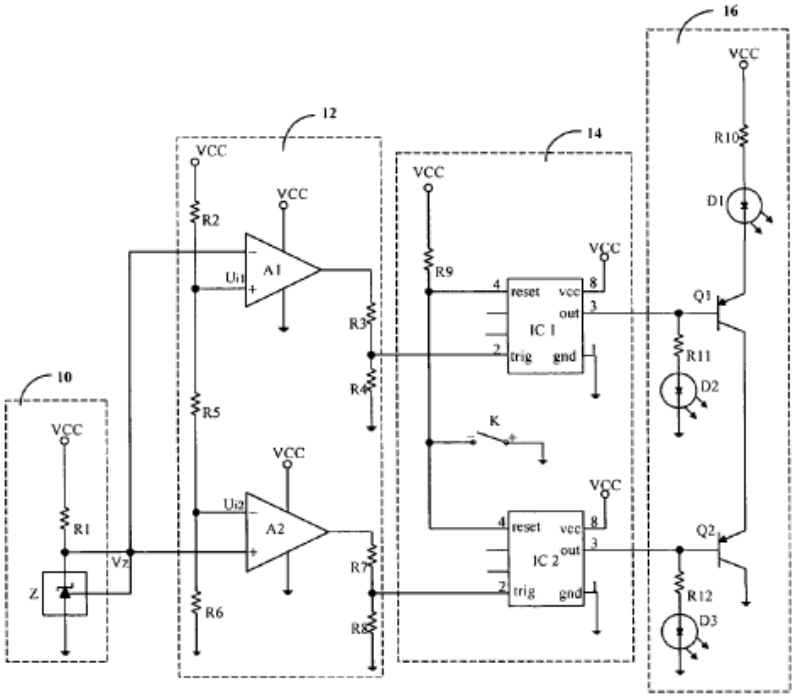
Figure 2 illustrates Yewell's device having top face 12 and end face 16 and including plug 24 for receipt by an electrical outlet. Top face 12 displays power consumption by devices connected to outlets 30 and 32. Ex. 1007, col. 4, l. 35–col. 5, l. 17. In particular, Yewell's device has light emitting diodes (LEDs) that light up to indicate the amount of power

consumed by devices plugged into outlets 30 and 32. Ex. 1007, col. 2, ll. 28–40. As illustrated in Figure 2, Yewell's device "indicate[s] at least 5 different levels of power consumption including 50 W, 250 W, 600 W, 1 KW, and 1.5 KW." Ex. 1007, col. 5, ll. 64–65. Thus, if devices that are plugged into outlets 30 and 32 are drawing at least 50 W but not 250 W, the LED next to "50" will be illuminated. Ex. 1007, col. 6, ll. 6–9 ("During use of the present invention, the control circuitry is adapted to emit a power level signal to the power consumption indicating light emitting diode circuits that corresponds to the level of power being consumed by the outlets.").

2. Wang

Wang relates to "a voltage detecting circuit for detecting when voltage from a power supply falls outside of predetermined parameters." Ex. 1008, col. 1, ll. 7–9. According to Wang, typical voltage detecting circuits have an LED that indicates when an output voltage from a power supply is not to specification. Ex. 1008, col. 1, ll. 22–26. Wang describes that a drawback to these circuits is that "the LED emits light only at the moment the abnormal voltage occurs and goes out when the voltage returns to the normal state," such that "an operator may overlook the transient occurrence and may not realize there is a fault needed to investigate." Ex. 1008, col. 1, ll. 29–33. To address this perceived shortcoming in the prior art, Wang discloses a "timer circuit" that "causes the display circuit to keep a light on when there has been an occurrence of abnormal voltage from the power supply until an operator resets it." Ex. 1008, col. 1, ll. 49–51.

The sole Figure of Wang is reproduced below:



Wang's Figure illustrates Wang's device having timer circuit 14 that preserves the outputs from the comparative circuit 12 to drive display circuit 16. Ex 1008, col. 3, ll. 9–10 ("The timer circuit **14** is used to keep the second LED D**2** and/or the third LED D**3** lit until the timer circuit **14** is reset.").

3. Independent Claim 1

We have reviewed Petitioner's analysis of independent claim 1, and, for the reasons explained below, we determine that Petitioner fails to demonstrate by a preponderance of the evidence that independent claim 1 is unpatentable as obvious over Yewell and Wang. *See* Pet. 6–8, 13–24.

Petitioner contends Yewell's power indicating system, described above, teaches all limitations of claim 1 except for the limitation reciting "wherein the electrical circuit includes a latching mechanism that enables

the color of the activated one or more light emitting diodes to be retained after the electrical equipment stops being used." Pet. 16–23. In particular, Petitioner contends Yewell teaches (1) receiving current from a power source, (2) comparing the power consumed by devices connected to outlets 30 and 32 on the device of Figure 2 to various power levels, and (3) illuminating LEDs corresponding to the power being consumed. Pet. 16–22. Petitioner asserts that, as current to the devices increases, higher power indicating lights are illuminated according to the thresholds in Yewell and the lower power indicating lights remain lit. Pet. 22; *see also* Ex. 1003 ¶ 43 ("When a higher threshold LED lights, the lower threshold LEDs will remain lit."). Furthermore, Petitioner asserts: "Since power is directly proportional to current (P(watts) = Current (amps) x Voltage (V)), Yewell is measuring the current flow (via its 'current detection means'). Thus, although the device displays the output in terms of power, it is actually measuring the current." Pet. 13 (citing Ex. 1003 ¶¶ 37–39).

Petitioner acknowledges, however, that "Yewell does not include a latching mechanism." Pet. 15. For the teaching of a latching mechanism, Petitioner relies on the disclosure of Wang. Pet. 22–24. According to Petitioner, "Yewell includes a 'typical' detecting circuit (EX1007-Fig.4) and Wang specifically describes an improvement for it, implementing a latching mechanism such as circuit 14 so that an operator can investigate the cause of an abnormal power occurrence." Pet. 15 (citing Ex. 1008, col. 1, ll. 27–33; Ex. 1003 ¶¶ 46–50). Petitioner further asserts:

> The latching mechanism (timer circuit 14) of Wang would be used to retain the LEDs in Yewell after the electrical equipment stops being used (which Yewell discloses). As

> discussed above, Wang teaches that it would be desirable to maintain the LED indicator to inform the operator of any abnormal power occurrence, providing a rationale to combine with Yewell, so that when the equipment stops being used, the operator can see level of current that caused the abnormal occurrence.

Pet. 24 (citing Ex. 1008, col. 1, ll. 27–33; Ex. 1003 ¶¶ 46–50).

In response, Patent Owner argues that Petitioner does not establish a proper motivation to combine the references. PO Resp. 22–24. We agree with Patent Owner that Petitioner fails to set forth sufficient articulated reasoning with rational underpinning to support the proposed combination of Yewell and Wang.

Petitioner's reliance on Wang as supplying the motivation to combine the references (Pet. 15, 24) is insufficient on this record because, although Wang describes a benefit of indicating an abnormal power event (Ex. 1008, col. 1, ll. 27–33), Petitioner does not explain how any of the displayed power levels in Yewell indicates an abnormal power event. Petitioner's declarant, Steven H. Kahle, refers to 12.5 Amps (corresponding to Yewell's display of 1500 W)[5] of Yewell as an "abnormal current" but that characterization is not supported by Yewell and is not explained by Mr. Kahle. Ex. 1003 ¶ 50; *see* 37 C.F.R. 42.65(a) ("Expert testimony that does not disclose the underlying

[5] Mr. Kahle explains that the electric grid in North America operates at 120 V alternating current and, therefore, the LEDs representing power levels in Yewell correspond to particular current levels as follows: 50 watts (W) corresponds to 0.4 Amps (A); 250 W corresponds to 2.08 A; 600 W corresponds to 5 A; 1000 W corresponds to 8.3 A; 1500 W corresponds to 12.5 A. Ex. 1003 ¶ 42.

facts or data on which the opinion is based is entitled to little or no weight.").

In Petitioner's Reply to Patent Owner's Response, Petitioner further argues the following:

> Yewell expressly discloses it can monitor more than just a block heater, including "heating equipment, roof mounted fans or air conditioning equipment." EX1007-4:58-61. And Petitioner and Mr. Kahle explained that current ranging from "5 to 12.5 Amps" represents abnormal current (and even insufficient lubrication) for these exact power consuming devices disclosed [in] Yewell. EX1003 at ¶¶79-81.

Reply 26.

Petitioner does not point to any portion of the Petition where it allegedly explained why "5 to 12.5 Amps" represents abnormal current. We also have reviewed Paragraphs 79–81 of Mr. Kahle's Declaration and do not find testimony that "5 to 12.5 Amps" is "abnormal," much less any explanation on why such a level is abnormal for any of the power-consuming devices in Yewell, such as heating equipment, roof mounted fans, or air conditioning equipment.

Because Petitioner has not directed us to sufficient evidence supporting its assertions of abnormal power events in Yewell, Petitioner's reasoning lacks the rational underpinning required for obviousness.

We, therefore, determine that Petitioner fails to demonstrate by a preponderance of the evidence that independent claim 1 is unpatentable as obvious over Yewell and Wang.

4. Independent Claims 7 and 13

Independent claims 7 and 13 differ in certain respects from claim 1 but are substantially similar with respect to the "latching" discussed with

respect to claim 1, for which Petitioner relies on Wang. For claims 7 and 13, Petitioner does not provide any additional reasoning for combining the teachings of Yewell and Wang. *See* Pet. 31, 35. For the same reasons discussed above, we, therefore, determine that Petitioner fails to demonstrate by a preponderance of the evidence that independent claims 7 and 13 are unpatentable over Yewell and Wang.

5. Dependent Claims 2–6, 8–12, and 14–17

Dependent claims 2–6, 8–12, and 14–17 variously depend from independent claims 1, 7, and 13. Petitioner asserts these claims would have been obvious based on Yewell and Wang, as set forth with respect to the independent claims, in combination with either Simpson or Klein. Pet. 5, 24–33, 35–46. In addressing these claims, Petitioner does not provide any additional reasoning for combining Yewell and Wang, and, therefore, Petitioner does not remedy the deficiencies in its arguments with respect to the independent claims, discussed above. *See* Pet. 24–33, 35–46. For the same reasons discussed above, therefore, we determine that Petitioner fails to demonstrate by a preponderance of the evidence that dependent claims 2–6, 8–12, and 14–17 are unpatentable over combinations of Yewell, Wang, Simpson, and Klein.

E. Alleged Anticipation by Digitrip

1. Digitrip

Digitrip describes: "The Digitrip Units are breaker subsystems that provide the protective functions of a circuit breaker. The trip unit is in a removable sealed housing, installed in the breaker, and can be replaced in the field by the end user." Ex. 1004, 6.

Digitrip further describes:

> Digitrip 1150V trip units incorporate two microprocessors in their design. One processor is devoted totally to the task of current protection functions. This processor provides true RMS current sensing for the proper coordination with the thermal characteristics of conductors and equipment. The Digitrip analyzes the secondary current signals from the user's wired in current sensors and, when preset current levels and time delay settings are exceeded, sends an initiating trip signal to the Trip Actuator of the circuit breaker. The current sensors provide operating power to the trip unit. As current begins to flow through the breaker, the sensors generate a secondary current which powers the trip unit.
>
> The second microprocessor provides the voltage protection, display, communications, metering, harmonic calculations, alarming and auxiliary relay functions. These additional features require that auxiliary power be provided to the circuit breaker.

Ex. 1004, 6.

Figure 1.1 of Digitrip is reproduced below.

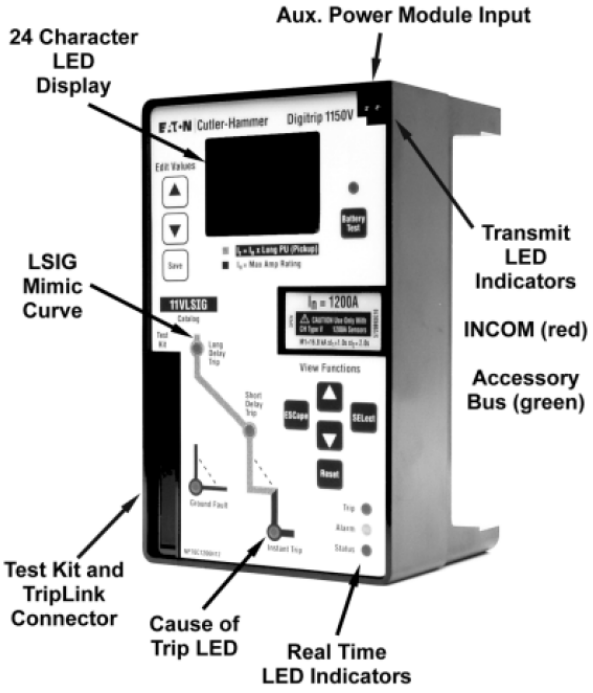


Figure 1.1 illustrates Digitrip's device. The real time LED indicators include a red trip LED, a yellow alarm LED, and a green status LED. Ex. 1004, 15. The green status LED "will flash on and off once each second indicating that the trip unit is energized and operating properly." *Id*. The yellow alarm LED is illuminated during an alarm condition, such as when current exceeds a programmable threshold current. Ex. 1004, 15, 64. Tripping the breaker results in illumination of the red trip LED. Ex. 1004, 15.

Regarding tripping the breaker, the programmed device has an instantaneous current setting, a long delay current setting (and corresponding long delay time setting), and a short delay current setting (and corresponding short delay time setting). Ex. 1004, 19–22. Current exceeding the instantaneous current setting causes the device to trip the breaker. Ex. 1004, 21–22. Current exceeding the short delay current setting for the short delay time setting causes the device to trip the breaker. Ex. 1004, 21. Current exceeding 6 times the long delay current setting for the long delay time setting causes the device to trip the breaker. Ex. 1004, 20–21.

2. Independent Claim 1

We have reviewed Petitioner's analysis of independent claim 1, and we determine that Petitioner demonstrates by a preponderance of the evidence that independent claim 1 is anticipated by Digitrip. *See* Pet. 8–10, 46–59.

Claim 1 recites "obtaining, at an electrical circuit and in accordance with a current requirement of an electrical equipment, current from a power source." Ex. 1001, col. 12, ll. 22–24.

Figure 3.1 of Digitrip is reproduced below.

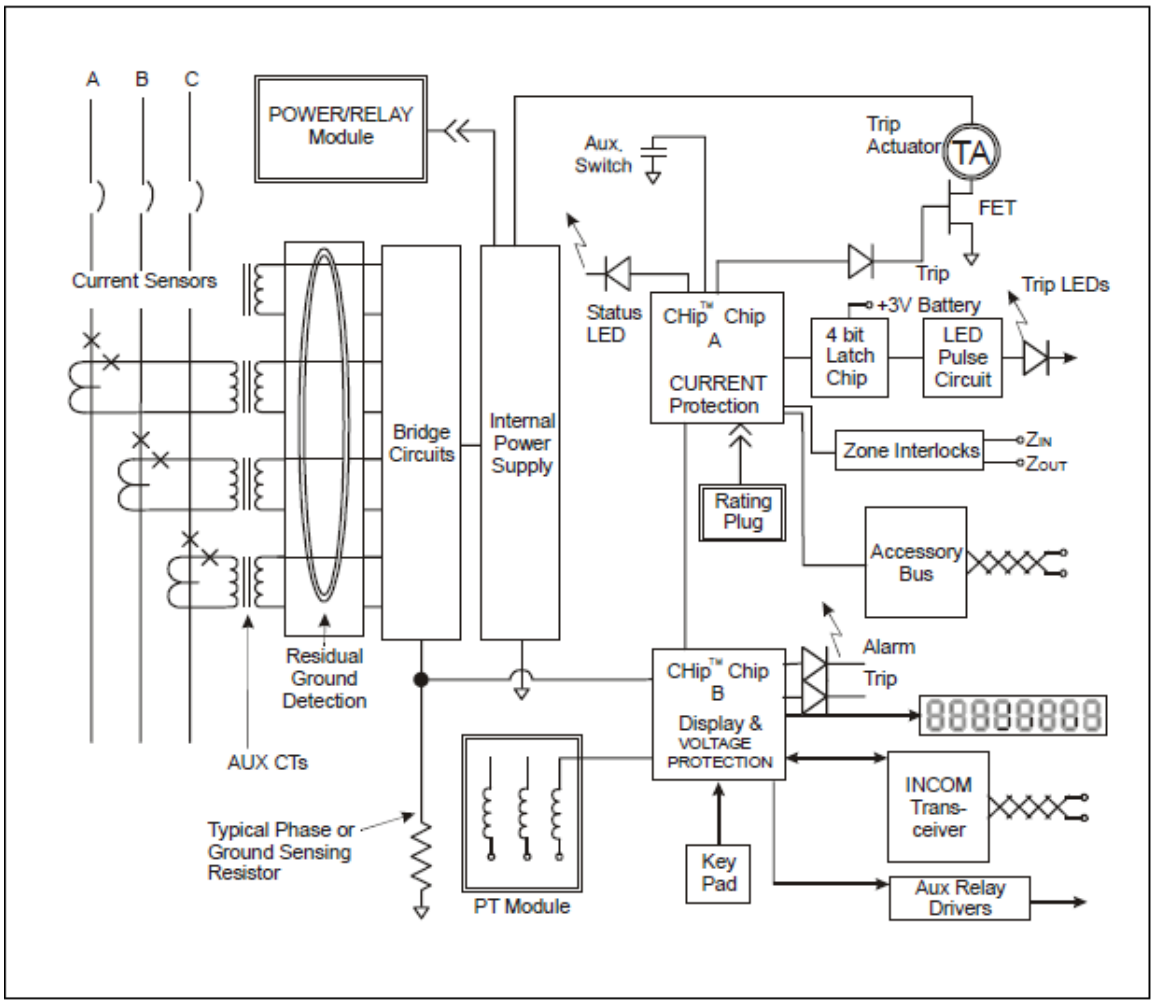


Figure 3.1 illustrates Digitrip's device in the form of a block diagram with the breaker interface. Ex. 1004, 16, *cited in* Pet. 49. Digitrip describes that "[t]he current sensors provide operating power to the trip unit." Ex. 1004, 6, *cited in* Pet. 47.

Petitioner argues Digitrip's disclosure of current from a power source that flows through the circuit breaker (coupled to the trip unit) to electrical equipment describes claim 1's "obtaining, at an electrical circuit and in accordance with a current requirement of an electrical equipment, current from a power source." Pet. 46–50; *see also* Ex. 1003 ¶¶ 109–113. In

particular, Petitioner identifies Digitrip's current sensors in Figure 3.1 of Digitrip as the power source. Pet. 47 (citing Ex. 1004, 6, 15). Petitioner identifies Digitrip's bridge circuits and other circuits receiving power from the current sensors in Figure 3.1 of Digitrip as the electrical circuit. Pet. 47–49 (citing Ex. 1004, 6, 16). Petitioner argues that the obtained current is in accordance with the current requirement of the electrical equipment because "the input current from the current sensors on Digitrip is designed to be in accordance with the current rating of the circuit breaker and attached electrical equipment." Pet. 50 (citing Ex. 1004, 3, 8; Ex. 1003 ¶¶ 112–13); *see also* Ex. 1003 ¶¶ 112 ("applications of Digitrip include large industrial motors, like motors for buildings, and building ventilation fans"), 113 ("Because Digitrip is designed to be used with equipment that draws current in a specific Ampere Range, it obtains current in accordance with a current requirement of the electrical equipment.").

In response, Patent Owner argues Digitrip fails to disclose "electrical equipment" when "electrical equipment" is construed as proposed by Patent Owner because Digitrip does not disclose exercise equipment. *See* PO Resp. 14–15. Patent Owner concedes that whatever current is drawn by the electrical equipment is the "current requirement of the electrical equipment." *See* Tr. 40:25–41:4.

Contrary to Patent Owner's arguments, Petitioner has shown that Digitrip discloses "obtaining, at an electrical circuit and in accordance with a current requirement of an electrical equipment, current from a power source," as recited in claim 1. Above, we construed "electrical equipment" as equipment that uses electricity as a power source. *See supra* § II.C.2. In

addition, we construed the phrase "current requirement of an electrical equipment" as sufficiently broad to cover whatever current is drawn by the electrical equipment. *Id*. Patent Owner's arguments regarding "electrical equipment" are unpersuasive.

We find Digitrip describes obtaining current from a power source because Digitrip describes that "[t]he current sensors [(in Figure 3.1)] provide operating power to the trip unit." Ex. 1004, 6. Further, we find the current is obtained at an electrical circuit because Digitrip's bridge circuits and other circuits receive power from the current sensors in Figure 3.1 of Digitrip. Ex. 1004, 16. Finally, we find Digitrip discloses electrical equipment, and that the obtained current is in accordance with a current requirement of the electrical equipment. In that regard, we credit Mr. Kahle's unrebutted declaration testimony explaining that "Digitrip discloses attaching the units to electrical equipment (i.e. the apparatuses that the circuit breaker and the Digitrip Devices would be connected to and which they would monitor the current levels being drawn by)." Ex. 1003 ¶ 109. This arrangement describes the Digitrip device obtaining current that is in accordance with the current requirement of the attached electrical equipment; that is, the current obtained by the Digitrip device is in accordance with whatever current is drawn by the electrical equipment. *See* Ex. 1003 ¶¶ 112 ("[A]pplications of Digitrip include large industrial motors, like motors for buildings, and building ventilation fans."), 113 ("Because Digitrip is designed to be used with equipment that draws current in a specific Ampere Range, it obtains current in accordance with a current requirement of the electrical equipment.").

Claim 1 further recites "comparing, using the electrical circuit, the obtained current with at least one of a first threshold and a second threshold." Ex. 1001, col. 12, ll. 25–27.

Digitrip discloses red trip LED thresholds (instantaneous current setting, long delay current setting, and short delay current setting), a yellow alarm LED threshold, and a green status LED threshold. Ex. 1004, 15, 20–22, 64, *cited in* Pet. 51–53. Digitrip discloses current exceeding the instantaneous current setting causes the device to trip the breaker. Ex. 1004, 21–22, *cited in* Pet. 52.

Petitioner identifies Digitrip's red trip LED thresholds (instantaneous current setting, long delay current setting, and short delay current setting), yellow alarm LED threshold, and green status LED threshold as describing claim 1's "at least one of a first threshold and a second threshold," with which obtained current is compared. Pet. 50–53 (citing Ex. 1004, 6, 15, 20–22, 64). Petitioner argues that the comparisons in Digitrip are done using the electrical circuit because Digitrip discloses a processor in Figure 3.1 performing the current protection functions. Pet. 53–54 (citing Ex. 1004, 6, 9, 16).

In response, Patent Owner argues Digitrip does not disclose a threshold as a "current value" because in Digitrip "[t]he trip signal is initiated upon a certain buildup of charge, i.e., current for a sustained period of time." PO Resp. 16. According to Patent Owner, "[i]n Digitrip, a current value can be above a long time trip current value without creating a trip event – the 'something' will not take place. Similarly, a current value can be

below a short time trip current value and still create a trip event – the 'something' will take place." PO Resp. 17.

We find Digitrip's disclosure describes comparing the obtained current with at least one threshold as claimed, i.e., a comparison to the instantaneous current setting for the red trip LED. *See* Ex. 1004, 15 ("This data is used to calculate true RMS [(root mean square)] current values, which are then continually compared with the protection settings."). Patent Owner's arguments are inapplicable to the instantaneous current setting because, if the instantaneous current setting is exceeded, no further passage of any particular time period is needed to activate a red LED. Ex. 1004, 21–22 (describing instantaneous current settings). Similarly, Patent Owner's argument regarding what occurs when a current value is above (or below) the threshold is misplaced for the instantaneous current setting for the red trip LED because these arguments are based on Digitrip's long delay current setting.

Further, and in any event, we determine that even where Digitrip requires current to be above a current setting for a sustained period of time, such a requirement does not disqualify the current setting from being a "threshold" because any actions associated with a threshold are separate from and not based on any intrinsic meaning of the term "threshold." Finally, to the extent another threshold is required to exist, Digitrip describes that the yellow alarm LED is illuminated during an alarm condition, such as when current exceeds a programmable threshold current. Ex. 1004, 15, 64.

And finally, we find Digitrip's comparing is performed using the electrical circuit because Digitrip discloses "Digitrip 1150V trip units

incorporate two microprocessors in their design. One processor is devoted totally to the task of current protection functions." Ex. 1004, 6; *see also* Ex. 1006, 16 (Figure 3.1 depicting "CURRENT Protection" chip). This processor performs the claimed "comparing."

Claim 1 further recites three conditional "if" statements:

> if the obtained current is less than a first threshold, activating one or more light emitting diodes of a first color;
>
> if the obtained current is equal to or more than the first threshold and is less than a second threshold, activating one or more light emitting diodes of a second color; and
>
> if the obtained current is equal to or more than the second threshold, activating one or more light emitting diodes of a third color.

Ex. 1001, col. 12, ll. 28–35.

Digitrip expresses the various thresholds discussed above in terms of the maximum continuous current rating of the circuit breaker: Digitrip designates the maximum continuous current rating of the circuit breaker as *I*n. Ex. 1004, 20, *cited in* Pet. 50. Digitrip expresses the long delay current setting, *I*r, as a multiple of *I*n. Ex. 1004, 20, *cited in* Pet. 52. Digitrip expresses the short delay current setting as a multiple of *I*r. Ex. 1004, 21, *cited in* Pet. 52. Digitrip expresses the instantaneous current setting as a multiple of *I*n. Ex. 1004, 20, 21–22, *cited in* Pet. 52. Finally, Digitrip expresses the alarm threshold as a multiple of *I*r. Ex. 1004, 15, 64, *cited in* Pet. 53.

Petitioner identifies Digitrip's activation of the green, yellow, and red LEDs as describing claim 1's three conditional "if" statements. Pet. 54–57; *see also* Ex. 1003 ¶¶ 114–116, 118–130. Petitioner explains:

> [T]he yellow alarm LED lights up in the middle range (above a lower threshold and . . . below a higher threshold, such as the threshold to trigger a trip event/red LED). Further, a Green Status LED lights up below the first threshold that triggers the yellow LED. Finally, the red LEDs light up at the highest current threshold (i.e. a trip event).

Pet. 55.

In particular, Petitioner provides the following example:

> **Example 2 (Instantaneous Trip)** Programming the instantaneous trip also corresponds to the same condition precedents. Using the Instantaneous Trip setting, the equation would be:
>
> a. First color (green): 0.12 x *In* < current < 0.5 *Ir*
>
> b. Second color (yellow): 0.5 *Ir* </= current < 1.0 *Ir*
>
> c. Third color (Red): 2.0*In* </= current
>
> As Digitrip explains, *Ir* corresponds to the long delay setting which can be chosen from the range of 0.4 to 1.0 ***In***. Thus, programming *Ir* to equal *In* (*Ir* = *In*)[] and programming the Yellow Alarm to be 0.5*Ir* results in the Instantaneous Trip settings as follows:
>
> a. First color (green): 0.12 x *In* < current < 0.5 *In* (first threshold)
>
> b. Second color (yellow): 0.5 *In* (first threshold) </= current < 2.0*In*(second)[]
>
> c. Third color (Red): 2.0*In* (second threshold) </= current

Pet. 56–57; *see also* Ex. 1003 ¶¶ 127–130 (explaining the instantaneous trip example).

Thus, Petitioner's instantaneous trip example equates a current of 0.5*I*n in Digitrip with claim 1's "first threshold," and equates a current of 2.0*I*n in Digitrip with claim 1's "second threshold." Further, Petitioner

equates Digitrip's green, yellow, and red LEDs, with claim 1's first, second, and third colors, respectively.

Based on this example provided by Petitioner, we find Digitrip describes causing, when current exceeds the instantaneous current setting (2.0*I*n), the device to trip the breaker and activate the red trip LED. *See* Ex. 1004, 15 ("The trip LED is illuminated upon any trip condition."); *see also* Ex. 1003 ¶ 127 ("As a final example, the instantaneous trip also corresponds to the same condition precedents. Using the Instantaneous Trip setting, the equation would be, that the red Instantaneous alarm trips at 2.0*In* </= current."). This satisfies the third conditional "if" limitation of claim 1 as reproduced above. With regard to the other two conditional "if" limitations in claim 1, they need not be reached, based on our discussion of conditional limitations above in Section II.C.1.

Claim 1 further recites "wherein the electrical circuit includes a latching mechanism that enables the color of the activated one or more light emitting diodes to be retained after the electrical equipment stops being used." Ex. 1001, col. 12, ll. 35–38.

Petitioner identifies Digitrip's maintaining the trip indication after a trip (until a Reset button is pushed) as describing claim 1's "wherein the electrical circuit includes a latching mechanism that enables the color of the activated one or more light emitting diodes to be retained after the electrical equipment stops being used." Pet. 58–59; *see also* Ex. 1003 ¶¶ 132, 134. In particular, Petitioner identifies Digitrip's "4 bit Latch Chip" shown in Figure 3.1, which is among the circuits receiving power from the current sensors identified by Petitioner as the electrical circuit (*see* Pet. 47–49), as

describing claim 1's "latching mechanism." Pet. 58 (citing Ex. 1004 ¶¶ 6, 16).

We find Digitrip describes the "latching mechanism" limitation. Digitrip's "4 bit Latch Chip" in Figure 3.1 is depicted as connected to the "Trip LEDs" via an "LED Pulse Circuit." Ex. 1004, 16. The "4 bit Latch Chip" is part of the electrical circuit because the "4 bit Latch Chip" is among the circuits that receive power from the current sensors. Ex. 1004, 16. Digitrip discloses "Red LEDs on the 1150V's face flash to indicate the cause, or trip mode, for an automatic trip operation . . . . A battery in the Digitrip unit maintains the trip indication until the Reset button is pushed." Ex. 1004, 6, *cited in* Pet. 58; *see also* Ex. 1004, 15 ("The trip LED is illuminated upon any trip condition. It is also a real time display and incorporates the breaker's Aux. Switch input for its logic. Pushing the Reset pushbutton or closing the breaker will clear this LED."). We credit Mr. Kahle's unrebutted testimony that, "[a]fter a trip event, the 3V battery and latch chip in Digitrip, maintain the LED indicators on the display, including the trip indicators, so that a user can discern the cause of trip. Indeed, one of the retained LEDs is the 'Cause of Trip'" Ex. 1003 ¶ 132. Further, we credit Mr. Kahle's unrebutted testimony that "both the latch chip and the 3V battery in Digitrip are designed to retain the LED indicator after the electrical equipment stops being used." Ex. 1003 ¶ 134. This arrangement describes the Digitrip device enabling red trip LEDs, when activated, to be retained after the electrical equipment stops being used.

We, therefore, determine Petitioner demonstrates by a preponderance of the evidence that independent claim 1 is anticipated by Digitrip.

3. Dependent Claims 2, 3, 5, and 6

Although Patent Owner does not provide specific arguments regarding claims 2, 3, 5, and 6 beyond its arguments for independent claim 1, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware LLC, v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). For reasons discussed below, we determine that Petitioner demonstrates by a preponderance of the evidence that each of claims 2, 3, 5, and 6 is anticipated by Digitrip.

Claim 2 depends from claim 1 and further recites: "wherein at least one of the first threshold and the second threshold are user-adjustable and wherein the electric circuit further comprises a test component that provides a mechanism to determine that the electrical circuit is functioning properly." Ex. 1001, col. 12, ll. 40–43. Digitrip discloses claim 2's limitation "at least one of the first threshold and the second threshold are user-adjustable" because Digitrip discloses that the yellow alarm LED setting may be programmed (adjusted) to a multiple of *I*r, and the red trip LED instantaneous current setting may be programmed (adjusted) to a multiple of *I*n. Ex. 1004, 15, 21, 64, *cited in* Pet 59–60. That is, regarding the yellow alarm LED, Digitrip discloses a High Load Alarm having a range of 0.50 to 1.00x*I*r. Ex. 1004, 64. Further, regarding the red trip LED instantaneous current setting, Digitrip discloses "22 available Instantaneous Current Settings." Ex. 1004, 21.

Digitrip further discloses claim 2's limitation "the electric circuit further comprises a test component that provides a mechanism to determine that the electrical circuit is functioning properly" because Digitrip discloses

that "[t]he Digitrip 1150V provides means via the TEST selection in the main menu to conduct Phase Current (PH) or Ground Current (GND) type testing in either a TRIP or NON-TRIP mode." Ex. 1004, 31, *cited in* Pet. 60–61. Mr. Kahle's testimony supports this understanding and reading of Digitrip. Ex. 1003 ¶¶ 137–139, *cited in* Pet. 60–61. In particular, Mr. Kahle testifies that "[b]y selecting a 'test level' and 'caus[ing] a pickup/trip condition,' Digitrip is testing the whether the electrical circuit is functioning properly." Ex. 1003 ¶ 137 (quoting Ex. 1004, 31). Further, Mr. Kahle testifies that the test component is part of the electrical circuit because "it must connect with the circuitry that performs the current comparison in order to send signs to and receive signals from it and therefore test those signals." Ex. 1003 ¶ 138.

Based on Petitioner's persuasive showing, we find Digitrip describes the subject matter of claim 2.

Claim 3 depends from claim 1 and further recites:

> wherein the electrical circuit comprises one or more multichannel switches to control activation of one of the one or more light emitting diodes of the first color, the one or more light emitting diodes of the second color, and the one or more light emitting diodes of the third color.

Ex. 1001, col. 12, ll. 44–49. Digitrip discloses this added limitation because Digitrip discloses a 4-bit multichannel latch chip controlling activation of the red trip LEDs. Ex. 1004, 16 (Fig. 3.1), *cited in* Pet. 61–62. In particular, Petitioner, referring to the 4-bit latch chip, Chip A, and Chip B in Digitrip's Figure 3.1, explains that a "POSITA would know that these include multi-channel switches." Pet. 62. Mr. Kahle's testimony supports this understanding and reading of Digitrip. Ex. 1003 ¶¶ 140–141, *cited in* Pet.

61–62. In particular, Mr. Kahle testifies that "the 4-bit latch has an input interface to Chip A and it has multiple drive outputs to drive the LEDs out and therefore multiple channels, and because each LED is handled independently it is clearly a multichannel switch." Ex. 1003 ¶ 141.

Based on Petitioner's persuasive showing, we find Digitrip describes the subject matter of claim 3.

Claim 5 depends from claim 1 and further recites "wherein the retained color is latched until the latching mechanism is reset." Ex. 1001, col. 12, ll. 53–54. Digitrip discloses this added limitation because Digitrip discloses "[a] battery in the Digitrip unit maintains the trip indication until the Reset button is pushed." Ex. 1004, 6, *cited in* Pet 63.

Based on Petitioner's persuasive showing, we find Digitrip describes the subject matter of claim 5.

Claim 6 depends from claim 1 and further recites "wherein previously deactivated one or more light emitting diodes are disabled from reactivation until the latching mechanism is reset." Ex. 1001, col. 12, ll. 55–57. Digitrip discloses four cause of trip LEDs to indicate long, short, instantaneous, or ground trip. Ex. 1004, 3, *cited in* Pet. 64. We agree with Petitioner that "[o]nce one of the Trip LEDs is triggered, the other Trip[] LEDs will be deactivated." Pet. 64; *see also* Ex. 1004, 15 ("The reason for the trip is identified by the segment of the time-current curve where the LED is illuminated."); Ex. 1003 ¶ 142 ("Once a trip event occurs, the other Cause of Trip LEDs are deactivated. This is because they can no longer be triggered. Although the other cause of trip LEDs were unlit, they were capable of being lit. By initiating a cause of trip, the other non-initiated cause of trip

LEDs are subsequently deactivated—in other words, their ability to activate is ended."). Thus, in the case of a trip, the cause of trip LED for the type of trip that occurred will illuminate and the other three cause of trip LEDs are deactivated. Further, these deactivated LEDs are disabled from reactivation until the reset because Digitrip discloses "[a] Reset pushbutton operation does the following after a trip: a. Clears the cause of trip flashing LEDs (4) after a trip event." Ex. 1004, 19, *cited in* Pet. 64. Mr. Kahle's testimony supports this understanding and reading of Digitrip by explaining that "clearing the 'Cause of Trip LED,' resets all of the LEDs and allows the previously deactivated LEDs to be reactivated in the next cycle." Ex. 1003 ¶ 143, *cited in* Pet. 64.

Based on Petitioner's persuasive showing, we find Digitrip describes the subject matter of claim 5.

Based on Petitioner's persuasive reasoning, supported by the cited evidence, we determine Petitioner demonstrates by a preponderance of the evidence that claims 2, 3, 5, and 6 are anticipated by Digitrip.

4. Independent Claim 7

We have reviewed Petitioner's analysis of independent claim 7, and we determine that Petitioner demonstrates by a preponderance of the evidence that independent claim 7 is anticipated by Digitrip. *See* Pet. 8–10, 64–67.

Claim 7 recites "obtaining, at an electrical circuit and in accordance with a current requirement of an electrical equipment, alternating current from a power source." Ex. 1001, col. 12, ll. 59–61. This limitation is identical to the "obtaining" limitation of claim 1, which we have already

addressed, except that claim 7 recites "alternating current." Digitrip discloses the added limitation of alternating current (AC) because Digitrip discloses obtaining current from a standard power line and refers to 50 or 60 Hz systems. Ex. 1004, 6, 16, *cited in* Pet. 64–65. Mr. Kahle's testimony supports this understanding and reading of Digitrip by explaining that "Hertz is a unit of measurement for the frequency of an AC power supply." Ex. 1003 ¶ 145, *cited in* Pet. 65. Patent Owner advances no arguments for this limitation of claim 7 separate from those it has advanced for independent claim 1, and we already have addressed and rejected those arguments within the analysis for claim 1.

Claim 7 further recites "converting the alternating current to direct current; measuring, using the electrical circuit, the direct current." Ex. 1001, col. 12, ll. 62–63. Digitrip discloses, in Figure 3.1, bridge circuits. Ex. 1004, 16, *cited in* Pet. 66. Petitioner argues the bridge circuits convert alternating current to direct current because "[t]he right hand side of the electrical circuitry after the bridge circuits is digital circuitry." Pet. 66. Petitioner further argues "the measured current in Digitrip is the converted direct current." Pet. 67 (citing Ex. 1003 ¶ 146; Ex. 1004, 6, 15). Mr. Kahle's testimony supports Petitioner's arguments, stating "Digitrip and its electrical circuitry are dealing with DC power, but as we know, the supplied power [is] stated with a given frequency in Hertz (denoting AC)." Ex. 1003 ¶ 146, *cited in* Pet. 67.

In response, Patent Owner argues "Petitioner and Mr. Kahle claim that the bridge circuit in Digitrip must transform the AC power into DC power, however, this conversion is not explicitly taught in Digitrip." PO Resp. 17.

In its Reply, Petitioner argues "AC goes into the bridge circuit and DC comes out." Reply 22 (citing Ex. 1003 ¶¶ 145–146).

The test for anticipation does not require the limitation at issue to be expressly stated in a prior art reference. "'[T]he dispositive question regarding anticipation [i]s whether *one skilled in the art* would reasonably understand or infer from the [prior art reference's] teaching' that every claim element was disclosed in that single reference." *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (alterations in original) (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991)); *see also Eli Lilly v. Los Angeles Biomedical Research Institute*, 849 F.3d 1073, 1074–75 (Fed. Cir. 2017).

We find Digitrip describes claim 7's limitations reciting "converting the alternating current to direct current" and "measuring, using the electrical circuit, the direct current." In particular, we credit Mr. Kahle's unrebutted declaration testimony explaining that Digitrip's bridge circuits convert alternating current to direct current. *See* Ex. 1003 ¶ 146 ("The bridge circuit must transform the AC power into DC power. This is because Digitrip and its electrical circuitry are dealing with DC power, but as we know, the supplied power [is] stated with a given frequency in Hertz (denoting AC)."). The arrangement of the bridge circuit in Digitrip describes the "converting" limitation. Further, Digitrip describes the "measuring" limitation because the measured current is the direct current. *See* Ex. 1004, 15 ("This data is used to calculate true RMS current values, which are then continually compared with the protection settings."); *see also* Ex. 1004, 6 ("Digitrip 1150V trip

units incorporate two microprocessors in their design. One processor is devoted totally to the task of current protection functions.").

Claim 7 further recites "displaying a color corresponding to a range of current of a plurality of ranges of current in which the direct current lies." Ex. 1004, col. 12, ll. 65–67. Petitioner argues Digitrip discloses "multiple LEDs that light up at different direct current ranges" and refers to its analysis of claim 1's "comparing" limitation and three conditional "if" statements. Pet. 67. As discussed above for claim 1, Petitioner identifies three current ranges in Digitrip, each corresponding to a different color LED. *See* Pet. 56–57. We find Digitrip discloses the "displaying" limitation for the same reasons given above in our analysis of claim 1's "comparing" limitation and the third conditional "if" statement. *See supra* § II.E.2. In particular, the current range above the trip point, corresponding to a red LED, is one range, and the current corresponding to the yellow LED is another range of current, thus describing the claimed "plurality of ranges." Patent Owner advances no arguments for this limitation of claim 7 separate from those it has advanced for independent claim 1, and we already have addressed and rejected those arguments within the analysis for claim 1.

Claim 7 further recites "wherein the electrical circuit includes a latching mechanism that enables the displayed color to be retained after the electrical equipment stops being used." Ex. 1004, col. 12, l. 67–col. 13, l. 2. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 1's similar "latching mechanism" limitation. Pet. 67. We find Digitrip discloses the "latching mechanism" limitation of claim 7 for the same reasons given above in our analysis of claim 1's "latching mechanism"

limitation. *See supra* § II.E.2. Patent Owner advances no arguments for this limitation of claim 7 separate from those it has advanced for independent claim 1, and we already have addressed and rejected those arguments within the analysis for claim 1.

We, therefore, determine Petitioner demonstrates by a preponderance of the evidence that independent claim 7 is anticipated by Digitrip.

5. Dependent Claim 8

For reasons discussed below, we determine that Petitioner demonstrates by a preponderance of the evidence that claim 8 is anticipated by Digitrip.

Claim 8 depends from claim 7 and further recites "wherein the display of the corresponding color is performed by activation of one or more light emitting diodes of the corresponding color, the color being displayed based on lubrication requirements of the electrical equipment." Ex. 1004, col. 13, ll. 3–7. Petitioner identifies various disclosures in Digitrip as describing the recited limitations of claim 8. *See* Pet. 67–69. In particular, Petitioner identifies Digitrip's trip and alarm LEDs as meeting claim 8's "the color being displayed based on lubrication requirements of the electrical equipment." Pet. 68–69 (citing Ex. 1003 ¶¶ 147–150, 152). Citing the testimony of Mr. Kahle, Petitioner argues that there is a correlation between current drawn and lubrication of equipment because "electrical equipment, such as motors or fans, draw more current when there is less lubrication." Pet. 68 (citing Ex. 1003 ¶¶ 147–149). In response, Patent Owner argues: "Digitrip makes no mention whatsoever of lubrication requirements. Digitrip

does not work with exercise equipment, which requires lubrication. This limitation is not disclosed by Digitrip." PO Resp. 18.

As noted above, claim 8 depends from claim 7, which recites "displaying a color corresponding to a range of current of a plurality of ranges of current in which the direct current lies." Thus, according to claim 7, the display is based on the current flow. Claim 8 recites that "the color [is] displayed based on lubrication requirements of the electrical equipment." The color, however, still must be displayed based on the current flow, as required by claim 7. Claim 8, therefore, appears to recite a correlation between lubrication requirements and current flow.

We find Digitrip describes the subject matter of claim 8. Although Patent Owner is correct that Digitrip does not mention exercise equipment specifically, Mr. Kahle provides unrebutted testimony that "[m]otors and fans are two known uses for Digitrip." Ex. 1003 ¶ 148; *see also* Ex. 1003 ¶ 112 ("Particular applications of Digitrip would include large industrial motors, like motors for buildings, and building ventilation fans. This is the kind of equipment that operates in the 'Ampere Range' Digitrip is designed to function in. EX1004-0003 (disclosing an 'Ampere Range' of '100A-2000A')."). We credit Mr. Kahle's declaration testimony explaining that the Digitrip device monitors current draw and that there is a correlation between increased current and lubrication requirements. *See* Ex. 1003 ¶¶ 147–149, 152. Digitrip describes illuminating an LED based on current flow, as discussed above with respect to claim 7, and current flow corresponds to lubrication of equipment, according to Mr. Kahle. *See* Ex. 1003 ¶¶ 147–149, 152. In particular, Mr. Kahle testifies that, "[w]hen using [Digitrip] with

motors and fans, a red trip event or yellow alarm would be indicative of increased current draw based upon increased friction in the attached equipment." Ex. 1003 ¶ 149.

Claim 8 recites that the color is "displayed based on lubrication requirements of the electrical equipment." The scope of the claim is not limited to indicating any particular requirements. The claim provides no such specificity, and the '553 patent does not further illuminate the issue. In one instance, the '553 patent states that, "[w]hen more current is withdrawn by the electrical equipment, one or more amber/yellow LEDs can be activated, thereby indicating that lubrication of the electrical equipment can be required soon." Ex. 1001, 6:20–23. The '553 patent further states that "[t]he activation of one or more LEDs of a particular color can inform a user of the electrical equipment about the condition of the electrical equipment, thereby indicating whether and when lubrication of the electrical equipment is required." Ex. 1001, 10:40–44. According to the '553 patent, therefore, "lubrication requirements" can range from needing no lubrication to indicating that lubrication may be required "soon." The need for lubrication, therefore, is in the eye of the beholder, specifically the person of ordinary skill in the art, and Mr. Kahle's testimony that "a POSITA would know of the relationship between current and lubrication" and "would use Digitrip to monitor lubrication when . . . using Digitrip with equipment that has mechanical components (like motors and fans)" (Ex. 1003 ¶ 148) supports a finding that Digitrip's disclosure describes displaying some indicator (a color) "based on lubrication requirements of the electrical equipment," as recited in claim 8.

We, therefore, determine Petitioner demonstrates by a preponderance of the evidence that claim 8 is anticipated by Digitrip.

6. Dependent Claims 9, 10, and 12

Although Patent Owner does not provide specific arguments regarding claims 9, 10, and 12 beyond its arguments for independent claims 1 and 7 and dependent claim 8, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378.

Claim 9 depends from claim 8 and further recites "wherein the electrical circuit comprises one or more multichannel switches to control the activation of the one or more light emitting diodes of the corresponding color." Ex. 1001, col. 13, ll. 8–11. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 3's similar "multichannel switches" limitation. Pet. 69. We find Digitrip discloses the "multichannel switches" limitation of claim 9 for the same reasons given above in our analysis of claim 3's "multichannel switches" limitation. *See supra* § II.E.3.

Claim 10 depends from claim 7 and further recites "wherein each range of the plurality of ranges of current is associated with at least one threshold, the at least one threshold being user-adjustable and wherein the electric circuit further comprises a test component that provides a mechanism to determine that the electrical circuit is functioning properly." Ex. 1001, col. 13, ll. 12–17. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 1's three conditional "if" statements, claim 2's user-adjustable thresholds and test component, and claim 7's "displaying" limitation. Pet. 69–70 (citing Ex. 1003 ¶ 117). In particular, Petitioner identifies the range of current corresponding to yellow

as "0.5 *In* (first threshold) </= current < 2.0*In* (second)" and the range of current corresponding to red as "2.0*In* (second threshold) </= current." Pet. 57. We find Digitrip discloses the additional limitations of claim 10 for the same reasons given above in our analysis of claim 1's third conditional "if" statement, claim 2's user-adjustable thresholds, and claim 7's "displaying" limitation. *See supra* § II.E.2–4.

Claim 12 depends from claim 7 and further recites "the retained color is latched until the latching mechanism is reset; and previously deactivated one or more light emitting diodes are disabled from activation until the latching mechanism is reset." Ex. 1001, col. 13, ll. 23–27. Petitioner argues Digitrip discloses this limitation, referring to its analysis of claims 5 and 7.[6] Pet. 70. We find Digitrip discloses the additional limitations of claim 12 for the same reasons given above in our analysis of claims 5 and 6. *See supra* § II.E.3.

Based on Petitioner's persuasive showing, we determine Petitioner demonstrates by a preponderance of the evidence that claims 9, 10, and 12 are anticipated by Digitrip.

7. Independent Claim 13

Although Patent Owner does not provide specific arguments regarding independent claim 13 beyond its arguments for independent claims 1 and 7, which we address above, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. We have

[6] Although Petitioner refers to its analysis of claims 5 and 7, based on the language of claim 12, we treat this as a harmless typographical error and refer to Petitioner's analysis of claims 5 and 6 in our analysis of claim 12.

reviewed Petitioner's analysis of independent claim 13, and we determine that Petitioner demonstrates by a preponderance of the evidence that independent claim 13 is anticipated by Digitrip. *See* Pet. 8–10, 71–72.

Claim 13 recites "an alternating current to direct current converter configured to convert received alternating current to a direct current." Ex. 1001, col. 14, ll. 2–3. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 1's "obtaining" limitation, and to its analysis of claim 7's "obtaining" limitation. Pet. 71. We determine claim 13's "converter" limitation corresponds to claim 7's "converting the alternating current to direct current." We find Digitrip discloses claim 13's "converter" limitation for the same reasons given above in our analysis of claim 7's "converting the alternating current to direct current." *See supra* § II.E.4. Regarding the presence of a "converter" in Digitrip, we credit Mr. Kahle's unrebutted declaration testimony explaining that Digitrip's bridge circuits convert alternating current to direct current. *See* Ex. 1003 ¶ 146 ("The bridge circuit must transform the AC power into DC power. This is because Digitrip and its electrical circuitry are dealing with DC power, but as we know, the supplied power [is] stated with a given frequency in Hertz (denoting AC)."). The arrangement of the bridge circuit in Digitrip describes the "converter" limitation.

Claim 13 further recites "at least one comparator configured to compare the direct current to one or more thresholds used to identify a corresponding range of current or ranges of current." Ex. 1001, col. 13, ll. 4–

6.[7] Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 1's "comparing" limitation and to its analysis of claim 7's "converting" and "measuring" limitations and by arguing that a comparator is included in Digitrip. Pet. 71–72 (citing Ex. 1004, 15; Ex 1003 ¶¶ 153–155). We determine claim 13's "comparator" limitation corresponds to claim 1's "comparing" limitation. We find Digitrip discloses claim 13's "comparator" limitation for the same reasons given above in our analysis of claim 1's "comparing" limitation. *See supra* § II.E.2. Regarding the presence of a "comparator" in Digitrip, we credit Mr. Kahle's unrebutted expert testimony explaining that, in order for Digitrip's disclosed comparisons of the obtained current with protection settings to be made, "[e]ither Chip A or Chip B must have a comparator to do these types of functions." Ex. 1003 ¶ 154; *see also* Ex. 1004, 15 ("This data is used to calculate true RMS current values, which are then continually compared with the protection settings."). Based on this evidence, we find that Chip A and Chip B describe the "at least one comparator."

Claim 13 further recites "a light emitting diode drive configured to activate one or more light emitting diodes of a color corresponding to the identified." Ex. 1001, col. 14, ll. 7–9.[8] Petitioner argues Digitrip discloses

[7] By the Certificate of Correction dated August 28, 2018, the phrase "corresponding range of current *of* ranges of current" was changed to "corresponding range of current *or* ranges of current."

[8] Petitioner points out that claim 13 is missing words and that the claim should read "corresponding to the identified [range of current]" as it reads in the "one or more latches" limitation. Pet. 34 n.7. Patent Owner does not argue for any other interpretation of the claim language. We conclude

this limitation by referring to its analysis of claim 1's three conditional "if" statements and to its analysis of claim 7's "displaying" limitation and by arguing that LED drives are included in Digitrip. Pet. 72 (citing Ex. 1004, 6, 16; Ex 1003 ¶ 156). We find Digitrip discloses claim 13's "light emitting diode drive" limitation for the same reasons given above in our analysis of claim 1's third conditional "if" statement and claim 7's "displaying" limitation. *See supra* §§ II.E.2, II.E.4. Regarding the presence of a "light emitting diode drive," we credit Mr. Kahle's unrebutted expert testimony explaining that "the digital circuitry shown in Fig 3.1 [of Digitrip] includes processors to activate the LEDs (such as Chip A and Chip B). These are LED drives and they are configured to light up the LEDs they control pursuant to the logic functions." Ex. 1003 ¶ 156.

Claim 13 further recites "one or more latches configured to enable the electrical circuit to retain the color corresponding to the identified range of current after an electrical equipment requiring the received alternating current stops being used." Ex. 1001, col. 13, ll. 9–13. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 1's "latching mechanism" limitation and further argues "[t]he electrical equipment in Digitrip stops receiving alternating current upon a trip event." Pet. 72 (citing Ex. 1003 ¶¶ 157–158; Ex. 1004, 6). We determine claim 13's "one or more latches" limitation corresponds to claim 1's "latching mechanism" limitation. We find Digitrip discloses claim 13's "one or more latches" limitation for the same reasons given above in our analysis of

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Petitioner's interpretation is the only reasonable interpretation, and we adopt this interpretation as our own.

claim 1's "latching mechanism" limitation. *See supra* §§ II.E.2. We credit Mr. Kahle's unrebutted expert testimony explaining that, "upon a trip event, the electrical equipment stops being used because it stops receiving alternating current" and that, "[s]ince the current is zero, no other LEDs . . . can light up until the trip event is cleared and power is restored to the electrical equipment." Ex. 1003 ¶¶ 157–158; *see also* Ex. 1004, 6 ("50 or 60 Hz systems").

For the foregoing reasons, we determine Petitioner demonstrates by a preponderance of the evidence that independent claim 13 is anticipated by Digitrip.

8. Dependent Claims 14, 15, and 17

Although Patent Owner does not provide specific arguments regarding claims 14, 15, and 17 beyond its arguments for independent claims 1 and 7, which we address above, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware*, 800 F.3d at 1378. For reasons discussed below, we determine that Petitioner demonstrates by a preponderance of the evidence that each of claims 14, 15, and 17 is anticipated by Digitrip.

Claim 14 depends from claim 13 and further recites "one or more multichannel switches configured to control the activation of the one or more light emitting diodes of the corresponding color." Ex. 1001, col. 14, ll. 14–16. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 3's similar "multichannel switches" limitation. Pet. 73. We find Digitrip discloses the "multichannel switches" limitation of claim 14 for

the same reasons given above in our analysis of claim 3's "multichannel switches" limitation. *See supra* § II.E.3.

Claim 15 depends from claim 13 and further recites "wherein the identified range of current is associated with at least one threshold, the at least one threshold being user-adjustable." Ex. 1001, col. 14, ll. 17–19. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 1's three conditional "if" statements and claim 2's user-adjustable thresholds. Pet. 73. We find Digitrip discloses the additional limitations of claim 15 for the same reasons given above in our analysis of claim 1's third conditional "if" statement and claim 2's user-adjustable thresholds. *See supra* § II.E.2–3.

Claim 17 depends from claim 13 and further recites "wherein the retained color corresponds to a range of current associated with at least one threshold, and the retained color does not change to a color associated with a lower threshold until the latching mechanism is reset." Ex. 1001, col. 14, ll. 23–27. Petitioner argues Digitrip discloses this limitation by referring to its analysis of claim 1's "comparing" limitation and claim 1's three conditional "if" statements and further argues "the battery maintains the red LED until the RESET button is pushed. . . . [N]o other LEDs (such as a yellow alarm, which has a lower threshold than the red) can light until the trip is cleared and power restored." Pet. 73–74 (citing Ex. 1003 ¶¶ 157–158, Ex. 1004, 6).

We find Digitrip discloses claim 17's "the retained color corresponds to a range of current associated with at least one threshold" for the same reasons given above in our analysis of claim 1's "comparing" limitation and claim 1's third conditional "if" statement. *See supra* § II.E.2. Regarding

claim 17's limitation "the retained color does not change to a color associated with a lower threshold until the latching mechanism is reset," we credit Mr. Kahle's unrebutted expert testimony explaining that, "upon a trip event, the electrical equipment stops being used because it stops receiving alternating current" and that, "[s]ince the current is zero, no other LEDs . . . can light up until the trip event is cleared and power is restored to the electrical equipment." Ex. 1003 ¶¶ 157–158; *see also* Ex. 1004, 6 ("A battery in the Digitrip unit maintains the trip indication until the Reset button is pushed.").

For the foregoing reasons, we determine Petitioner demonstrates by a preponderance of the evidence that claims 14, 15, and 17 are anticipated by Digitrip.

F. Alleged Obviousness over Digitrip Alone

1. Claims 4, 11, and 16

Claim 4 depends from claim 1 and recites "wherein the latching mechanism is reset by disconnecting the electrical circuit from the power source." Ex. 1001, col. 12, ll. 50–52. Claims 11 and 16 depend, respectively, from independent claims 7 and 13 and recite similar subject matter. *See* Ex. 1001, col. 13, ll. 19–21; col. 14, ll. 20–22.[9]

[9] Claim 16 recites "wherein the retained color is reset by disconnecting the electrical circuit from a power source supplying the alternating current." Ex. 1001, col. 14, ll. 20–22. This language differs from the language of claim 4; however, when claim 16's language is considered in light of the language of its parent claim 13, the covered subject matter is similar to the subject matter of claim 4.

Petitioner acknowledges that "Digitrip devices do not reset when the power is disconnected." Pet. 82. Rather, according to Petitioner, Digitrip discloses "a more sophisticated design that allows the LEDs to be retained [by a separate battery and non-volatile memory] even after they lose power [from the power source supplying current to the electrical equipment]." Pet. 82–83 (citing Ex. 1003 ¶¶ 179–181). Petitioner argues that resetting the latching mechanism by disconnecting the circuit from power would have been obvious to a person of ordinary skill in the art. Pet. 82–85. Petitioner argues "eliminating the additional components from Digitrip would be a simpler, less expensive design choice," which would "save money and other resources." Pet. 84–85 (citing Ex. 1003 ¶ 188). Petitioner also argues this modification would have been obvious based on Simpson's disclosure of resetting a device following a trip event by turning the power off. Pet. 85–86 (citing Ex. 1009, col. 43, ll. 23–41).

In response, Patent Owner repeats arguments made previously with respect to Digitrip and parent claims 1, 7, and 13 and argues that Simpson does not cure the alleged deficiencies of Digitrip. PO Resp. 19. Further, Patent Owner argues "Digitrip teaches away from resetting the latching mechanism by disconnecting the electrical circuit from the power source." PO Resp. 19. Patent Owner further argues "[e]liminating the battery, or switching to a line source, which would then be disconnected to reset the latch chip like in Simpson, would throw off the clock chip – all future timestamps would be incorrect." PO Resp. 19.

First, we do not agree that Digitrip has any deficiencies with respect to parent claims 1, 7, and 13 for reasons explained above. *See supra* § II.E.2,

4, 6. Second, we do not agree that Digitrip teaches away from the claimed subject matter or from Petitioner's proposed modification. As the Federal Circuit has stated, "a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine." *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006). Although there may be disadvantages to a device without a battery, there may also be advantages to eliminating the battery, such as simplifying the design and saving money, as argued by Petitioner. Pet. 84–85. Digitrip states that "[t]he battery plays no part in the protection function of the trip unit." Ex. 1004, 35. Therefore, the device of Digitrip would still operate to protect connected devices without the battery. In that regard, Digitrip "is prior art for all that it teaches." *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551 (Fed. Cir. 1989); *see also In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009 (CCPA 1968)) ("The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are a part of the literature, relevant for all they contain."). Based on the evidence cited by Petitioner, including the above-quoted text from Digitrip, one with ordinary skill in the art would have recognized that the separate battery is not an essential, but an optional, feature for providing the protection function of the trip unit. *See also* Ex. 1004, 35 ("The condition of the battery has no effect on the protection function of the trip unit. Even with the battery removed, the unit will still trip the breaker in accordance with its settings. However, without

the battery, the Cause of Trip LED will not be lighted red if auxiliary power is lost to the Digitrip.").

We, therefore, determine Petitioner demonstrates by a preponderance of the evidence that claim 4, 11, and 16 would have been obvious over Digitrip alone.

G. Alleged Obviousness over Digitrip in View of Simpson

1. Claims 4, 11, and 16

Petitioner also asserts claims 4, 11, and 16 would have been obvious based on the combined teachings of Digitrip and Simpson. Pet. 5, 85–87. Simpson relates to "an electrical connection safety apparatus which prevents fires and electrical shocks due to electrical faults caused by defects associated with AC electrical appliances, light fixtures, outlets, cords and connectors and by improper use of the same." Ex. 1009, col. 1, ll. 12–16.

Petitioner asserts that "Simpson may also be used as an additional reference as it expressly teaches disconnecting the power upon a trip event and that the disconnect resets the device." Pet. 85 (citing Ex. 1009, 43:23–41, claims 1–3, Figs. 13, 25). In support, Petitioner quotes the following passage from Simpson: "At step 870, the lamp fixture is 'reset' by switching the power to the lamp fixture to the 'off' position and then the 'on' position as described above." Ex. 1009, col. 43, ll. 23–25, *quoted in* Pet. 85–86. This passage states that the reset occurs by switching the power off and then on again, not that the reset occurs only by disconnecting power, as Petitioner asserts. Thus, the quoted passage does not support Petitioner's assertion, and Petitioner does not adequately explain where Simpson teaches resetting merely by disconnecting power.

As such, Petitioner has not shown Simpson teaches the subject matter for which it is relied upon.

H. Alleged Obviousness over Digitrip and Lagree

1. Claims 3, 6, 9, 12–15, and 17

We decline to reach this ground of unpatentability for claims 3, 6, 9, 12–15, and 17 because above we determined that Petitioner demonstrates by a preponderance of the evidence that claims 3, 6, 9, 12–15, and 17 are anticipated by Digitrip.

2. Claim 16

We decline to reach this ground of unpatentability for claim 16 because above we determined that Petitioner demonstrates by a preponderance of the evidence that claim 16 is unpantentable based on at least one other ground.

I. Alleged Obviousness over Digitrip, Lagree, and Simpson

1. Claim 16

We decline to reach this ground of unpatentability for claim 16 because above we determined that Petitioner demonstrates by a preponderance of the evidence that claim 16 is unpantentable based on at least one other ground.

J. Alleged Obviousness over Digitrip and Klein

1. Claims 8 and 9

Claim 8 depends from claim 7 and further recites: "wherein the display of the corresponding color is performed by activation of one or more light emitting diodes of the corresponding color, the color being displayed based on lubrication requirements of the electrical equipment." Ex. 1001,

col. 13, ll. 3–7. With regard to the limitation "wherein the display of the corresponding color is performed by activation of one or more light emitting diodes of the corresponding color," that is already accounted for by our discussion of the alleged anticipation of claim 7 by Digitrip above, specifically the "displaying a color" step of claim 7. For the limitation "the color being displayed based on lubrication requirements of the electrical equipment," Petitioner relies on teachings of Klein and its proposed combination of Digitrip and Klein, as discussed below.

Klein discloses a system and method for monitoring the load on the drive motor of an axial bearing to indicate the frictional wear on the axial bearing. Ex. 1006, Abstr, col. 1, ll. 8–14. In particular, Klein describes: "If the axial bearing is associated with a drive motor, then the variations in the coefficient of friction change the load on the drive motor. The change in load upon the drive motor may be monitored to indicate axial bearing wear or the need for axial bearing replacement." *Id.* at col. 1, ll. 63–67. Figure 20 of Klein is reproduced below:

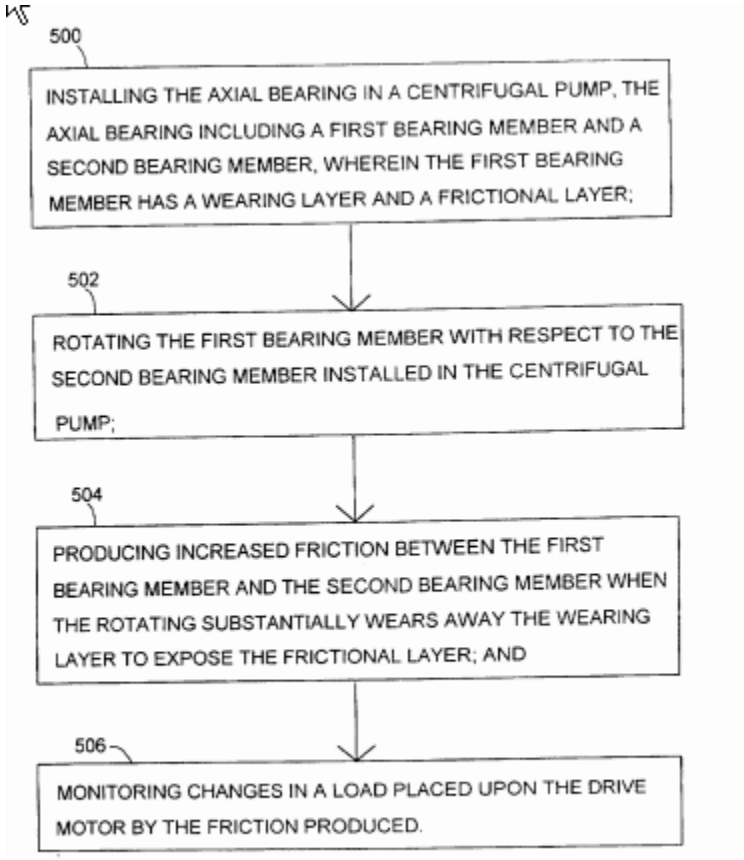

FIG. 20

Figure 20 is a flow chart illustrating the steps in a method of monitoring the wear of an axial bearing. *Id.* at 3:54–56. Step 506 in Figure 20 specifically describes: "MONITORING CHANGES IN A LOAD PLACED UPON THE DRIVE MOTOR BY THE FRICTION PRODUCED." For monitoring the load on the drive, Klein describes: "The load detection means may comprise, for example, an energy monitor, *a current monitor*, a power monitor, a thermal monitor, a revolution per unit time monitor, a torque monitor, or the like." *Id.* at 13:13–16 (emphasis added).

Petitioner asserts:

> In addition, Digitrip teaches that it is desirable to monitor current for excessive current draw (EX1004-

> 0006(Sec.1.0)) and Klein teaches that it is desirable to use current monitors to indicate the wear and tear of frictional components when excessive current draw occurs (Fig.20(above) and other citations above). These are express reasons to combine provided by both references.
>
> "A user would take this known and disclosed method from Klein (to monitor current as indicative of the wear and tear of mechanical components in large industrial motors) and apply this to known devices (such as the current monitor of Digitrip or Digitrip with Lagree)." Ex1003–¶150.

Pet. 88. The above-quoted explanation by Petitioner, supported by the cited testimony of Mr. Kahle (Ex. 1003 ¶ 150), constitutes reasoning with rational underpinnings for one with ordinary skill in the art to have incorporated Digitrip's Trip Unit for use with electrical equipment that drives moving mechanical parts, to monitor the frictional wear and tear on the mechanical parts. Patent Owner presents no contrary argument regarding the disclosure of Klein or the motivation for one with ordinary skill in the art to combine the teachings of Digitrip and Klein. Patent Owner does not present arguments beyond those it presented for claim 7, which we already discussed and rejected above.

For the foregoing reasons, Petitioner has shown by a preponderance of the evidence that claim 8 would have been obvious over Digitrip and Klein.

Claim 9 depends from claim 8 and further recites "wherein the electrical circuit comprises one or more multichannel switches to control the activation of the one or more light emitting diodes of the corresponding color." Ex. 1001, col. 13, ll. 8–11. Petitioner argues Digitrip discloses this additional limitation by referring to its analysis of claim 3's similar

"multichannel switches" limitation, i.e., "wherein the electrical circuit comprises one or more multichannel switches to control activation of one of the one or more light emitting diodes of the first color, the one or more light emitting diodes of the second color, and the one or more light emitting diodes of the third color." Pet. 69. Patent Owner has not presented arguments for claim 9 beyond those it presented against the alleged anticipation of claim 3 by Digitrip, which we addressed and rejected above. We find Digitrip discloses the "multichannel switches" limitation of claim 9 for the same reasons given above in our analysis of claim 3's "multichannel switches" limitation in the context of the alleged anticipation of claim 3 by Digitrip. *See supra* § II.E.3.

For the foregoing reasons, Petitioner has shown by a preponderance of the evidence that claim 9 would have been obvious over Digitrip and Klein.

K. Alleged Obviousness over Digitrip, Lagree, and Klein

1. Claim 9

We decline to reach this ground of unpatentability for claim 9 because above we determined that Petitioner demonstrates by a preponderance of the evidence that claim 9 is unpatentable based on at least one other ground.

III. CONCLUSION

Petitioner has not established, by a preponderance of the evidence, that claims 1, 3–9, 11–14, 16, and 17 would have been obvious over Yewell and Wang.

Petitioner has not established, by a preponderance of the evidence, that claims 2, 10, and 15 would have been obvious over Yewell, Wang, and Simpson.

Petitioner has not established, by a preponderance of the evidence, that claims 8 and 9 would have been obvious over Yewell, Wang, and Klein.

Petitioner has established, by a preponderance of the evidence, that claims 1–3, 5–10, 12–15, and 17 are anticipated by Digitrip.

Petitioner has established, by a preponderance of the evidence, that claims 4, 11, and 16 would have been obvious over Digitrip alone. Petitioner, however, has not shown that Simpson teaches resetting a device by disconnecting power, as relied-upon by Petitioner in its contention that claims 4, 11, and 16 would have been obvious over Digitrip in view of Simpson, and, thus, Petitioner's contention on this point is not persuasive.

Petitioner has established, by a preponderance of the evidence, that claims 8 and 9 would have been obvious over Digitrip and Klein.

We decline to reach whether claims 3, 6, 9, and 12–17 would have been obvious over Digitrip and Lagree; whether claim 16 would have been obvious over Digitrip, Lagree, and Simpson; and whether claim 9 would have been obvious over Digitrip, Lagree, and Klein.

IV. ORDER

It is

ORDERED that each of claims 1–17 of the '553 patent is 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.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PRECOR INCORPORATED,
Petitioner,

v.

GREEN FITNESS EQUIPMENT COMPANY, LLC,
Patent Owner.

Case IPR2018-00085
Patent 8,884,553 B2

Before JAMESON LEE, JEREMY J. CURCURI, and
DANIEL J. GALLIGAN, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*, Concurring.

I agree with the majority opinion in all respects except for its discussion and conclusion with regard to the alleged anticipation of claims 8 and 9 by Digitrip. In my view, Petitioner has not proved by a preponderance of the evidence that any of claims 8 and 9 is anticipated by Digitrip.

Claim 7 recites "displaying a color corresponding to a range of current of a plurality of ranges of current." Claim 8 depends from claim 7 and further recites "the color being displayed based on lubrication requirements of the electrical equipment." Thus, claim 8 further narrows the scope of

claim 7 by requiring the color display to correspond to and thus indicate a lubrication need. Claim 9 depends from claim 8 and thus also includes this same requirement from claim 8. To meet this requirement from claim 8, it is insufficient that the prior art discloses color display that is not tied to a lubrication need.

Patent Owner correctly notes that Digitrip makes no mention of any lubrication need or requirement of the equipment. PO Resp. 18. Petitioner has not identified any portion of Digitrip that ties the LED color display to a lubrication need of the electrical equipment. The majority opinion credits Mr. Kahle's testimony that there is a correlation between increased current and lubrication requirements. But, in the context of Digitrip, the testimony establishes only a possible correlation, which is not sufficient for a finding of anticipation.

For instance, in paragraph 144 of his Declaration, Mr. Kahle testifies, with respect to the color display of claim 8: "A person of ordinary skill in the art would understand that the increased current draw on a breaker monitored by the Digitrip 1150V *could be* a result of lubrication requirement of the electrical equipment." Ex. 1003 ¶ 144 (emphasis added). Similarly, in paragraph 148 of his Declaration, Mr. Kahle testifies: "Understanding that increased current in an electrical apparatus *can be* indicative of lubrication requirements, necessarily leads to the conclusion that Digitrip's indicator *can be* used by its users for this function." *Id.* ¶ 148 (emphasis added). The testimony is insufficient to establish that Digitrip discloses using its indicator to indicate a lubrication requirement, but at most only that Digitrip would have suggested such a use to one with ordinary skill in the art.

In paragraph 79 of his Declaration, Mr. Kahle testifies: "It was known in 2011, that certain electrical equipment draw more current when they start to wear down due to increased friction and less lubrication of their mechanical parts." *Id.* ¶ 79. The evidence before us do not establish that all electrical equipment have lubrication requirements. Dr. Kahle's testimony in paragraph 79 of his Declaration is directed only to "certain electrical equipment." Petitioner has not identified description in Digitrip that the disclosed device is used for that type of electrical equipment, i.e., the type having lubrication needs. Mr. Kahle testifies that "[p]articular application of Digitrip would include large industrial motors, like motors for buildings, and building ventilation fans." Ex. 1003 ¶ 112. But he does not indicate that it is Digitrip that describes such use or how such a description exists. The testimony is consistent with recognizing that such a use would have been obvious to one with ordinary skill in the art, which is inadequate to support a finding of anticipation.

In summary, to support a finding of anticipation, Digitrip's Trip Unit has to be applied to electrical equipment that drives a moving part. No such disclosure in Digitrip has been demonstrated by Petitioner. Thus, Petitioner has not proved by a preponderance of the evidence that claim 8 is anticipated by Digitrip, and Petitioner has not proved by a preponderance of the evidence that claim 9 is anticipated by Digitrip.

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