

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

U.S. Patent No. 11,297,705

Filing Date: February 22, 2021

Issue Date: April 5, 2022

Title: Multi-Voltage and Multi-Brightness LED Lighting Devices and Methods of
Using Same

PGR2023-00016

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 11,297,705 to Miskin, et al. (“ 705 patent ”)
1002	Declaration of Dr. Dean Neikirk
1003	File History of U.S. Pat. No. 11,297,705 to Miskin, et al.
1004	U.S. Patent Publication No. 2002/0070914 (“ Bruning ”)
1005	PGR2022-00009, Paper 5 (Patent Owner’s Preliminary Response) (February 28, 2022)
1006	U.S. Patent No. 10,932,341 to Miskin et al. (“ 341 patent ”)
1007	PGR2022-00009, Paper 10 (Decision Granting Institution of Post-Grant Review) (May 25, 2022)
1008	WO2005/084080
1009	U.S. Pat. App. Pub. No. 2017/0354005 (Ser. No. 15/685,429)
1010	U.S. Pat. App. Pub. No. 2014/0153232 (Ser. No. 14/172,644)
1011	U.S. Pat. App. Pub. No. 2018/0035510 (“ Doheny ”)
1012	U.S. Pat. App. Pub. No. 2018/0206305 (“ Van Winkle ”)
1013	U.S. Pat. App. Pub. No. 2002/0163529 (“ Evanicky ”)
1014	U.S. Provisional App. No. 61/217,215
1015	U.S. Provisional App. No. 60/997,771
1016	US 2012/0069560 (publication of 13/322,796)
1017	US 2009/017433 (publication of 12/287,267)
1018	WO 2010/138211 (publication of PCT/US2010/001597)
1019	US 2019/0182919 (publication of 16/274,164)
1020	U.S. Patent No. 10,537,001 to Miskin et al. (“ 001 patent ”)
1021	Petitioner’s Opening Claim Construction Brief in <i>Lynk Labs, Inc. v. The Home Depot USA, Inc. et al.</i> , 1:21-cv-5021-VMC (N.D. Ga.) (Dkt. No. 36) (Oct. 6, 2021)

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1022	Patent Owner’s Responsive Claim Construction Brief in <i>Lynk Labs, Inc. v. The Home Depot USA, Inc. et al.</i> , 1:21-cv-5021-VMC (N.D. Ga.) (Dkt. No. 40) (Oct. 27, 2021)
1023	001 Patent Prosecution History Patent Owner’s Amendments and Arguments/Remarks on June 13, 2019
1024	479 Patent Prosecution History Examiner’s Non-Final Rejection on October 2, 2018
1025	U.S. Patent Publication No. 2012/0081009 (“ Shteynberg ”)
1026	783 Patent Prosecution History Patent Owner’s Amendments and Arguments/Remarks on August 22, 2019
1027	EP0515664B1 to Krakower (“ Krakower ”)
1028	Excerpt from “IEEE 100 The Authoritative Dictionary of IEEE Standards Terms,” Seventh Ed. (2000) with definition of “driver”
1029	783 Patent Prosecution History Patent Owner’s Amendments and Arguments/Remarks on June 16, 2020
1030	PGR2022-00009, Paper 20 (Patent Owner’s Response) (August 17, 2022)
1031	U.S. Pat. App. Pub. No. 2006/0022999 (“ Lee ”)
1032	PGR2022-00009, Paper 38 (Final Written Decision Determining All Challenged Claims Unpatentable) (May 22, 2023)
1033	Declaration of Ms. Mary Dahl in Support of Motion for Pro Hac Vice Admission
1034	Declaration of Dr. Dean Neikirk
1035	IPR2021-01541, Paper 39 (Final Written Decision Determining All Challenged Claims Unpatentable) (April 26, 2023)

Exhibit No.	Description
1036	Deposition Transcript of Dr. Eric Bretschneider in PGR2022-00009 (October 20, 2022) (previously marked Exhibit 1035 in PGR2022-00009)
1037	U.S. Patent No. 7,748,877 to Colby (“ Colby ”)
1038	Deposition Transcript of Dr. Alfred Ducharme in PGR2022-00016 (January 16, 2024)
1039	Printout from https://www.merriam-webster.com/dictionary/inverter (Last accessed January 22, 2024)
1040	Printout from https://www.britannica.com/technology/transformer-electronics (Last accessed January 22, 2024)
1041	Printout from https://www.electronicstutorials.ws/accircuits/rms-voltage.html (Last accessed January 22, 2024)

I. THE BOARD SHOULD RULE CONSISTENTLY WITH ITS DECISION IN PGR2022-00009

PO largely recycles arguments the Board previously rejected in its Final Written Decision in PGR2022-00009, which involved the '341 patent, the parent of the challenged '705 patent. EX1032. PO has not provided a persuasive reason for the Board to contradict or otherwise depart from its prior rulings related to the common issues of 1) the disclosures of the common specification and priority applications, 2) the correct construction of “forward voltage,” 3) invalidity under Section 112, or 4) the common PGR-eligibility issues.

II. THE DISCLOSURES OF THE '705 PATENT AND PRIORITY APPLICATIONS

Most of PO's arguments are premised on an improper mixing of the distinctly disclosed embodiments. Pet., 6-18 (patent), 19-23 (priority applications), 28-30 (patent). The '705 patent fails to disclose that its embodiments can be combined into the claimed combinations. Pet., 9; *see also* POR, 53 (creating undisclosed embodiment). Indeed, even when “each element may be *individually* described in the specification, ... the lack of adequate description of their *combination*” renders those claimed combinations invalid under Section 112. *Hyatt v. Dudas*, 492 F.3d 1365, 1371 (Fed. Cir. 2007); *see also Bos. Sci. Corp. v. Cook Med. LLC*, No. 117CV03448JRSMJD, 2023 WL 1476573, at *4 (S.D. Ind. Feb. 2,

2023) (“patentee cannot use ‘an amalgam of disclosures plucked selectively’ from the specification to meet the written description requirement”); Pet., 12-13.

III. CLAIM CONSTRUCTION

A. “Forward Voltage”

The Board should maintain its preliminary construction of “forward voltage” (D.I., 53-56), which is based on the express definition in the grandparent patent’s prosecution history and is consistent with the “single voltage” LED circuits disclosed in the specification and the Board’s prior construction of the term in the parent patent in PGR2022-00009. Pet., 24-26; EX1032, 16-26.

1. PO’s Proposed Construction

PO repeats the same arguments for its same incorrect proposed construction (“the operating voltage for the claimed LED circuit”) that the Board rejected in PGR2022-00009. POR, 8-26; EX1032, 18-21. PO first argues that “forward voltage” should be limited to “voltage in a range that will cause the LED circuit to ‘operat[e]’—that is, illuminate in the manner intended.” POR, 9. But the fact that claim 3 recites “first operating LED circuit” does not mean “operating” should be read into the term “forward voltage.” That is particularly true where “forward voltage” in the claims also pertains in the alternative to the “additional” LED circuit, which lacks the “operating” qualifier. EX1001, 12:44-47, 13:22-25, 14:25-28.

Additionally, PO mischaracterizes the specification (POR, 9-11), which discloses only single-voltage LED circuits. As the Board correctly observed in the D.I. and in PGR2022-00009, the specification “repeatedly uses the term ‘forward voltage’ in connection with single-voltage series LED circuits,” further confirming “there is only one ‘forward voltage’ for an *individual* circuit (i.e., a single-voltage series LED circuit)” in contrast to the differences in forward voltage “based on the connection type (i.e., parallel or series) between at least two circuits.” D.I., 55-56; EX1032, 26; Pet., 25.

PO’s discussion of the extrinsic record (POR, 15-19) is also unavailing, as discussed below.

2. Petitioner’s Proposed Construction

PO’s critiques of Petitioner’s construction (POR, 11-25) are meritless. PO’s assertion that the claims require multiple forward voltages (POR, 12) cannot overcome the controlling lexicography, disclaimer, and remainder of the specification. *Sinorgchem Co., Shandong v. Int’l Trade Comm’n*, 511 F.3d 1132, 1134 (Fed. Cir. 2007) (“[P]atentee must be bound by the express definition.”). Nor does the impossibility of those claims lend support to a particular alternative construction. *Chef Am., Inc. v. Lamb–Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004).

PO's arguments related to the specification (POR, 12-14) mischaracterize the disclosed embodiments. The references to "multi-voltage" are explicitly defined to refer to the parallel/serial embodiment which configuration is determined during manufacture. EX1001, 3:15-20; *see also* EX1038, 57:20-58:2 (no opinion as to whether there is any disclosure in the '705 patent of circuits being wired in series, parallel, or anti-parallel configurations and then subsequently changed into a different kind of configuration), 58:4-11 (admitting that once LED packager wires the circuits into series or parallel, the user "wouldn't be able to change" that hardwired connection). The parallel/serial embodiments lack the claimed switch, and even if it had a switch, changing the parallel/serial configuration does not change the voltage applied to either constituent LED circuit. Pet. 7-8, EX1002, ¶23.

PO's attempt to modify the disclosed two-single-voltage LED circuit embodiment into a different embodiment with a single, multi-voltage LED circuit (POR, 14) is improper because the claims require a device with at least two LED circuits and, in any event, there is still no switch in PO's modified embodiment.

PO's resort to the extrinsic evidence (POR, 15-19) cannot overcome the intrinsic record. *See Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1380 (Fed. Cir. 2016); EX1032, 23.

Moreover, PO's extrinsic evidence actually supports Petitioner's construction. For example, Exhibit 2051 defines "forward voltage" as the "minimum" voltage. EX2051, 5 ("Forward Voltage ... This takes a certain minimum voltage to accomplish, called the *forward voltage*").

PO relies on its expert's testimony and Exhibits 2036-2037, 2042, and 2051, which show relatively minor variations in purported "forward voltages" based on manufacturing tolerances and operating conditions. POR, 15-18. But Dr. Ducharme admitted there is a single forward voltage for a given current. See EX1038, 63:7-18, 66:11-19 ("single forward voltage" for a given current), 67:16-68:2 ("single" forward voltage). And PO's expert in PGR2022-00009, Dr. Bretschneider, also admitted the same. EX1036, 61:1-9, 61:21-62:3. PO's experts' testimony is consistent with Dr. Neikirk's testimony that each die has a single forward voltage. EX2047, 80:25-81:8, 81:22-82:4, 82:18-83:7, 84:8-16. At bottom, the claims and specification are directed to voltage-driven LEDs and so it is entirely consistent with these references to refer to the forward voltage according to the minimum as defined in the intrinsic record.¹ EX1034, ¶¶13-17, 19.

¹ Indeed, PO's other extrinsic evidence illustrates the distinction between "supply voltage" and "forward voltage." See EX1038, 71:12-72:9, 73:17-74:9 (admitting they do not refer to the same thing); EX2052 (distinguishing V_s "voltage at source"

Moreover, these minor variations are inconsistent with PO's theories regarding the specifications' disclosure of multiple forward voltages. PO's (incorrect) theory is that the switch could change the forward voltage by halving or doubling it, by changing the parallel/serial configuration of the LED circuits. But both Drs. Ducharme and Bretschneider admitted that halving or doubling the voltage would be too big a change. For example, regarding EX2036, a particular Samsung LED device would have a forward operating voltage somewhere between 5.9V and 6.1V. EX1036, 62:9-17; EX1038, 68:17-25. PO's experts admitted that for such a device, neither 3V nor 12V would be a forward voltage because the LED would not operate at 3V and would be destroyed at 12V. EX1036, 63:1-64:5, 65:5-21; EX1038, 69:1-70:4; *see also* EX1032, 22-23 (finding Petitioner's arguments to be "persuasive[]"). Thus, this extrinsic evidence exposes an additional flaw in PO's analysis of the intrinsic record.

PO's attempts to marginalize the prosecution history's significance (POR, 19-25) fail. PO first restates its objection based on the claims and specification (POR, 20-21), which is meritless as described above. And PO's assertion that a definition or disclaimer in a parent patent is irrelevant (POR, 22-23) is legally

versus V_f "forward voltage"); EX2053, 4 (distinguishing "supply voltage" versus "LED forward voltage"); EX1034, ¶18.

incorrect. D.I., 54; EX1032, 24-25; *Cloud Farm Assocs. LP v. Volkswagen Grp. of Am., Inc.*, 674 F. App'x 1000, 1006 (Fed. Cir. 2017) (“The same term should be construed consistently throughout the same patent and any related patents sharing a common specification.”); *Data Engine Techs. LLC v. Google LLC*, 10 F.4th 1375, 1382-83 (Fed. Cir. 2021).

Additionally, PO's recharacterization of its disclaimer over Colby as merely related to wall outlets (POR, 22-23) is “unavailing.” EX1032, 24-25. Colby disclosed 120V AC, which was “6V or greater” as claimed, such that Colby could only be distinguished based on the express definition that required “the minimum voltage.” EX1032, 25; D.I., 55.

Although PO tries to distance its definition of “forward voltage” in the parent's prosecution history from the '705 patent claim's use of the exact same term (POR, 22-25), “there is no basis in fact or law to ignore the definition.” EX1032, 24; D.I., 54. The “as recited in claim 1” statement used during prosecution merely referred to the relevant claim and limitation and does not operate to limit the definition. And the statement is not “ambiguous” (POR, 25), because the “minimum” could be any one value of 6V or greater (e.g., 7V).

EX2038 is explicit that the “forward voltage” is a single, minimum voltage. EX2038, 2 (“minimum voltage difference”), 2 (“The forward voltage defines the amount of voltage required for the current to flow through the diode junction. Any

voltages below this level cause the LED to remain ‘open’ or non-conductive.”). EX2038 does mention an LED datasheet as an example, but that datasheet (like the Samsung datasheet), merely shows minor variances in the single forward voltage that are possible based on manufacturing tolerances. EX1034, ¶20.

B. “Switch”

PO “does not dispute Petitioner’s construction” (POR, 27) of “switch,” which “encompasses, for example, mechanical, electronic, electro-mechanical, and programmable switches” (Pet., 26).

C. “Selectable by a User Switching the Switch”

PO states that the switch must be “physically selectable by a user” without any explanation or support. POR, 27. However, PO argues with respect to the prior art that the user must “physically” contact the same sub-portion of the switch that is “electrically connected” to the circuit to distinguish the proposed switches that combine Bruning’s transistors and controllers with Evanicky’s knobs/sliders (Ground 3) or Lee’s slider (Ground 6).

PO’s narrow interpretation is simply a rehash of PO’s rejected “direct” selection construction and narrow construction of “switch” that excludes electro-mechanical or programmable switches. EX1032, 61-63 (rejecting PO’s “indirect” construction and PO’s argument that Bruning’s switches are insufficient because of an intervening “controller”). There is no support in the claims, specification or

field for a construction requiring a user to physically contact the electrical connection of the LED circuit itself. To the extent the specification discloses switches at all, they are black boxes that do not disclose, much less require, a user touching the portion of the switch that is electrically connected as claimed.

A POSITA would have known that the portion of the switch physically touched by the user would normally be a separate component that would be electrically insulated from the portion of the switch that is electrically connected to the LED circuit. This electrical insulation would prevent the user from being shocked. Thus, a POSITA would have understood the claimed switch to encompass switches with at least two components: a first component that is electrically connected as claimed and a second component, electrically isolated from the first component, that the user can safely contact. This is reflected in the agreed construction of “switch” that encompasses multi-component switches such as electro-mechanical and programmable switches. EX1034, ¶¶21-26.

IV. THE '705 PATENT IS ELIGIBLE FOR PGR

The '705 patent is eligible for PGR if it or any of its priority applications, contains or contained at any time a claim with an effective filing date on or after March 16, 2013. *See* AIA § 3(n)(1).

A. Claims 1-20 of the '705 Patent

The Board correctly held in its Institution Decision that no pre-AIA applications disclose the limitation “wherein the switch is electrically connected between the DC voltage output and at least one of the first operating LED circuit or the at least one additional LED circuit.” D.I., 19-25. This limitation was new matter added during prosecution. Pet., 13. PO fails to find support for this limitation (alone or in combination with the remainder of the claim) in the '597 PCT and the incorporated '215 application. POR, 33-45.

PO first relies exclusively on the '215 application's paragraph 22 to support a switch in the claimed location. POR, 34-35, 39. But with respect to location, paragraph 22 merely states that the switch is “coupled to” the driver. EX1014, [22]. As Dr. Neikirk explained, a dimmer switch “regulate[s] the input to the driver in such a way that its output is varied,” and thus a POSITA would understand the dimmer switch would normally be “before the driver, not after the driver.” EX2047, 59:1-14, 59:15-60:2, 61:4-8; *see generally id.*, 58:15-62:10; EX1002, ¶37. Or the dimmer switch could be coupled to the driver outside the input voltage path and provide a control signal to the driver that causes the driver to adjust its output. Thus, paragraph 22 does not disclose to a POSITA that the inventors were in actual possession of a switch in the claimed location at the time of filing. EX1034, ¶¶27-31.

The larger context of the intrinsic record is elucidating. None of the '215 application, '597 PCT, or '705 patent's figures show a switch connected between a DC voltage and an LED circuit, or a switch connected after a bridge rectifier. EX1038, 52:2-53:5, 53:13-54:1, 58:12-60:10, 84:5-85:24; D.I., 22-23; EX1034, ¶32. And during prosecution, the applicant argued that if a POSITA were to add a switch to a circuit applied by the examiner, the POSITA would have added the switch "*before*" the driver (in the AC portion), not in the claimed location (after driver's conversion to DC). EX1003, 183.

Dr. Ducharme states in his declaration that the dimmer switch "can be" at the input or the output of the LED driver. EX2045, ¶112. Dr. Ducharme fails to acknowledge that the switch "can be" neither. EX1034, ¶31 (control signal outside input voltage path). More importantly, the fact that a switch "can be" at the claimed location is not enough to show the inventor's actual possession of the switch at the claimed location. Additionally, when cross-examined, he testified that he had no opinion regarding how the dimmer switch causes the driver to adjust its output. EX1038, 77:16-82:21. Thus, his opinion of where the switch "can be" located relative to the driver is entitled to no weight.

Paragraph 22's dimmer switch fails to support the claimed switch for the additional reason that the LED circuit driver outputs AC, not DC. Pet., 9, 14-15. The parties agree that the driver discussed in paragraph 22 is the same driver

discussed in the preceding paragraphs. POR, 35-36. Thus, it is particularly inappropriate for PO to argue “relatively fixed voltage” implies DC output, when the ’215 application uses that phrase exclusively to refer to AC output. The application states “drivers according to the invention are described as providing ‘relatively constant’ or ‘fixed’ voltage and frequency.” EX1014, [17]. And “LED circuit driver provides a relatively fixed voltage and relatively fixed frequency AC output such as mains power sources.” *Id.*, [18]. Only AC outputs have a “frequency,” so the use of the conjunction “relatively fixed voltage” and “frequency” makes perfectly clear that the ’215 application uses “fixed” and “constant” to refer to AC. See EX1014, [19] (“higher frequency LED circuit inverter driver may be a electronic transformer ... providing a relatively fixed voltage”), [20] (“higher frequency inverter having a relatively fixed voltage”), [21] (“LED circuit driver capable of providing a relatively fixed voltage and relatively fixed frequency output”); EX1034, ¶¶42-48.

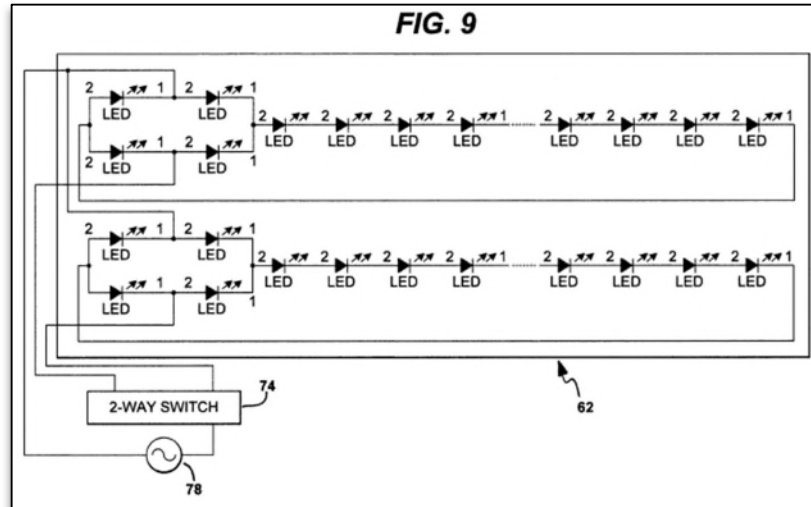
Paragraph 22’s subsequent use of “and/or” does not imply that the driver output may be DC without a frequency. The “and/or” merely makes clear that one can adjust one or both properties of the AC output.

PO and its expert then assert an “LED inverter driver” has a DC output. POR, 36; EX2045, ¶118. An inverter converts DC to AC, essentially performing the opposite function of a bridge rectifier. EX1034, ¶45. (explaining inverters);

EX1039. This argument is not only demonstrably wrong, it goes to the heart of PO and Dr. Ducharme's credibility.

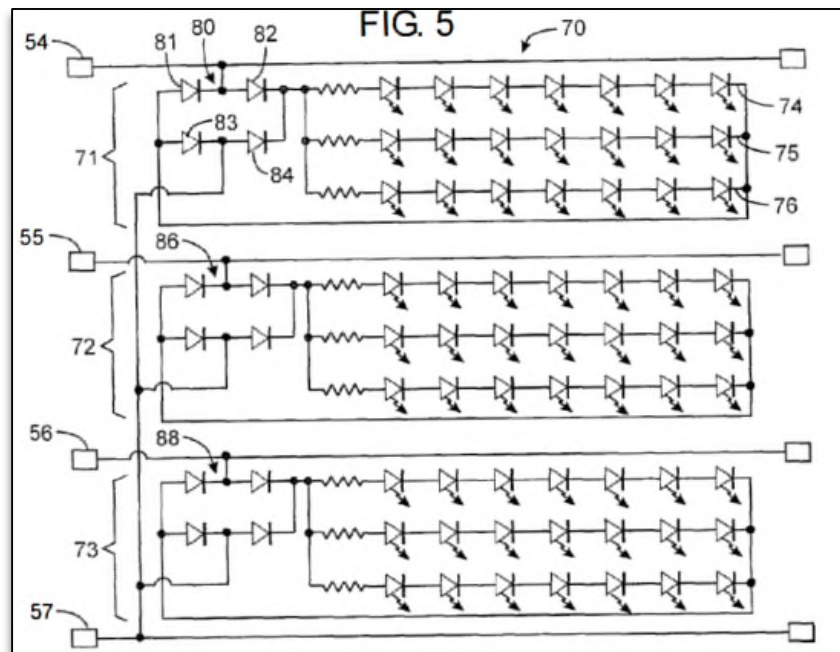
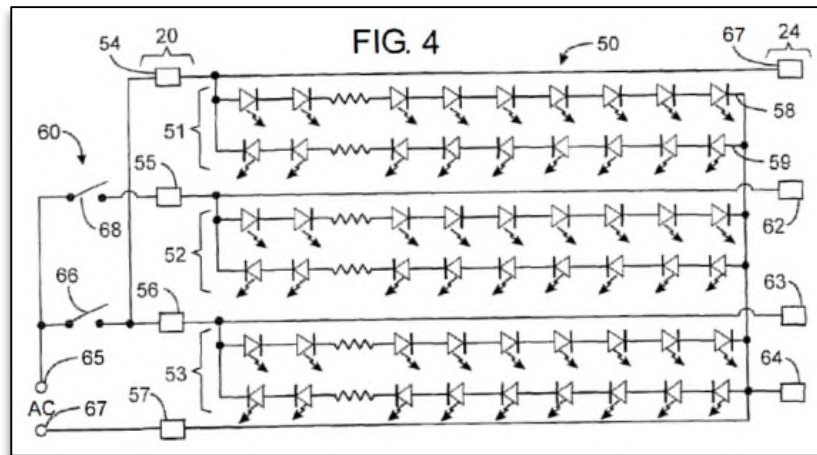
PO recognizes the deficiencies in paragraph 22's disclosure and argues that switch was "meant to be combined with the LED circuit driver and associated circuitry" in the '597 PCT (POR, 35) and the '215 application's other embodiments (POR, 35-38). But those argument fail to address the lack of disclosure of a switch in the requisite location relative to the driver in paragraph 22 itself. For example, PO points to the '215 application's Figures 16-19 and the '796 application and '597 PCT's Figure 8 (POR, 37-39), but those bridge rectifiers are directly connected in series to the LEDs on the same integrated package without an intervening switch. EX1014, Figs. 16-19; EX1016, [0059], Fig. 8; EX1018, [58], Fig. 8; Pet., 15; EX1034, ¶¶33-35.

Moreover, these applications actually teach away from the claims. EX1034, ¶¶36-41. For example, PO cites Figure 8 in EX1016 and EX1018, but Figure 9 (which includes Figure 8's LED lighting device) shows a switch connected to an AC source and the input of two bridge rectifiers. EX1018, [59], Fig. 9; EX1016, [0060], Fig. 9; EX1038, 40:8-12, 42:3-7, 42:13-19. Thus, the switch is taught as being connected to an LED driver's input (not output, as claimed) and to AC (not DC, as claimed).



PO’s argument that the switches disclosed in the applications “can be” moved to the claimed location is also inconsistent with the prosecution history. The applicant distinguished Lefebvre as “fail[ing] to show a switch electrically connected between a DC voltage output (of an LED driver) and [an] LED circuit.” EX1003, 182-83. The applicant then argued that “[e]ven if Lefebvre’s Figs. 4 and 5 were combined, the switches would be placed *before* the bridge rectifiers (80, 86, 88).” EX1003, 183; *see also* Pet., 10; EX1038, 89:15-24, 90:6-8, 101:14-19.

Figs. 4-5 from Lefebvre (EX2007):



B. Claims 3, 10, 17 of the '705 and '341 Patents

PO rehashes the same arguments that the Board rejected in PGR2022-00009 when the Board found the subject matter of these claims was not disclosed in any of the common priority applications. EX1032, 51-52. PO has provided no additional argument or analysis that would justify departing from that prior ruling.

PO does not dispute that the claims are not disclosed under Petitioner's proposed and the proper construction of "forward voltage." POR, 45-54.

Under the alternative constructions of "forward voltage," PO points to the '597 PCT's paragraphs 24, 25, 28, and 30 (POR, 45-47), but none of these describes a switch at all. *See* EX1038, 18:5-19, 27:15-18. And each paragraph describes "single voltage" LED circuits. EX1018, [24]-[25], [28], [30]; *see* EX1038, 18:21-23, 27:6-14. Moreover, paragraphs 25, 28, and 30 describe the parallel/serial embodiment, wherein a different forward voltage can be applied to the LED device depending on whether the LED circuits are wired in series or parallel, but wherein only a single forward voltage is applied to each LED circuit. EX1018, [25], [28], [30]; EX1038, 28:6-29:11; EX1034, ¶¶49-52. Moreover, PO argues that in these embodiments, "the 'LED device' still comprises a single circuit" (POR, 47), thus conceding the claimed "at least one additional LED circuit" is missing.

PO also points to the '597 PCT's paragraphs 13-15 (POR, 46). Paragraphs 13 and 14 do not describe a switch. Paragraph 15 discloses a "switching means," but that switch does not provide "two different DC forward voltages" to either LED circuit and the switch's location is not disclosed. Instead, paragraph 15 defines "multi-voltage" with respect to the parallel/serial embodiment, wherein only a single forward voltage is applied to each LED circuit. EX1018, [15]; *see*

also EX1038, 21:20-22:4, 29:15-18, 30:17-22 (paragraph 15 discloses that the desired operating level may be achieved during packaging stage); EX1034, ¶53.

To be clear, the selection of a serial or parallel configuration occurs when the LEDs are “wired in a series or parallel configuration by the LED packager during the LED packaging process.” EX1001, 6:25-34; *see* EX1038, 30:17-22, 34:15-23, 35:2-15. The patent does not disclose a switch for switching between these configurations. *See* EX1038, 57:10-58:11. And even if it did, changing the parallel/serial configuration does not change the voltage applied to either of the constituent “single-voltage” LED circuits. Pet. 7-8, EX1002, ¶23.

Moreover, Dr. Ducharme admitted that the two-way switch does not provide different voltages to the LED circuits when they are on, and thus the two-way (and three-way) switch cannot provide support for the claimed switch even under PO’s proposed construction of “forward voltage.” EX1038, 44:10-19, 47:3-7, 48:15-23 (12V is always applied); 42:20-24, 44:10-19; EX1036, 31:15-19, 33:3-18.

PO alternatively relies on the dimmer switch in the ’215 application’s paragraph 22 (POR, 47, 49), but the dimmer does not provide “two different DC forward voltages” under the proper construction of “forward voltage.” Moreover, because the LED driver outputs an AC voltage, switching that dimmer switch does not provide “two different DC forward voltages” under any construction of “forward voltage.” *See* Section IV.A; Pet., 9; EX1034, ¶54. Notably, Dr.

Ducharme admitted that the dimmer switch does not change the LED circuits' configuration from series to parallel or vice versa, and does not connect/disconnect an additional LED circuit to/from a power source. EX1038, 83:14-21.

PO's argument that a switch may have numerous positions and that some positions may each be connected to a single circuit (POR, 49-50) relates to the parallel/serial embodiment. For example, PO cites the '215 application's paragraphs 13 and 22 and the '597 PCT's paragraphs 28 and 30, which are unavailing for the reasons discussed above.

Finally, PO argues that the claims should not be limited to single voltage LED circuits (POR, 52-53), but Petitioner makes no such argument. The disclosed embodiments are limited to single voltage LED circuits, and the '597 PCT and the '215 application fail to disclose a switch that provides multiple forward voltages to an LED circuit as claimed.

C. Claims 4, 11, 18 of the '341 Patent

In PGR2022-00009, the Board determined that the '341 patent's claims 4, 11, and 18 have an effective filing date on or after March 16, 2013. EX1032, 45-52. PO's Response merely repeats the same arguments rejected in PGR2022-00009. POR, 54-58; EX1032 at 43-48.

First, PO repeats its assertion that the claims are disclosed in the '341 patent's Figure 7 and the '597 PCT's Figures 7, 9, and [0057]-[0058]. POR, 55-57.

However, these disclose a switch external to the LED device. *See, e.g.*, EX1018, [59]; EX1034, ¶¶58-61. PO tries again to manufacture a new, undisclosed embodiment by changing LED lighting device 50 to include switch 60. But in PO's redrawn embodiment, switch 60 is not "connected between" LED lighting device 50 and the source. Moreover, the source (12 VAC) is still directly connected to the LED lighting device 50. *See* EX1032, 45-46.

Second, PO repeats its strained argument that the switch "acts as the interface between the AC voltage power source and the LED lighting device." POR, 55-57. But "[e]ven assuming, *arguendo*, that Patent Owner cited to sufficient underlying evidence or support for characterizing the switch as an 'interface,' such evidence would still not support a finding that the claimed 'switch' could be *part* of the LED lighting device ... and also be 'connected between the AC voltage power source and the LED lighting device.'" EX1032 at 46-47; *see also Chef Am.*, 358 F.3d at 1374.

D. Claims 1-15 of the '001 Patent

The '597 PCT does not disclose a switch that is selectable to "independently switch on or off" a first LED circuit or an additional LED circuit. POR, 58-59. In the '597 PCT, the operating LED circuit must be on before the "additional LED circuit" is switched on or off, such that the claimed LED circuits have a "dependent" relationship. Pet., 21. For example, paragraph 56 (POR, 58-59)

discloses that AC voltage is only applied to the “additional” circuit via contact 56c if it is already applied to the “operating” circuit via contact 56b. EX1018 [56]. PO’s remaining citations are either irrelevant or show that same dependency. EX1018, [15], [18], [24]-[25], [57]-[58], Fig. 7; EX1034, ¶¶62-65.

E. Claim 15 of the ’001 Patent

The ’215 application does not disclose the combination of switches required by claim 15, specifically, a dimmer switch that dims the first or additional LED circuit “regardless” of the user’s selection of the switch of claim 11. Pet., 21-23; EX1020, 14:4-7. PO’s assertion that the ’597 PCT and ’215 application disclose numerous single-switch embodiments that might be combined is insufficient. POR, 61. PO does not sufficiently identify the embodiments that would be combined or how that combination might satisfy all the limitations of this claim.

F. Claim 9 of the ’001 Patent

PO admits that dependent claim 9 “specif[ies] the driver is part of the LED lighting device.” POR, 62. PO does not (and cannot) explain how the LED lighting device can both be configured to connect to a driver and comprise that driver. EX1020, 12:57-58, 13:10-11. PO’s argument that “the ‘Pre-AIA Applications’ clearly support a driver connected to an LED lighting device” fails to address the issues. And PO’s argument that claim 6 “does not specify where the driver is located” is plainly incorrect on the face of the claims; the requirement that the LED

lighting device be “configured to connect to a driver” indicates that the driver is not part of the LED lighting device.

V. GROUND 1: CLAIMS 3, 10, AND 17 ARE INVALID

In PGR2022-00009, the Board addressed the same subject limitation in claims 3, 10, and 17 of the ’341 patent (“wherein the switching of the switch provides at least two different DC forward voltages to at least one of the first operating LED circuit or the at least one additional LED circuit”) and found those claims to be indefinite and lacking sufficient written description support and enablement. EX1032, 26-43. PO’s Response recycles arguments previously rejected in PGR2022-00009.

A. Invalidity Under Petitioner’s Construction

PO’s argument that these claims are possible and valid under Petitioner’s construction (POR, 64-68), is incorrect. Pet., 28-30, D.I., 56-63; EX1034, ¶¶67-70.

PO first repeats its arguments regarding Petitioner’s claim construction (POR, 64-65), which are unavailing as discussed in Section III.A.

PO then alleges these claims are possible because one forward voltage can be applied to the first operating LED circuit and another forward voltage to the additional LED circuit. POR, 65-66. But the claims require the provision of “at least two different” forward voltages to at least one “or” the other circuit. D.I., 59-61; EX1001, claim 3; EX1032, 32-35, 42-43. Thus, providing a single forward

voltage to one of the circuits and a different single forward voltage to the other circuit would not practice the claims, much less disclose and enable its full breadth.

As the Board correctly held in PGR2022-00009, under the correct construction of “forward voltage,” “a POSITA could not possibly apply two different DC forward voltages ... to only one single voltage LED circuit (i.e., only one of the claimed first operating circuit and the at least one additional circuit).” EX1032, 42. Moreover, PO fails to address the claims’ requirement that the switching of the switch provide at least two different DC forward voltages, which is not disclosed. POR, 65-66.

PO’s argument that claim 1 requires the switch provide multiple “voltage level options” (POR, 66) does not address whether a switch can provide two different “forward voltages” as required by claim 3, i.e., two different minimums, under Petitioner’s construction. PO’s argument that the specification discloses LED circuits with “more than one voltage level” (POR, 66) also does not address whether a switch provides two different “forward voltages” under Petitioner’s construction. And PO is factually incorrect as neither the parallel/serial embodiment nor the additional LED embodiments disclose more than one voltage level. *Supra*, Section IV.B.

PO’s conclusion with respect to claim 3 and Figure 12 (POR, 67-68), is incorrect. LED device 100 can be wired into either a parallel or a serial

configuration during manufacture, and the resulting LED device 100 will then have one of two different possible forward voltages and will be coupled to the appropriate voltage source. Pet., 7-8; EX1002, ¶23. The forward voltage provided to the two LED circuits 92 within LED device 100 will be the same regardless of the configuration. Pet., 7-8; EX1002, ¶23. PO's attempt to characterize the entirety of LED device 100 as a single claimed LED circuit fails because the claims require multiple LED circuits. Furthermore, no switch is disclosed that would provide multiple "DC forward voltages" to LED device 100 as a whole. Pet., 16-19.

B. Invalidity Under the Other Constructions

PO's argument that these claims are disclosed under Petitioner's alternative construction and PO's proposed construction (POR, 68-69) is incorrect.

PO's reliance on a portion of the summary of the invention at 3:15-23 (POR, 68-69), is misplaced. That selection distinctly defines a "multi-voltage" embodiment and a different "multi-brightness" embodiment, and discloses a "switching means" only for the "multi-brightness" embodiment wherein an additional LED circuit may be connected. EX1001, 3:15-23. The Petition correctly analyzed the distinct embodiments disclosed in the specification and showed that there is no disclosure of combining them at all, much less in the claimed manner. Pet., 6-10; EX1002, ¶26. PO and its expert cannot inject such disclosure where none exists. *D Three Enterprises, LLC v. Sunmodo Corp.*, 890 F.3d 1042, 1050-52

(Fed. Cir. 2018); *University of Rochester v. G.D. Searle Co.*, 358 F.3d 916 (Fed. Cir. 2004) (conclusory expert opinion insufficient).

VI. GROUND 2: CLAIMS 15, 17, AND 19 ARE ANTICIPATED BY BRUNING

PO does not dispute that claims 15, 17, and 19 are anticipated by Bruning, waiving any such dispute. *See* D.I., 2-3.

VII. GROUND 3: CLAIMS 1-3, 5, 7-10, 12, 14, AND 16 ARE OBVIOUS OVER BRUNING IN VIEW OF EVANICKY

PO's arguments for Ground 3 do not address the combinations set forth in the Petition under the agreed claim constructions.

A. “Wherein the switch is electrically connected between the DC voltage output and at least one of the first operating LED circuit or the at least one additional LED circuit”

Under the Petition's first theory, the “switch” is Bruning's transistor, which is electrically connected as claimed, and which is indirectly selected by the user moving Evanicky's knob/slider. Pet. 53-54. This combination is consistent with the construction in the Petition (Pet., 26-28) and the construction applied in PGR2022-00009, each of which encompasses a user's “indirect” selection of a switch. EX1032, 58-63. PO does not explicitly argue for a “direct” construction, but includes an ambiguous statement that the switch must be “physically selectable.” POR, 27. In the combination, Bruning's transistors are indirectly physically selectable by the user physically moving Evanicky's knob/slider. EX1032, 62

(“[W]e agree with Petitioner that [Bruning’s transistor] switch Q₁ also teaches the claimed ‘switch’ because switch Q₁ is indirectly controlled by the claimed ‘user’ via controller 224 and/or via Bruning’s panel light setting.”); EX1034, ¶¶72-73.

Under the Petition’s second “alternative” theory, the “combination of the color-specific switches of Bruning, the controllers, and the slider/knob of Evanicky together are the switch.” Pet., 53. This combination is consistent with the ordinary meaning of “switch,” which encompasses electro-mechanical and programmable switches like the proposed switch. Pet., 26. PO explicitly waived a narrower construction of “switch” that might exclude the proposed switch. POR, 27. The proposed switch is electrically connected as claimed (transistor portion of the switch is in the claimed location) and is “directly” and “physically” selected by the user (user moves the switch’s knob/slider portion). EX1034, ¶74.

B. “Wherein the switch has at least two positions”

For the dependent claims requiring this limitation, the Petition relies on the second “alternative” theory. Pet., 54 (“the switch includes the slider or knob”), *id.*, 57, 59. PO does not dispute that Evanicky’s slider/knob has at least two positions; thus, the switch comprising Evanicky’s slider/knob has at least two positions as claimed. EX1034, ¶75.

VIII. GROUND 4: CLAIMS 1-2, 5, 7-9, 12, 14-16, AND 19 ARE ANTICIPATED BY DOHENY

PO's only response to Ground 4 is an attempt to antedate Doheny based on disclosures in the '597 PCT (and incorporated '215 application). POR, 71-97.

PO's list of citations in this section bounces around between embodiments without explanation or argument as to how the invention as a whole was disclosed. PO relies exclusively on '597 PCT (EX1018)'s paragraph 15 and '215 application (EX1014)'s paragraph 22 for support of the "switch is electrically connected between" limitation. POR, 82. But neither paragraph supports that limitation alone, much less that limitation in combination with the other limitations for the claim as discussed in Section IV.A. Moreover, PO's expert appears to have just copied the citations from the POR, including the typo in the citation to the '597 PCT application at POR, 82. EX2045, 96.

Accordingly, the Board should maintain its decision that "the effective filing date of the '705 patent is only as early as the filing date of the '802 application from which the '705 patent matured," February 22, 2021. D.I., 19-25; Pet., 13-18; EX1034, ¶¶76-79.

IX. GROUND 5: CLAIMS 1-2, 5, 7-9, 12, 14-16, AND 19 ARE RENDERED OBVIOUS BY VAN WINKLE

Like Ground 4, PO's only response to Ground 5 is an attempt to antedate Van Winkle. This argument fails as explained in Sections VIII and IV.A.

X. GROUND 6: CLAIMS 1-3, 5, 7-10, 12, 14-17, AND 19 ARE OBVIOUS OVER BRUNING IN VIEW OF LEE

PO argues that Bruning's transistor is not "selectable by a user switching the switch" and the "slider of Lee" is not electrically connected between the LED driver and the LED circuit. POR, 98. PO's argument fails as explained with respect to Ground 3 in Section VII. For example, under the Petition's second "alternative" theory (Pet., 102-103), the proposed switch is electrically connected as claimed (transistor portion of the switch is in the claimed location) and is "directly" and "physically" selected by the user (user moves the switch's slider portion). EX1034, ¶81.

XI. CONCLUSION

For the foregoing reasons, the Board should find the Challenged Claims unpatentable.

Dated: January 23, 2024

Respectfully Submitted,

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CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner's Reply to Patent Owner's Response totals 5,574, as calculated by Microsoft Word, which is less than the 5,600 allowed under 37 CFR § 42.24(c).

Dated: January 23, 2024

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing document has been served via electronic mail upon the following on January 23, 2024:

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