

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HOME DEPOT U.S.A., INC.,
Petitioner,

v.

LYNK LABS, INC.,
Patent Owner.

IPR2021-01370
Patent 10,349,479 B2

Before JON B. TORNQUIST, JENNIFER MEYER CHAGNON, and
SCOTT RAEVSKY, *Administrative Patent Judges*.

RAEVSKY, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Home Depot U.S.A., Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 9–17 of U.S. Patent No. 10,349,479 B2 (Ex. 1001, “the ’479 patent”). Lynk Labs, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 5, “Prelim. Resp.”). We authorized Petitioner to file a Reply to the Preliminary Response (Paper 6, “Reply”) and Patent Owner to file a Sur-reply (Paper 7, “Sur-reply”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless it is determined that there is a reasonable likelihood that the petitioner would prevail with respect to at least one of the claims challenged in the petition. Based on the information presented in the Petition and the supporting evidence, we are persuaded there is a reasonable likelihood Petitioner would prevail with respect to the challenged claims. Accordingly, we institute an *inter partes* review of claims 9–17 on all of the grounds set forth in the Petition.

Our factual findings and conclusions at this stage of the proceeding are based on the evidentiary record developed thus far. This is not a final decision as to patentability of the challenged claims.

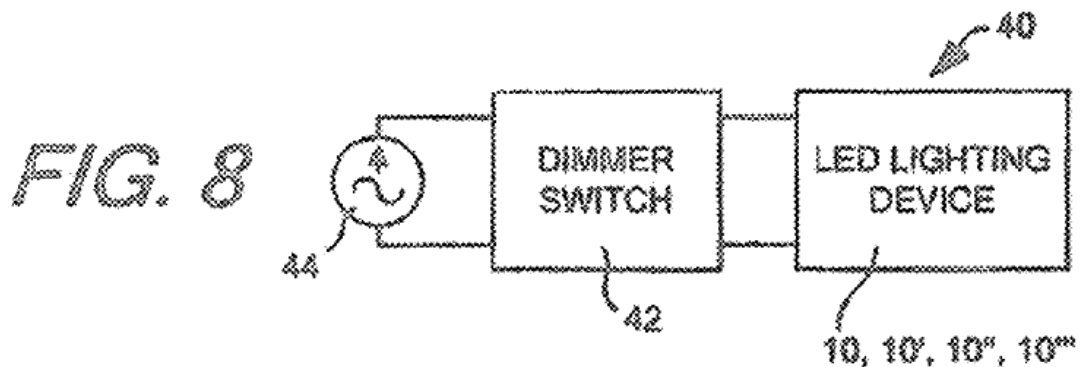
II. BACKGROUND

A. Related Matters

The parties identify the following related district court litigation: *Lynk Labs, Inc. v. Home Depot USA, Inc.*, No. 6:21-cv-00097 (W.D. Tex. Jan. 29, 2021), which was recently transferred to the Northern District of Georgia (“the related litigation”). Pet. 2; Paper 4, 1; Ex. 1017.

B. The '479 patent

The '479 patent relates to circuits with light-emitting diodes (LEDs) driven by alternating current (AC) that are color temperature controllable and/or have an increased power factor and reduced total harmonic distortion. Ex. 1001, 1:23–27, 2:45–51, 7:40–42. The disclosed lighting devices may include “any device capable of emitting light no matter the intention.” *Id.* at 7:42–44. Fig. 8, reproduced below, depicts an example LED circuit:



See *id.* at 6:59–61. Figure 8 depicts an AC power source 44, a dimmer switch 42, and LED lighting devices 10. *Id.* at 14:4–15. The dimmer switch may control the voltage applied to the LED lighting devices 10. *Id.* at 14:19–34. As the dimmer switch is turned to provide more voltage to the LED lighting devices 10, amber colored LEDs may be turned on and increase in intensity. *Id.* at 14:19–22. Further voltage increases may turn on blue LEDs. *Id.* at 14:22–26. As the dimmer switch is turned up, the color temperature decreases. *Id.* at 14:26–29. Conversely, when the dimmer switch is turned down, the light has a warmer color temperature. *Id.* at 14:29–34.

C. Challenged Claims

Petitioner challenges claims 9–17 of the '479 patent. Claim 9 is illustrative:¹

9. An LED lighting system comprising:
- [a] a first LED circuit having at least two LEDs;
 - [b] a first switch configured to be controlled by a user to control an amount of voltage or current that flows through the at least two LEDs; and
 - [c] a second switch that allows the first LED circuit to be disconnected from the AC voltage source and a second LED circuit to be connected to an AC voltage source;
 - [d] wherein the first LED circuit provides light of a different level of brightness in response to adjustment of the first switch; and
 - [e] wherein the LED lighting system is driven with the AC voltage source.

Ex. 1001, 20:14–26.

D. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 4), supported by the declaration of Dr. Dean Neikirk (Ex. 1002):

Claim(s) Challenged	35 U.S.C. §²	Reference(s)/Basis
9–11, 13, 15, 17	102	Dowling ³

¹ For convenience, we use Petitioner's element labeling. See Pet. 17–22.

² The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103 effective March 16, 2013. Because the challenged patent claims priority to an application filed before March 16, 2013, we refer to the pre-AIA version of §§ 102, 103; see also Ex. 1003, 477 (Examiner relying on pre-AIA § 102(e)); but see Pet. 4 (Petitioner arguing, without explanation, that we should apply AIA first to file provisions).

³ U.S. Publication No. 2002/0048169 A1 to Dowling ("Dowling") (Ex. 1004).

Claim(s) Challenged	35 U.S.C. § ²	Reference(s)/Basis
9–15, 17	103(a)	Dowling, Mueller, ⁴ Okuno ⁵
9–11, 15, 16	102	Ter Weeme ⁶

III. ANALYSIS

A. Discretion Under 35 U.S.C. § 314(a)

Patent Owner contends that we should exercise our discretion under 35 U.S.C. § 314(a) to deny institution of *inter partes* review. Prelim. Resp. 3–14 (citing, e.g., *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). In contrast, Petitioner argues that the *Fintiv* factors, discussed below, weigh against discretionary denial. Pet. 5–8. After Patent Owner filed its preliminary response, we authorized further briefing for the parties to address the transfer of the related litigation from Texas to Georgia. Ex. 3001; see Reply 1; Sur-reply 2–3; Ex. 1017.

In *Fintiv*, the Board articulated a list of factors that we consider in determining whether to exercise discretion to deny institution based on an advanced stage of a parallel proceeding:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;

⁴ U.S. Patent No. 6,016,038 to Mueller (“Mueller”) (Ex. 1005).

⁵ U.S. Patent No. 4,298,869 to Okuno (“Okuno”) (Ex. 1006).

⁶ WIPO Publication No. WO 2010/103480 A2 to Ter Weeme (“Ter Weeme”) (Ex. 1007).

3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Fintiv, Paper 11 at 5–6. Here, we consider these factors to determine whether we should exercise discretion to deny institution. In evaluating these factors, we take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.*

1. *Factor 1—Likelihood of Stay*

Petitioner has moved for a stay in the Northern District of Georgia and asserts that it is likely to be granted. Reply 1. Patent Owner responds that it is improper to speculate as to whether the court might grant a stay. Sur-reply 2.

We decline to speculate as to whether Petitioner's stay request will be granted. See *Fintiv*, Paper 15 at 12 (PTAB May 13, 2020) (informative); *Sand Revolution II, LLC v. Cont'l Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative). Under these circumstances, factor 1 is neutral.

2. *Factor 2—Proximity of Trial Date to Final Written Decision Due Date*

The court has not set a trial date, according to Petitioner. Reply 1. Petitioner estimates that a final written decision here would be expected no later than March 2023, about six months before any trial in the related litigation. Reply 1. Patent Owner argues that Petitioner's estimated trial

date overlooks Patent Owner’s motion for an expedited schedule. Sur-reply 2.

Although the parties speculate as to when trial may occur, no trial date has been set. This *Fintiv* factor therefore weighs against exercising our discretion to deny institution. See *Oticon Med. AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 at 23–24 (PTAB Oct. 16, 2019) (precedential as to §§ II.B, II.C) (lack of trial date weighs against exercising discretion to deny institution, even when discovery is “well underway”).

3. *Factor 3—Investment in Proceedings*

Petitioner asserts that no discovery, dispositive motions, *Markman* hearing, or final contentions have occurred or are expected to occur before we render our institution decision. Reply 1. Patent Owner calls Petitioner’s assertion speculation but does not dispute that the related litigation is in its early stages. See Sur-reply 3. Under these circumstances, we find that this factor weighs against exercising our discretion to deny institution.

4. *Factor 4—Overlap of Issues*

Petitioner stipulates that “if IPR is instituted, Petitioner[] will not pursue the same instituted grounds or grounds based on the same primary reference in the related district court litigation.” Pet. 8. Petitioner also notes that claims 10, 12, 16, and 17 are at issue here but are not asserted in the related litigation. *Id.* Patent Owner argues that Petitioner has raised two of the same references in the IPR and in the related litigation. Prelim. Resp. 9.

Petitioner’s stipulation “mitigates to some degree the concerns of duplicative efforts between the district court and the Board, as well as concerns of potentially conflicting decisions.” *Sand Revolution*, Paper 24 at 11–12. Thus, we find that this factor weighs marginally in favor of not

exercising discretion to deny institution.

5. *Factor 5—Identity of Parties*

The parties agree that the parties are the same in the IPR and in the related litigation. Pet. 8; Prelim. Resp. 11. This factor weighs in favor of exercising discretion to deny institution.

6. *Factor 6—Other Circumstances*

Under the sixth *Fintiv* factor, which takes into account any other relevant circumstances, Petitioner argues that “[t]he Challenged Claims are clearly invalid, Petitioner has not previously challenged any related patents based on the references relied upon in this petition, the 479 patent has never been challenged in a post-issuance proceeding, and the Grounds asserted herein [and the] references were not considered during prosecution of the 479 patent.” Pet. 9. Patent Owner argues that the merits are not strong. Prelim. Resp. 12.

As we explain below, we find that Petitioner has met its institution burden on each of the three grounds. Under these circumstances, we find factor 6 to be neutral.

7. *Conclusion*

On balance, after a holistic consideration of the relevant facts and the particular circumstances of this case, we conclude that the facts against exercising discretion collectively outweigh those favoring discretion. Accordingly, we do not exercise our discretion to deny institution under 35 U.S.C. § 314(a).

B. *Principles of Law*

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir.

2015). At this preliminary stage, we determine whether the information presented in the Petition shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims would have been obvious over the proposed combinations of prior art. See 35 U.S.C. § 314(a).

To show anticipation under 35 U.S.C. § 102, each and every claim element, arranged as in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359 (Fed. Cir. 2008). The prior art need not, however, use the same words as the claims. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). The anticipation inquiry takes into account the literal teachings of the prior art reference, and inferences the ordinarily skilled person would draw from it. *Eli Lilly & Co. v. Los Angeles Biomedical Res. Inst. at Harbor-UCLA Med. Ctr.*, 849 F.3d 1073, 1074–75 (Fed. Cir. 2017). Thus, “a reference can anticipate a claim even if it does not expressly spell out all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would at once envisage the claimed arrangement or combination.” *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (internal quotation marks omitted).

A claim is unpatentable as obvious if “the differences between the subject matter sought to be patented 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) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including: (1) the scope and content of

the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition’s challenges.

C. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Id.* at 13, 17. Petitioner asserts that

[a] person of ordinary skill in the art (“POSITA”) . . . would have had a bachelor’s degree in electrical engineering, or similar technical field, with two years of relevant experience in the field of design and/or development of LEDs and circuits in the context of lighting control systems. An increase in experience could compensate for less education.

Pet. 14–15 (citing Ex. 1002 ¶ 29).

Patent Owner does not address the level of skill in the art at this stage. *See generally* Prelim. Resp. We are persuaded, on the present record, that Petitioner’s proposal is consistent with the problems and solutions in the ’479 patent and prior art of record. We adopt Petitioner’s definition of the level of skill for the purposes of this Decision.

D. Claim Construction

In *inter partes* review, we construe claims using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. § 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b) (2021).

a. “a second switch”

The Petition does not propose any constructions. Pet. 15. Patent Owner, however, asserts that Petitioner applied an incomplete claim construction because Petitioner overlooked Patent Owner’s prosecution history arguments regarding the claimed “second switch” in claim 9. Prelim. Resp. 18. As the interpretation of “second switch” is central to Patent Owner’s arguments, we give a preliminary construction for this term.

Patent Owner contends, “[t]hroughout the prosecution of the ’479 patent, Patent Owner amended the claims to avoid prior art by stating that the claimed switches are operable by a user.” *Id.* Patent Owner contends that the prosecution history confirms “that the functionality of the lighting system relies on the switches being controlled by some human action, not by some processor or controller.” *Id.* Patent Owner reproduces the following passage from the prosecution history in support: “the user interface [of the prior art] only provides an input to the controller with the controller being the device that ultimately controls the switches . . . to dynamically switch the LEDs in and out of an electrical connection to each other.” *Id.* (citing Ex. 1003, 510).

Patent Owner refers to the claimed “switches” in its construction but does not clarify whether it is addressing the claimed “first switch,” “second switch,” or both. However, as Patent Owner’s later merits arguments are directed to the “second switch,” we interpret that term, and as Patent Owner raises no arguments regarding the “first switch,” we do not interpret that term. *Id.* at 19–41.

Because the construction of “second switch” is central to each ground, we found good cause for Petitioner to file a Reply and for Patent Owner to

file a Sur-reply addressing it. Ex. 3001 (Board email of December 15, 2021 authorizing Reply and Sur-reply); 37 C.F.R. § 42.108(c).⁷

In the Reply, Petitioner argues that we should reject Patent Owner’s construction because the “second switch” limitation “lacks any limitations corresponding to ‘controlled by a user,’” as recited in the “first switch” limitation. Reply 2. Petitioner also asserts that claim 9 was allowed without the purported disclaimer and that the prosecution arguments Patent Owner references applied to a different claim, claim 3, which Patent Owner later canceled. *Id.* at 2, 5. Petitioner further contends that the plain and ordinary meaning does not support Patent Owner’s interpretation because dependent claim 16 recites a sensor, implying more than just “user control.” *Id.* at 2–3. And Petitioner contends that Patent Owner’s construction excludes all disclosed embodiments because the Specification discloses adjusting LED power using “any means known in the art” with “any” type of switch known in the art. *Id.* at 3 (citing Ex. 1001, 14:15–17, 7–9). Petitioner raises additional arguments, including regarding the prosecution history of a related patent, which we need not address at this stage. *Id.* at 4–5.

Patent Owner’s Sur-reply refines its construction to include two parts—a “physical” nature of the switch and “direct control” of the switch. Sur-reply 3–5. Regarding the “physical” nature of the switch, Patent Owner argues that the patent does not disclose “‘any’ switch known in the art,” as Petitioner says, but rather that “the **dimmer** switch may be any switch

⁷ We caution the parties that any arguments not raised in the Patent Owner’s Response and Petitioner’s Reply thereto may be deemed waived, including any arguments raised solely in the Preliminary Response, its Reply, or its Sur-reply.

known in the art,” such as a “phase dimmer switch.” *Id.* (citing Ex. 1001, 14:15–17). Patent Owner points to the disclosed dimmer switch as an example of a physical switch. *Id.* Regarding Petitioner’s claim 16 sensor argument, Patent Owner asserts that claim 13 recites a transistor, so “the switches of claim 9 are not electrical switches” but “physical, interactive switches.” *Id.* Patent Owner also disputes Petitioner’s characterization of the prosecution history of a related patent, which as we noted above, we need not address. *Id.* at 3–4.

As for the “directly” controlled aspect of its construction, Patent Owner relies on the prosecution history. *Id.* at 4–5. Patent Owner acknowledges that the claim discussed in the prosecution history “was eventually dropped,” but contends that this “did not change the fact that [Patent Owner] clearly articulated that the switches of the claimed invention are not switched by controllers, but are instead directly controllable by a user.” *Id.* at 5. Further, Patent Owner contends that because like terms should be construed alike, the “second switch” should have the same construction as the “first switch” because the first switch explicitly is “configured to be controlled by a user.” *Id.*

We find Patent Owner’s proffered construction of a “physical” switch to be unnecessary. That is because both a switch that is directly user-selectable and a switch that is indirectly selected (e.g., electronically-controlled) are electronic components, both of which are physical, i.e., they exist in the physical world. Determining whether the switch is physical as opposed to say, a switch implemented in software (which no one argues the claim encompasses), does not shed light on the dispute.

What we do need to decide is whether the switch may be directly or indirectly controlled by a user. We agree with Petitioner that the “second switch” limitation does not require that the user directly control the switch. Reply 2. The plain language of the claim is illuminating. Claim 9 recites in part, “a first switch configured to be controlled by a user to control an amount of voltage or current” and “a second switch that allows the first LED circuit to be disconnected from the AC voltage source.” Patent Owner demonstrated that it knew how to claim user control by explicitly reciting that the first switch is “configured to be controlled by a user.” But Patent Owner omitted this same language from the recitation of the second switch, indicating an intentional decision to claim the second switch more broadly. In this situation, Patent Owner is mistaken that the second switch should be interpreted the same as the first switch because the claim explicitly limits each switch differently.

The Specification supports our preliminary interpretation. It broadly explains that power to the LEDs “may be adjusted and controlled using any means known in the art.” Ex. 1001, 14:7–9. The Specification then gives an example of a dimmer switch for adjusting the power. *Id.* at 14:9–11. But not only does the Specification not state that a user directly turns the dimmer switch, it does not state that a user turns the dimmer switch at all. *E.g., id.* at 14:19–20 (“As the dimmer switch *is* turned . . .” (emphasis added)). Even if one of ordinary skill in the art were to understand the dimmer switch to be directly user-actuated, it is merely one example of power adjustment “using any means known in the art.” *See id.* at 14:7–9. We thus do not see, on this

record, any definition or disavowal in the Specification that would require a user to directly select the second switch.⁸

The prosecution history—central to Patent Owner’s argument—also cuts against Patent Owner. During prosecution, Patent Owner argued that the prior art “provides an input to the controller with the controller being the device that ultimately controls the switches,” in contrast with the claimed “switch that is controlled by an end user.” Ex. 1003, 510. This argument referred to then-pending claim 3 (later canceled), which recited “a switch that is controlled by an end user.” *Id.* at 501, 573 (cancelling claim 3). This language does not appear in claim 9’s “second switch” limitation, so this prosecution history argument is unavailing. If anything, it further demonstrates that the Patent Owner knew how to claim direct user control of a switch but elected not to do so with the “second switch” of claim 9.

On this record, we preliminarily construe “a second switch that allows the first LED circuit to be disconnected from the AC voltage source and a second LED circuit to be connected to an AC voltage source” to encompass direct or indirect user control of the switch.

No other terms require construction at this stage. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed.

⁸ At the same time, we disagree with Petitioner’s argument that Patent Owner’s interpretation “excludes all disclosed embodiments.” Reply 3. The Specification appears to disclose that the dimmer switch may be controlled by a user in some circumstances. Although the Specification refers to turning the dimmer switch in the passive voice, the verb “turn” as applied to a dimmer switch suggests, among other things, a user turning the switch by hand. And the disclosure of the power being adjusted and controlled “using any means known in the art” cuts both ways—implying that both direct and indirect control are possible. *See* Ex. 1001, 14:7–9.

Cir. 2017) (“[W]e need only construe terms that are in controversy, and only to the extent necessary to resolve the controversy.”) (internal quotation omitted).

E. Asserted Anticipation by Dowling (Ground 1)

Petitioner contends that claims 9–11, 13, 15, and 17 are anticipated by Dowling. Pet. 15–24. Patent Owner disputes that Dowling discloses all the claim limitations. Prelim. Resp. 19–25. For the reasons that follow, Petitioner has established a reasonable likelihood of prevailing on this ground.

1. Overview of Dowling

Dowling describes a system for using high-brightness, processor-controlled LEDs in combination with diffuse materials to produce color-changing effects. Ex. 1004, code (57). Figure 1, below, depicts an example device having LEDs:

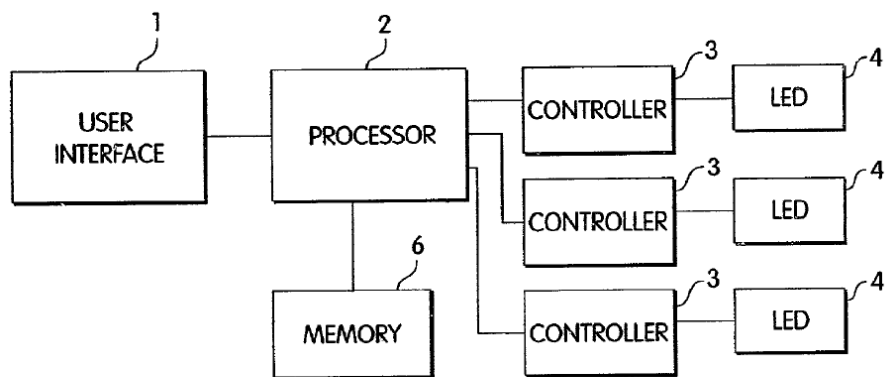


Fig. 1

Id. ¶ 38. The device includes user interface 1 and processor 2 for executing a program stored in memory 6 to generate control signals. *Id.* The control signals may be converted by controllers 3 into a form suitable for driving LEDs 4. *Id.*

Figure 8, below, depicts an example light bulb described in Dowling:

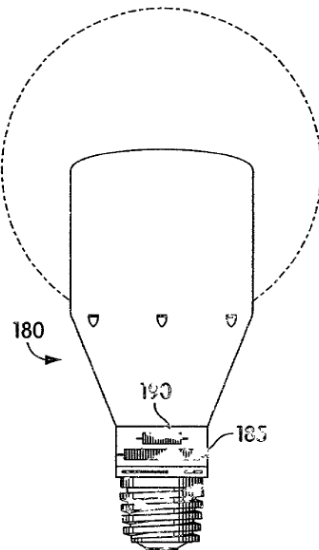


Fig. 8

Id. ¶ 62. The lightbulb includes thumbwheel 185 and two-way switch 190.

Id. Switch 190 permits selection of available modes, and thumbwheel 185 may control brightness. *Id.*

2. Independent Claim 9

Petitioner contends that Dowling discloses the preamble and all limitations of claim 9. Pet. 16–22. Patent Owner contends that Dowling fails to disclose the claimed second switch. Prelim. Resp. 19–25. On this record, we determine that Petitioner has shown a reasonable likelihood that Dowling anticipates claim 9.

a. An LED lighting system comprising:

Petitioner argues that Dowling discloses the preamble because “Dowling discloses an LED lighting system.” Pet. 16 (citing, e.g., Ex. 1004 ¶¶ 1–4, 38–55, 61–66; Ex. 1002 ¶ 31). At this stage, Patent Owner does not dispute that Dowling discloses the preamble. *See generally* Prelim. Resp.

On this record, we agree that Dowling discloses the preamble, whether or not it is limiting.

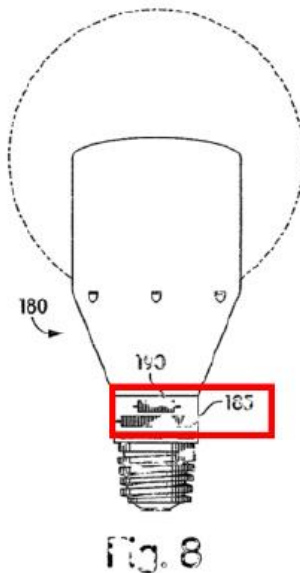
b. [a] a first LED circuit having at least two LEDs

For this limitation, Petitioner relies on Dowling's disclosure of a lighting system that can "drive several LEDs 4 in series," which Petitioner argues "constitute an LED circuit 4 having at least two LEDs." Pet. 17 (citing Ex. 1004, Fig. 1, ¶ 40; Ex. 1002 ¶ 34). At this stage, Patent Owner does not dispute that Dowling discloses this limitation.

On this record, we agree that Dowling discloses this limitation.

c. [b] a first switch configured to be controlled by a user to control an amount of voltage or current that flows through the at least two LEDs

Petitioner relies on Dowling's description of Figure 8 for this element. *Id.* at 18–20. Reproduced below is Figure 8, annotated by Petitioner, showing a light bulb:



Id. at 18. Figure 8 depicts thumbwheel 185, which Petitioner asserts is a dimmer switch. *Id.* (citing Ex. 1004 ¶ 62). Petitioner further contends that

thumbwheel 185 is user interface 1 (from Fig. 1, reproduced above), which sends input to processor 2, which in turn directs controller 3, which “regulates the current, voltage and/or power through the LED, in response to signals received from the processor 2.” *Id.* at 18–19 (citing Ex. 1004 ¶¶ 38–40, 54, 62). Thus, Petitioner contends, “Dowling discloses to a POSITA that the user can control an amount of voltage or current that flows through all of the LEDs in light bulb 180, which includes the at least two red LEDs.” *Id.* (citing Ex. 1002 ¶ 36).

At this stage, Patent Owner does not dispute this limitation. On this record, we agree that Dowling discloses this limitation.

d. [c] a second switch that allows the first LED circuit to be disconnected from the AC voltage source and a second LED circuit to be connected to an AC voltage source

According to Petitioner, Dowling discloses this limitation by disclosing mode switch 190 (in Figure 8, reproduced above). *Id.* at 20 (citing Ex. 1004, Fig. 8, ¶ 62). In one mode, Petitioner argues, the LED lighting system can display static red light and then static blue light based on the mode switch. *Id.* at 21. In another mode, the LED lighting system can alternately strobe red and blue light. *Id.* (citing Ex. 1004 ¶ 47). Petitioner contends, “Dowling discloses that red light is generated by connecting red LED circuit 4 to the AC voltage source, and blue light is generated by connecting blue LED circuit 4 to the AC voltage source.” *Id.* (citing Ex. 1004 ¶¶ 38–43, 63). Therefore, Petitioner contends, “the mode switch 190 allows the first LED circuit (*e.g.*, red LED circuit) to be disconnected from the AC voltage source and a second LED circuit (*e.g.*, blue LED circuit) to be connected to an AC voltage source.” *Id.* (citing Ex. 1002

¶ 39). Petitioner similarly relies on Dowling’s three-way color control switch, which “disconnect[s] one color LED circuit and connect[s] another color LED circuit,” to teach this limitation. *Id.* at 22 (citing Ex. 1004 ¶ 65).

After considering Patent Owner’s arguments, which we discuss below, we agree with Petitioner that Dowling discloses this limitation.

Patent Owner first argues that Figure 1 of Dowling, which Petitioner cites to, “is void of any reference to a switch connected to more than one LED circuit.” Prelim. Resp. 21. Although Petitioner cites Figure 1, Petitioner does not discuss Figure 1 in detail and instead focuses its arguments on other teachings in Dowling. Pet. 20–21. So Patent Owner’s argument does not squarely address Petitioner’s argument. Not only that, but it is not commensurate with the claim scope because claim 9 does not recite “a switch connected to more than one LED circuit,” but rather, “a second switch that allows the first LED circuit to be disconnected from the AC voltage source and a second LED circuit to be connected to an AC voltage source.”

Patent Owner also disagrees with Petitioner’s characterization of Dowling as disclosing “red light is generated by connecting red LED circuit 4 to the AC voltage source, and blue light is generated by connecting blue LED circuit 4 to the AC voltage source.” Prelim. Resp. 22 (quoting Pet. 21). Instead, Patent Owner contends, Dowling’s controllers 3 drive the LEDs 4 to generate light, which is “entirely different” from “connecting red LED circuit 4 to the AC voltage source, and . . . connecting blue LED circuit 4 to the AC voltage source.” *Id.* at 23. Patent Owner contends that even if Dowling has a “second switch,” that switch is processor-controlled, which

“functionality is exactly what Patent Owner disclaimed for the second switch during . . . prosecution.” *Id.* (citing claim construction discussion).

We disagree with Patent Owner because, on this record, Patent Owner’s argument rests on a claim construction of the “second switch” limitation that we have not adopted. That limitation does not require direct user control, as Patent Owner urges. Thus, on this record, Petitioner persuades us that Dowling’s processor-controlled switching discloses the disputed limitation.

Patent Owner also attacks Petitioner’s reliance on Dowling’s three-way switch. *Id.* at 23–24. But this argument is similar to its previous argument—Patent Owner contends that Dowling uses a look-up table, program, or other system controls to control the LEDs via control signals, not a direct user-controlled switch. *Id.* at 24 (citing Ex. 1004 ¶ 65). This argument also relies on the claim construction that we have rejected at this stage. Lastly, Patent Owner contends that Petitioner’s statement that this three-way switch “could” be used for color control does not “demonstrate that it is in fact used for color control.” *Id.* We disagree—Patent Owner is splitting hairs. Dowling says that the switch “could be used for . . . color control,” which is sufficient at this stage to show that Dowling teaches color control using the switch.⁹ *See* Ex. 1004 ¶ 65.

On this record, we agree that Dowling discloses this limitation.

⁹ Here and elsewhere, Patent Owner also argues that we should give Dr. Neikirk’s declaration minimal weight because it is a near carbon copy of the Petition. *E.g.*, Prelim. Resp. 24. We do not view Dr. Neikirk’s testimony as defective. While it is often helpful for an expert declaration to further explain or support a party’s assertions, we find no requirement that it do so.

- e. [d] wherein the first LED circuit provides light of a different level of brightness in response to adjustment of the first switch*

Petitioner contends that “Dowling discloses wherein the first LED circuit (e.g., red LED circuit) provides light of a different level of brightness in response to adjustment of the first switch (dimmer switch, either thumbwheel 185 or conventional dimmer).” Pet. 22 (citing Ex. 1002 ¶ 41). At this stage, Patent Owner does not dispute that this limitation is disclosed by Dowling.

On this record, we agree that Dowling discloses this limitation.

- f. [e] wherein the LED lighting system is driven with the AC voltage source.*

For this limitation, Petitioner argues that “Dowling discloses wherein the LED lighting system is driven with the AC voltage source (e.g., 110 VAC at 60Hz).” *Id.* (citing Ex. 1004, Figs. 1, 8, ¶¶ 34–43, 63–66; Ex. 1002 ¶ 42). At this stage, Patent Owner does not dispute that this limitation is disclosed by Dowling.

On this record, we agree that Dowling discloses this limitation.

- g. Summary as to Claim 9*

Based on the preliminary record before us, we find that Petitioner has shown a reasonable likelihood that Dowling anticipates claim 9.

3. Dependent Claims 10, 11, 13, 15, and 17

Petitioner contends that dependent claims 10, 11, 13, 15, and 17 are anticipated by Dowling. Pet. 22–24. Petitioner provides a detailed analysis explaining where Dowling discloses the limitations in these dependent claims, which Patent Owner does not contest at this preliminary stage. *Id.*; *see generally* Prelim. Resp. Based on our review of the current record, we

determine that Petitioner has demonstrated a reasonable likelihood that Dowling anticipates claims 10, 11, 13, 15, and 17.

F. Asserted Obviousness over Dowling, Mueller, and Okuno (Ground 2)

Petitioner contends that claims 9–15 and 17 would have been obvious over Dowling, Mueller, and Okuno. Pet. 24–35. Patent Owner raises several arguments against the proposed combination. Prelim. Resp. 25–38. For the reasons that follow, we determine that Petitioner has established a reasonable likelihood of prevailing on this ground.

1. Overview of Mueller

Mueller describes LED systems capable of generating light, such as for illumination or display purposes. Ex. 1005, code (57). The LEDs may be controlled by a processor to alter the brightness or color of the generated light by using pulse-width modulated signals. *Id.* The resulting illumination may be controlled by a computer program to provide complex, predesigned patterns of light. *Id.* The LED lighting system can include circuits containing multiple red LEDs, blue LEDs, and green LEDs. *Id.* at 3:15–3:65.

2. Overview of Okuno

Okuno describes LEDs connected in series to elevate a working voltage, which can be used in a traffic signal or road sign. Ex. 1006, code (57), 3:35–37. A number of series-connected LEDs are also connected in parallel to maintain a display even upon a disconnection accident. *Id.* at code (57). Thus, the LEDs provide a failure-safe colored light display at a low power consumption. *Id.*

3. *Independent Claim 9*

Petitioner contends that the combination of Dowling, Mueller, and Okuno teaches or suggests the preamble and all limitations of claim 9. Pet. 31–32. For the preamble and each of the claim limitations, Petitioner states that Dowling discloses it for the same reasons stated in ground 1. *Id.* For limitations [a] and [b], Petitioner also contends in the alternative that it would have been obvious to implement each of the red and blue LEDs in Dowling using a plurality of LEDs as disclosed in Mueller and Okuno. *Id.* (citing Ex. 1002 ¶¶ 68, 70).

Petitioner contends that it would have been obvious to combine Dowling, Mueller, and Okuno because they are all analogous art, directed to the field of LED lighting systems. *Id.* at 26. In addition, Petitioner notes that Dowling incorporates Mueller by reference, and Mueller incorporates Okuno by reference. *Id.* Dowling and Mueller also share two named inventors in common (Mueller and Lys), according to Petitioner. *Id.* Thus, Petitioner contends that “[a] POSITA would have been motivated to implement Dowling’s LED circuits using at least two LEDs based on the express teachings in the references.” *Id.* at 27. Petitioner further contends:

Implementing the LED circuits with at least two LEDs was a known technique that would have produced predictable results. The concepts taught at length by Okuno (filed in 1979) are fundamental electronic concepts in the field of LED lighting systems and would have been known to a POSITA by the date of invention. It would have been well within the knowledge and skill of a POSITA to implement the LED circuits in that manner, and a[] POSITA would have had a reasonable expectation of success in doing so.

Id. at 27–28 (citing Ex. 1002 ¶ 58).

After considering Patent Owner’s arguments, which we discuss below, we agree with Petitioner that Dowling alone or the combination of Dowling, Mueller, and Okuno teaches or suggests the preamble and all the claim limitations.

Patent Owner first argues that Okuno is nonanalogous art. Prelim. Resp. 25–28. In brief, Patent Owner contends that Okuno’s traffic lights (1) do not illuminate an area, (2) are covered with a lens that limits the direction of light to a single direction, (3) signal a message to a driver, which is a different function from the ’479 patent’s lighting systems, which are used to provide illumination, and (4) have hundreds of on/off cycles throughout a day, unlike the ’479 patent’s lighting systems designed to stay active for long periods of time. *Id.* None of these arguments are persuasive because the claims do not refer to illumination, a lack of a lens, the length of time the LEDs are emitting, or the purpose of that lighting. And the Specification states, “a lighting device may include any device capable of emitting light *no matter the intention.*” Ex. 1001, 7:43–44 (emphasis added).

Patent Owner also ignores part of the analogous art test, articulated as follows:

References within the statutory terms of 35 U.S.C. § 102 qualify as prior art for an obviousness determination only when analogous to the claimed invention. Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (internal citation omitted). At most, Patent Owner argues that Okuno is not from the same field of

endeavor as the '479 patent but does not address whether Okuno is still reasonably pertinent to the particular problem with which the inventor is involved. At this stage, we find Okuno reasonably pertinent because it describes LED lighting devices. *Compare* Ex. 1006, code (57), *with* Ex. 1001, 7:43–44. Thus, Patent Owner's argument is unavailing.

Patent Owner next argues that the Dowling-Mueller-Okuno combination fails to disclose the “second switch” limitation. Prelim. Resp. 28–31. But as Patent Owner acknowledges, Petitioner relies on Dowling for this limitation and the same arguments it made for ground 1. *Id.* at 28. We reject Patent Owner's second switch arguments at this stage for the same reasons discussed above.

Patent Owner also argues that Petitioner does not acknowledge which aspects of the claims are absent from Dowling and, therefore, does not adequately address the second *Graham* factor. *Id.* at 31–32, 36–38. We disagree. Although the Petition does not state expressly when it is addressing the second *Graham* factor, Petitioner does address it. *See, e.g.*, Pet. 31 (“In the alternative, it would have been obvious to implement each of the red and blue LED circuits disclosed in Dowling (*id.*) using a plurality of LEDs as disclosed in Mueller and Okuno.”), 32 (similar). Patent Owner's related argument that the Petition fails to show with particularity why the claims are allegedly unpatentable is therefore also unavailing. Prelim. Resp. 38.

Lastly, Patent Owner challenges Petitioner's motivation to combine. *Id.* at 33–36. Patent Owner charges Petitioner with making conclusory statements, insufficiently basing the proposed combination on the references being in the same field, not specifying a particular *KSR* rationale for

combining, and not explaining how the level of ordinary skill would affect the obviousness analysis. *Id.* Patent Owner similarly charges Petitioner’s declarant with being conclusory. *Id.* at 35–36.

At this stage, Petitioner has the better argument. We agree with Petitioner’s stated rationales and do not view them or its expert’s declaration as conclusory. Although we know of no requirement to quote *KSR* when articulating a rationale to combine, *KSR* undergirds Petitioner’s argument. Petitioner argues, and we agree, that “[i]mplementing the LED circuits with at least two LEDs was a known technique that would have produced predictable results.” Pet. 27. By referring to predictability, Petitioner alludes to *KSR*’s injunction that “a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.” *KSR*, 550 U.S. at 417. We further agree with Petitioner that “[a] POSITA would have been motivated to implement Dowling’s LED circuits using at least two LEDs based on the express teachings in the references.” Pet. 27.

Patent Owner does not point to evidence of record that the combination would be “uniquely challenging or difficult for one of ordinary skill in the art” or “represent[] an unobvious step over the prior art.” *Leapfrog Enters. Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418–19). Nor has Patent Owner provided objective evidence of secondary considerations, at this stage of the proceeding, which our reviewing court states “operate[] as a beneficial check on hindsight.” *Cheese Sys., Inc. v. Tetra Pak Cheese & Powder Sys.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013).

We are persuaded at this stage that the skilled artisan would “be able to fit the teachings of [Dowling, Mueller, and Okuno] together like pieces of a puzzle” because the skilled artisan is “a person of ordinary creativity, not an automaton.” *KSR*, 550 U.S. at 420–21. The claimed subject matter exemplifies the principle that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416.

Based on the preliminary record before us, we find that Petitioner has shown a reasonable likelihood that the combination of Dowling, Mueller, and Okuno renders claim 9 obvious.

4. Dependent Claims 10–15 and 17

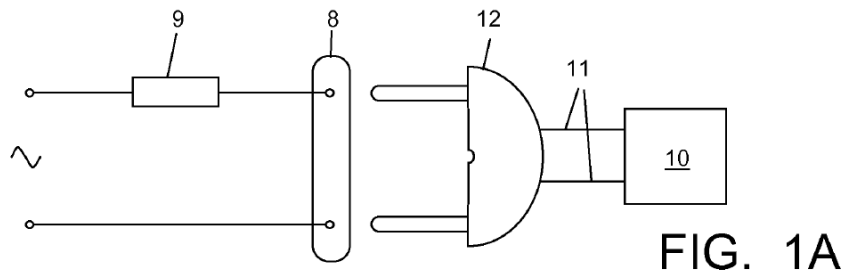
Petitioner contends that dependent claims 10–15 and 17 are unpatentable as obvious over Dowling, Mueller, and Okuno. Pet. 32–35. Patent Owner does not dispute Petitioner’s arguments at this stage for these dependent claims. *See generally* Prelim. Resp. Based on our review of the record, at this stage Petitioner persuades us that there is a reasonable likelihood that the combination of Dowling, Mueller, and Okuno renders obvious claims 10–15 and 17.

G. Asserted Anticipation by Ter Weeme (Ground 3)

Petitioner contends that claims 9–11 and 15–16 are anticipated by Ter Weeme. Pet. 35–44. Patent Owner disputes that Ter Weeme discloses the claimed “second switch.” Prelim. Resp. 38–41. For the reasons that follow, Petitioner has established a reasonable likelihood of prevailing on this ground.

1. Overview of Ter Weeme

Ter Weeme discloses using sets of LEDs to resemble incandescent lamp behavior when dimmed. Ex. 1007, code (57). Two different sets of LEDs produce light at different color temperatures. *Id.* The two sets are connected in series or parallel. *Id.* Figure 1A of Ter Weeme, below, depicts example lighting device 10:



Id. at 5:31. Lighting device 10 has a power cord 11 and plug 12 connected to a wall socket 8, which receives dimmed mains voltage from a dimmer 9 connected to mains. *Id.* at 5:31–33.

2. Independent Claim 9

a. An LED lighting system comprising:

The preamble of claim 9 recites “An LED lighting device comprising.” Petitioner argues that Ter Weeme discloses an LED lighting system. Pet. 36 (citing, e.g., Ex. 1007, Title, Abstract, 1:9–7:10, 10:10–27; Ex. 1002 ¶ 90). At this stage, Patent Owner does not dispute that Ter Weeme discloses the preamble. *See generally* Prelim. Resp. On this record, we agree that Ter Weeme discloses the preamble, whether or not it is limiting.

b. [a] a first LED circuit having at least two LEDs

For this limitation, Petitioner argues that Ter Weeme discloses a first LED circuit (e.g., white LED string 113) having at least two LEDs (e.g., at

least two white LEDs). Pet. 37 (citing, e.g., Ex. 1007, 5:30–8:25, 10:10–27; Ex. 1002 ¶ 92). At this stage, Patent Owner does not dispute that Ter Weeme discloses this limitation. *See generally* Prelim. Resp.

On this record, we agree with Petitioner that Ter Weeme discloses this limitation.

- c. [b] a first switch configured to be controlled by a user to control an amount of voltage or current that flows through the at least two LEDs*

For this limitation, Petitioner points to Ter Weeme’s dimmer 9 as the first switch. Pet. 37 (citing, e.g., Ex. 1007, 5:30–8:25, 10:10–27, 16:29–17:12; Ex. 1002 ¶ 93). Petitioner argues that dimmer 9 is connected to mains power, such that power plug and driver 101 of lighting device 10 receives a dimmed mains voltage. *Id.* (citing Ex. 1007, Fig. 1A, 5:31–34). According to Petitioner, driver 101 converts the dimmed mains voltage into a dimmed LED output current. *Id.* at 38 (citing Ex. 1007, Fig. 1B, 6:3–14). Thus, Petitioner concludes, the dimmer switch controls whether all of the current flows through the LEDs or whether none flows through those LEDs. *Id.* at 38 (citing Ex. 1002 ¶ 95).

At this stage, Patent Owner does not dispute that Ter Weeme discloses this limitation. *See generally* Prelim. Resp. On this record, we agree with Petitioner that Ter Weeme discloses this limitation.

- d. [c] a second switch that allows the first LED circuit to be disconnected from the AC voltage source and a second LED circuit to be connected to an AC voltage source*

Petitioner argues that “Ter Weeme discloses a second switch (division circuit 515 with switch 501) that allows a first LED circuit (white LED

string 113) to be disconnected from an AC voltage source” and which also allows “a second LED circuit (amber LED string 114) to connect to the AC voltage source.” Pet. 39 (citing, e.g., Ex. 1007, 6:15–8:25, 10:10–27; Ex. 1002 ¶ 97). Petitioner relies primarily on annotated Figure 4A, below, which depicts a division circuit 515:

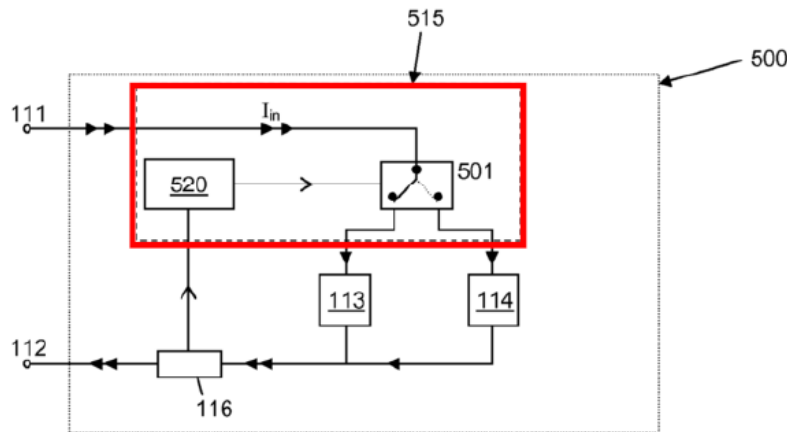


FIG. 4A

Id. at 40 (citing Ex. 1007, 5:10–11). The division circuit 515 is outlined in red by Petitioner and includes switch 501. *Id.* Blocks 113 and 114 each represent an LED string (white 113, amber 114). *Id.* (citing, e.g., Ex. 1007, 10:10–27). Petitioner asserts, “[d]uring time period t1, the white LED string 113 is connected and the amber LED string 114 is disconnected, and during time period t2 the white LED string 113 is disconnected and the amber LED string 114 is connected.” *Id.*

After considering Patent Owner’s arguments, which we discuss below, we agree with Petitioner at this stage that Ter Weeme discloses this limitation.

Patent Owner contends that Ter Weeme does not describe the division circuit as a switch. Prelim. Resp. 39–40. With respect to Figure 4A, Patent Owner contends that the switch 501 is different from the claimed second

switch, which “requires human action to connect or disconnect the first and second LED circuits.” *Id.* at 40. In contrast, Patent Owner argues, “Ter Weeme requires the control circuit 520 to connect and disconnect the LED strings, not human action.” *Id.*

Petitioner has the better argument at this stage. Ter Weeme’s division circuit includes a switch 501, which Patent Owner concedes “switches between two LED circuits 113, 114 ‘at a relatively high frequency.’” *Id.* Patent Owner’s argument rests on a claim construction that we have not adopted at this stage. The claimed “second switch” does not require direct human control, as we noted above. Thus, we find Patent Owner’s argument unavailing.

On this record, we agree with Petitioner that Ter Weeme discloses this limitation.

e. [d] wherein the first LED circuit provides light of a different level of brightness in response to adjustment of the first switch

As noted above for limitation 9[b], Petitioner argues that Ter Weeme includes a dimmer switch, which adjusts the amount of current flowing through Ter Weeme’s LED string. Pet. 41. Petitioner contends, “Ter Weeme discloses to a POSITA that the reduction in current causes the LED circuit to provide light of a lower level of brightness by disclosing it results in dimming, a reduced luminous flux, and a reduced ‘average light output.’” *Id.* (citing Ex. 1007, 2:5–18, 3:9–4:22, 10:23–27). And Petitioner contends that one of ordinary skill would have understood that dimming means providing a different level of brightness. *Id.* (citing Ex. 1002 ¶ 99).

At this stage, Patent Owner does not dispute that Ter Weeme discloses this limitation. *See generally* Prelim. Resp. On this record, we agree with Petitioner that Ter Weeme discloses this limitation.

f. [e] wherein the LED lighting system is driven with the AC voltage source.

For this limitation, Petitioner contends that “Ter Weeme discloses wherein the LED lighting system is driven with the AC voltage source (mains M, *e.g.*, 230 VAC at 50 Hz).” Pet. 42 (citing Ex. 1007, 5:30–6:2; Ex. 1002 ¶ 100). At this stage, Patent Owner does not dispute that Ter Weeme discloses this limitation. *See generally* Prelim. Resp.

On this record, we agree with Petitioner that Ter Weeme discloses this limitation.

g. Summary as to Claim 9

Based on the preliminary record before us, we find that Petitioner has shown a reasonable likelihood that Ter Weeme anticipates claim 9.

3. Dependent Claims 10, 11, 15, and 16

Petitioner contends that dependent claims 10, 11, 15, and 16 are anticipated by Ter Weeme. Pet. 32–35. Patent Owner does not dispute Petitioner’s arguments at this stage for these dependent claims. *See generally* Prelim. Resp. Based on our review of the record, at this stage Petitioner persuades us that there is a reasonable likelihood Ter Weeme anticipates claims 10, 11, 15, and 16.

IV. CONCLUSION

At this stage of the proceeding, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on its challenge to all

challenged claims. At this preliminary stage, we have not made a final determination as to the patentability of the challenged claims or any underlying factual and legal issues.

V. ORDER

It is, therefore,

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 9–17 of the '479 patent is instituted with respect to all grounds of unpatentability set forth in the Petition; and

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

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Patent 10,349,479 B2

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