

Post-Grant Review of U.S. Patent No. 11,297,705: PGR2023-00016

Home Depot U.S.A., Inc. v. Lynk Labs, Inc.

Petitioner's Demonstratives
Prepared for Oral Hearing: May 6, 2024

Instituted Grounds

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
3, 10, 17	112(a) 112(b) ³	Lack of Written Description; Lack of Enablement; Indefiniteness
15, 17, 19	102 ⁴	Bruning
1-3, 5, 7-10, 12, 14-17, 19	103	Bruning, Evanicky
1-2, 5, 7-9, 12, 14-16, 19	102	Doheny
1-2, 5, 7-9, 12, 14-16, 19	103	Van Winkle
1-3, 5, 7-10, 12, 14-17, 19	103	Bruning, Lee

See Paper 8 (D.I.), 13-14, 86.

The Board Should Rule Consistently with PGR2022-00009

Paper 20 (Reply), 1, 8, 24-25.

- ✓ **PGR eligibility for common specification and priority chain**
- ✓ **Common claim term “forward voltage”**
- ✓ **Common issue regarding direct/indirect selection of switch**
- ✓ **Common Section 112 invalidity issue**

Paper 20 (Reply), 1, 8, 24-25; Exhibit 1032 (PGR2022-00009 FWD).

The '705 Patent's "Unconnected" Embodiment

Pet., 6-7.

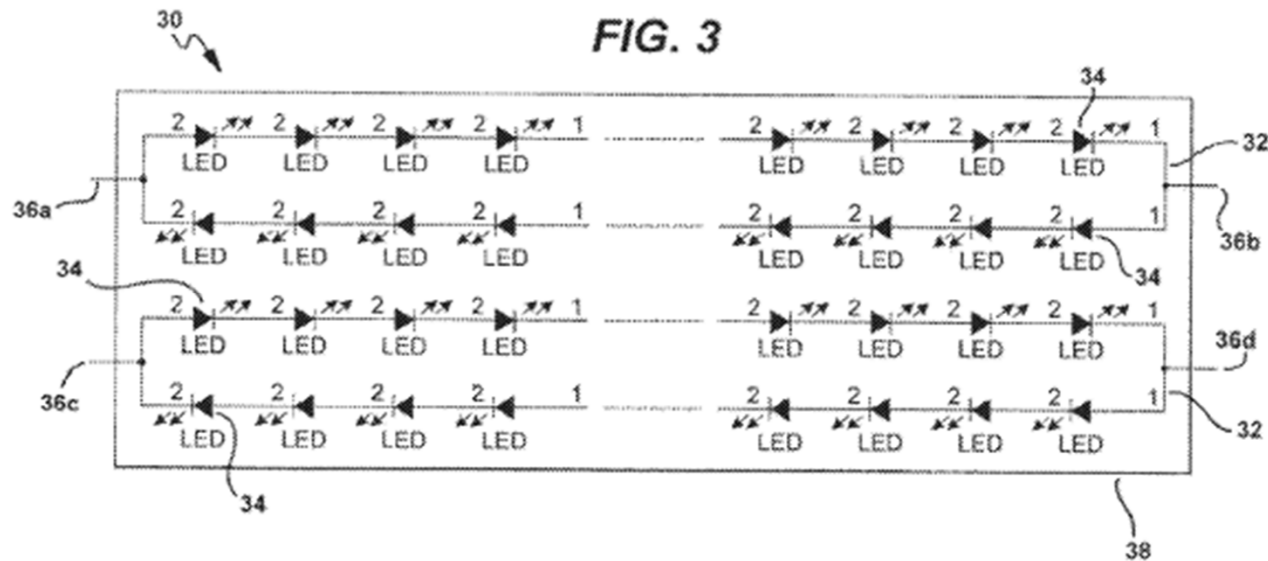


Exhibit 1001, Fig. 3; Pet., 6-7.

According to another aspect of the invention When the at least two circuits are left unconnected on the single chip and provide electrical pads for connectivity during the packaging process, the LED packager may wire them into series or parallel connection based on the desired voltage level specification of the end LED package product offering.

Exhibit 1001, 7:28-33; Pet., 6-7; see also Paper 20 (Reply), 1; Exhibit 1001, Figs. 1-3, 11-12, 4:3-15, 4:32-36, 4:58-61, 7:13-15, 9:61-10:54, 11:56-12:13.

The '705 Patent's "Serial or Parallel" Embodiment

Pet., 7-8.

FIG. 4

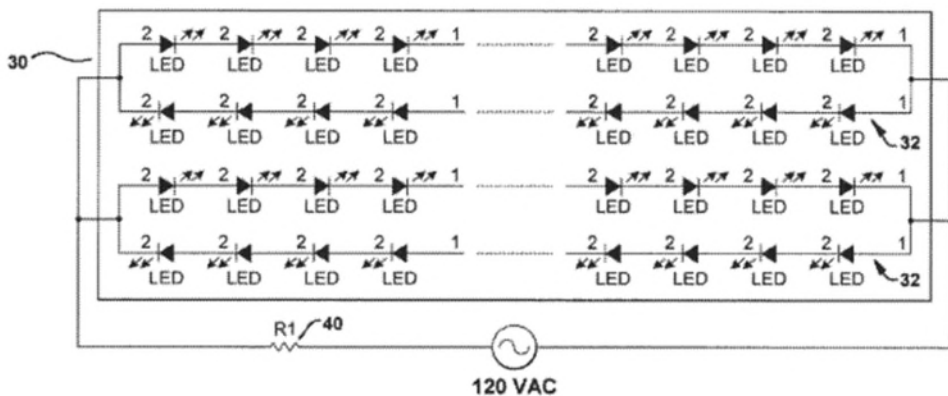


FIG. 5

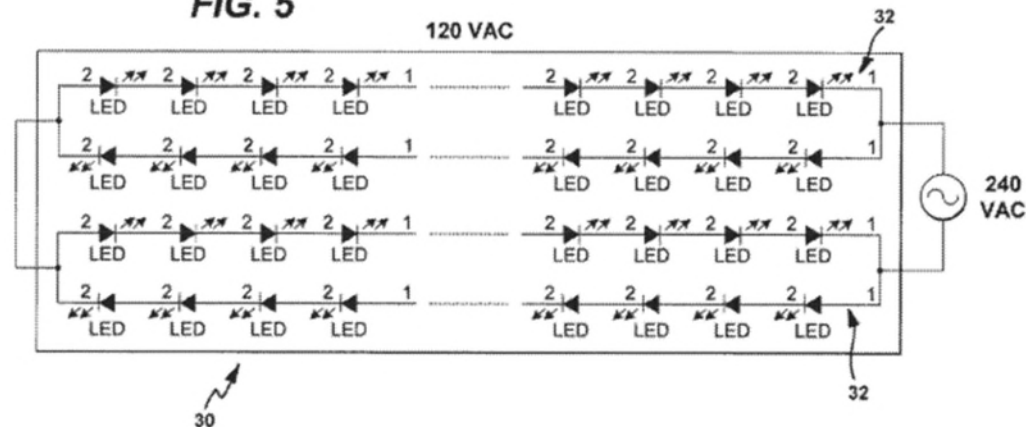


Exhibit 1001, Figs. 4-5; Pet., 7-8.

at least two parallel connected series LED circuits would be twice the current of the at least two serially connected series LED circuits. In either circuit configuration, the brightness would be approximately the same with either forward voltage drive selection of the multi-voltage series LED device.

Exhibit 1001, 4:29-31, 4:55-57 (same), 5:16-18 (same); Paper 20 (Reply), 1; Pet., 7-8; see also Exhibit 1001, Figs. 4-5, 4:16-31, 4:37-57, 4:62-67, 10:55-11:3.

The '705 Patent's "Additional Circuit" Embodiment

Pet., 8.

AC LED circuit that is integrated on a single chip. Each LED circuit within the multi-brightness single chip AC LED is designed to be driven in parallel with the same matching forward voltage such as 12 VAC, 24 VAC, 120 VAC, or other AC voltages level. Each multi-brightness single chip AC LED is designed to operate on at least one single circuit integrated within the multi-brightness single chip AC LED. The multi-brightness single chip AC LED operates on a switch having at least two positions each of which is connected to at least one circuit within the multi-brightness single chip AC LED.

Exhibit 1001, 7:39-49; Pet., 8; Paper 20 (Reply), 1; see also Exhibit 1001, Figs. 6-9, 7:1-12, 7:34-49, 8:16-45, 11:4-49.

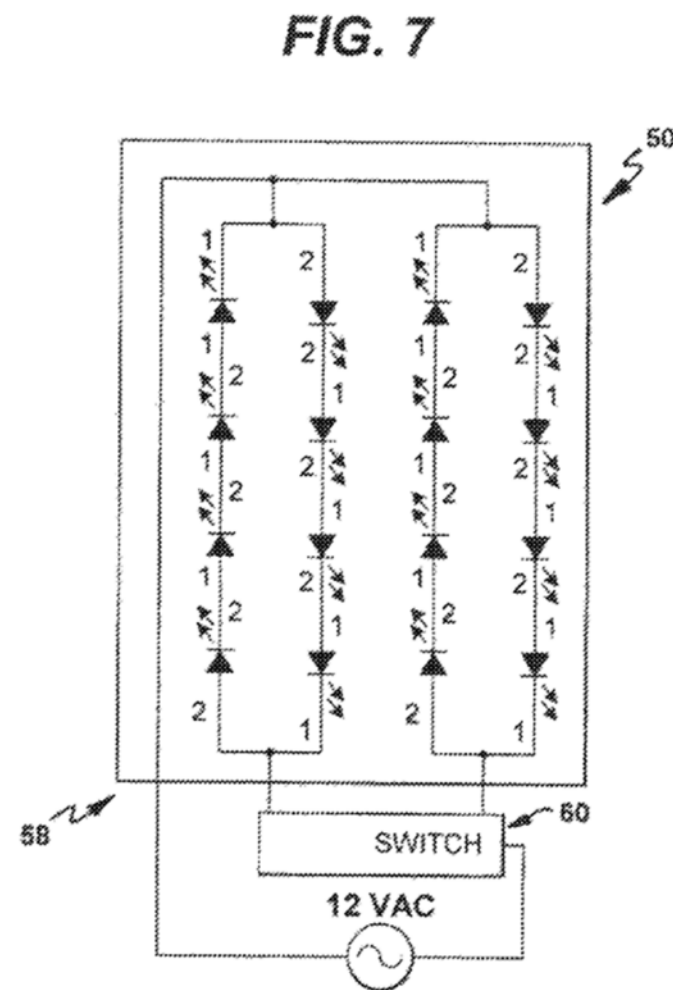


Exhibit 1001, Fig. 7; Paper 20 (Reply), 1; Pet., 8.

The '705 Patent's "Dimmer" Embodiment

Pet., 9.

According to other aspects of the invention, the LED circuit driver may be coupled to a dimmer switch that regulates voltage or frequency or may have integrated circuitry that allows for adjustability of the otherwise relatively fixed voltage and/or relatively fixed frequency output of the LED circuit driver. The LED circuits get brighter as the voltage and/or frequency of the LED circuit driver output is increased to the LED circuits.

Exhibit 1001, 9:22-30; Pet., 9; *Paper 20 (Reply)*, 1.

Claim Construction

Pet., 26-28; Paper 20 (Reply), 8.



PO does not dispute the construction of “switch”

See Paper 20 (Reply), 8; Paper 13 (POR), 26-27; Paper 21 (Sur-reply), 14; Pet., 26-28.

The Petition proposes the term “switch” and “selectable by a user switching the switch” for construction. Pet. 26. Petitioner argues that “[t]he ordinary meaning of ‘switch’ encompasses, for example, mechanical, electronic, electro-mechanical, and programmable switches. There is no disclaimer or lexicography that would justify departing from that ordinary meaning.” Pet., 26.

For purposes of this POR only, PO does not dispute Petitioner’s construction, except to note that in the claims of the ’705 Patent, the switch must be electrically connected between a DC voltage output of an LED driver and at least one of a first operating LED circuit or at least one additional LED circuit. EX1001 [’705 Patent], claims 1, 8, 15.

Paper 13 (POR), 26-27.

There does not appear to be a dispute over the construction of “switch” in this PGR. Reply, 8.

Paper 21 (Sur-reply), 14.

Claim Construction Disputes

Pet., 24-28; Paper 20 (Reply), 2-9.

- “forward voltage”

See Pet., 24-26; Paper 13 (POR), 8-26; Paper 20 (Reply), 2-8; Paper 21 (Sur-reply), 2-13 .

- “selectable by a user switching the switch”

See Pet., 26-28; Paper 13 (POR), 27; Paper 20 (Reply), 8-9; Paper 21 (Sur-reply), 14-15.

Representative “Forward Voltage” Claim Language

1. An LED lighting system comprising:
a first operating LED circuit and at least one additional LED circuit.

...

a switch capable of at least one of:
(a) switching a voltage level input to at least one of the first operating LED circuit or the at least one additional LED circuit, or
(b) switching the at least one additional LED circuit on or off,
wherein (a) or (b) is selectable by a user switching the switch; and

...

Exhibit 1001, claim 1.

3. The LED lighting system of claim 1, 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.

See e.g., Exhibit 1001, claim 3; see also Exhibit 1001, claims 10, 17.

“Forward Voltage”

Petitioner’s Constructions	Patent Owner’s Construction
“the minimum voltage difference required between the anode and cathode of the LEDs in the claimed circuit to allow current to flow through the LEDs”	“the operating voltage for the claimed LED circuit”
<i>Alternatively</i> , “a voltage in a diode’s forward direction”	
<i>Pet.</i> , 24-26; <i>Paper 20 (Reply)</i> , 2-8.	<i>Paper 13 (POR)</i> , 8-26; <i>Paper 21 (Sur-reply)</i> , 13.

PO Defined “Forward Voltage” and Disclaimed any Other Interpretation

Pet., 24-25; Paper 20 (Reply), 2-3, 6-8.

voltage supplied from a wall outlet does not disclose the forward voltage of an LED. The “forward voltage” of an LED circuit, as recited in claim 1, is the minimum voltage difference required between the anode and cathode of the LEDs in the claimed circuit to allow current to flow through the LEDs. (See, e.g., *LED Tutorial – Learn the basics*, <https://www.baldengineer.com/led-basics.html>.) Thus, the recited forward voltage is different from the AC voltage provided by a typical wall outlet.

Exhibit 1023 ('001 Patent Pros. History), 9; Pet., 24-25; Paper 20 (Reply), 2-3, 6-8.

The Board's Construction of "Forward Voltage" in PGR2022-0009

Paper 20 (Reply), 1-2; see also Pet., 26.

The intrinsic record—including the disclosures in the '341 patent and the disclaimer made during prosecution of the application underlying the '001 parent patent—persuades us that Petitioner's first construction, "the minimum voltage difference required between the anode and cathode of the LEDs in the claimed circuit to allow current to flow through the LEDs" is supported by the record.

Exhibit 1032 (PGR2022-00009 FWD), 23; Paper 20 (Reply), 1-2.

PO's Definition Was Necessary to Distinguish Colby

Pet., 24-25; Paper 20 (Reply), 3, 6-7.

FIG. 7A illustrates an embodiment of Light Source 620 including a single LED 702. LED 702 includes at least Leads 660A-660C and two Light Emitting Junctions 704A-704B. When a voltage of proper polarity is applied across either of Light Emitting Junctions 704A-704B light is generated. For example, if an AC voltage is applied across Leads 660A and 660B, Light Emitting Junction 704B will generate light during one phase of each AC cycle. If the AC voltage has a frequency of 60 Hz then Light Emitting Junction 704B will generate light at 60 Hz with approximately a 50% duty cycle. Light Emitting Junction 704A will likewise respond to an AC voltage applied across Leads 660B and 660C.

Exhibit 1037 (Colby), 4:22-33; Exhibit 2016 (Rejection over Colby), 4-5; Pet., 24-25.

Colby fails to disclose that the first operating LED circuit and the at least one additional LED circuit both have a forward voltage of 6V or greater. Stating that “US plugs operate on 120V 60Hz,” the Office Action essentially relies on the disclosure of “AC voltage” in Colby having a “frequency of 60 HZ” as disclosing the forward voltage required by claim 1. *Office Action*, p. 4; *Colby*, 4:26-31. However, Applicant respectfully submits that the disclosure of an AC voltage supplied from a wall outlet does not disclose the forward voltage of an LED. The

Exhibit 1023 ('001 Patent Pros. History, 6/13/2019 Amendment), 9; Pet., 24-25; Paper 20 (Reply), 3, 6-7 .

The Board's Finding of Disclaimer in PGR2022-0009

Paper 20 (Reply), 1-2.

Even though, when read in isolation, 120V AC voltage might theoretically fall under the “or greater” portion of the amended claim limitation “forward voltage of 6V or greater,” Applicant distinguished Colby on the basis that the 120V AC voltage from a wall outlet is not “*the minimum voltage* difference required between the anode and cathode of the LEDs in the claimed circuit to allow current to flow through the LEDs.” See Ex. 1023, 9 (emphasis added). Applicant’s argument specifically identifies the claim language at issue—“forward voltage of 6V or greater”—and specifically states that it is not disclosed because Colby does not disclose *the minimum voltage* and *instead*, discloses something else, something larger—120V AC voltage. Accordingly, we conclude that Applicant disclaimed any voltage that is more than “the minimum voltage difference required between the anode and cathode of the LEDs in the claimed circuit to allow current to flow through the LEDs” from the scope of “forward voltage.”

Exhibit 1032 (PGR2022-00009 FWD), 25; Paper 20 (Reply), 1-2.

The Definition and Disclaimer Apply Here

Paper 8 (D.I.), 54; Pet., 24-25; Paper 20 (Reply), 7.

We agree with Petitioner that there is no basis in fact or law to ignore the express definition proffered during prosecution. *See Cordis Corp. v. Boston Scientific Corp.*, 658 F.3d 1347, 1356 n.5 (Fed. Cir. 2011) (“Arguments made in the course of prosecuting the [parent] application are relevant, however, because a disclaimer in the parent application carries forward into the construction of the same claim term in the child.”). Patent Owner’s recharacterization of its disclaimer over Colby as merely related to “AC mains” or wall outlets is unavailing. *See Prelim. Resp.* 28–29. When a

Paper 8 (D.I.), 54; Paper 20 (Reply), 7; Pet., 24-25.

The Board Correctly Analyzed the Specification in PGR2022-0009

Paper 20 (Reply), 3; Pet., 25.

We also agree with Petitioner that the '341 patent repeatedly uses the term “forward voltage” in connection with “single voltage series LED circuits.” See Pet. 25 (citing Ex. 1001, 4:5–7:8; Ex. 1021, 28–30; Ex. 1002 ¶ 47). These disclosures support Petitioner’s position that there is only one “forward voltage” for an *individual* circuit (i.e., a single voltage series LED circuit). In contrast, the forward voltage may differ based on the connection type, i.e., parallel or series, between at least *two* circuits. See, e.g., Ex. 1001, 4:12–27. It is not apparent from the disclosure of the '341 patent that

Exhibit 1032 (PGR2022-00009 FWD), 26; Paper 20 (Reply), 3; Paper 8 (D.I.), 55-56; Pet., 25.

The Disclaimer and Definition is Consistent with the Specification

Pet., 25; Paper 20 (Reply), 3.

According to another aspect of the invention at least two single voltage LED circuits are formed on a single chip or on a substrate providing a multi-voltage and/or multi-brightness LED device for direct DC power operation. Each single voltage LED circuit has at least two LEDs connected to each other in series. Each single voltage LED circuit is designed to be driven with a predetermined forward voltage and preferably matching forward voltages for each circuit such as 12 VAC, 24 VAC, 120 VAC, or other DC voltage levels for each single voltage LED circuit. Each multi-voltage

Exhibit 1001, 5:38-47; Pet., 25; Paper 20 (Reply), 3.

Forward Voltage May Differ Based on the Connection Type (i.e., Series or Parallel) Between at least Two Circuits

Pet., 25; Paper 20 (Reply), 4.

According to another aspect of the invention, each multi-voltage AC LED device would be able to be driven with at least two different AC forward voltages resulting in a first forward voltage drive level by electrically connecting the two single voltage AC LED circuits in parallel and a second forward voltage drive level by electrically connecting the at least two single voltage level AC LED circuits in series. By way of example, the second forward voltage drive level of the serially connected AC LED circuits would be approximately twice the level of the first forward voltage drive level of the parallel connected AC LED circuits. The at least two parallel connected AC LED circuits would be twice the current of the at least two serially connected AC LED circuits. In either circuit configuration, the brightness would be approximately the same with either forward voltage drive selection of the multi-voltage LED device.

Exhibit 1001, 4:16-31; Pet., 25; see also Paper 20 (Reply), 4.

“Multi-voltage” Refers to the Parallel/Serial Embodiment

Paper 20 (Reply), 4.

coupling. This invention comprises circuits and devices that can be driven with more than one AC or DC forward voltage “multi-voltage” at 6V or greater based on a selectable desired operating voltage level that is achieved by electrically connecting the LED circuits in a series or parallel circuit configuration and/or more than one level of brightness “multi-brightness” based on a switching means that connects and/or disconnects at least one additional LED circuit to and/or from a first LED circuit. The desired

Exhibit 1001, 3:15-20; Paper 20 (Reply), 4.

PO's Extrinsic Evidence Supports Petitioner's Construction

Paper 20 (Reply), 5, 7-8.

Forward Voltage

Conversely, if a forward-biasing voltage is applied across the P-N junction, the depletion region collapses becoming thinner. The diode becomes less resistive to current through it. In order for a sustained current to go through the diode; though, the depletion region must be fully collapsed by the applied voltage. This takes a certain minimum voltage to accomplish, called the *forward voltage* as illustrated in the figure below.

Exhibit 2051, 5; Paper 20 (Reply), 5; Paper 21 (Sur-reply), 7-8, 13.

A Diode is an electronic component that only conducts electricity in one direction. The "Forward Voltage" rating of a diode will determine the minimum voltage difference between the anode and cathode to allow current to flow. For ex-

Exhibit 2038, 2; Paper 20 (Reply), 7-8; Paper 13 (POR), 23-24; Paper 21 (Sur-reply), 13.

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. This open state also means any components in series with the LED will not have current flowing through them either!

Exhibit 2038, 2; Paper 20 (Reply), 7-8; Paper 13 (POR), 23-24; Paper 21 (Sur-reply), 13.

The Parallel/Serial Embodiment's Configuration is Determined During Manufacture

Pet., 7-8; Paper 20 (Reply), 4; Exhibit 1001, 3:15-20.



20 Q. There's no disclosure in the '705 patent of
21 circuits being wired into series, parallel, or
22 anti-parallel configurations and then subsequently
23 changed into a different kind of configuration;
24 correct?
25 MR. MCBRIDE: Objection. Form. Scope.
1 THE WITNESS: I -- I have not read -- I
2 have not formed an opinion on that.
3 By MS. DAHL:
4 Q. Once an led packager wires the circuits
5 into series or parallel or anti-parallel
6 connections, the end-user would not change that
7 con -- that type of connection; correct?
8 A. The intent of the statement to wire certain
9 circuits in a particular way implies that the user
10 wouldn't be able to change that hardwired -- strike
11 hardwired -- that connection.

Exhibit 1038, 57:20-58:2, 58:4-11; Paper 20 (Reply), 4.

Dr. Ducharme Confirms a Single Forward Voltage

Paper 20 (Reply), 5.

16 Q. For a given temperature and given current,
17 there is a single forward voltage; correct?
18 MR. MCBRIDE: Objection. Form.
19 THE WITNESS: Referring to Exhibit 2036 to
20 the forward voltage versus forward current, for a
21 single -- there is a single-voltage.

22 By MS. DAHL:

23 Q. Sorry, I think you cut out there. Did you
24 say for a single -- what was the word that you said
25 after that?

1 A. For a single current, there is an
2 associated single-voltage.

Exhibit 1038 (Ducharme Depo.), 67:16-68:2; Paper 20 (Reply), 5.

11 Q. There is only one forward voltage for a
12 given current for a single unit of the Samsung LED
13 product; correct?

14 A. This graph and graphs are used to show when
15 values change due to certain variables, the
16 dependent which would be on the X axis. So if we
17 pick a value for a current on the X axis, it will
18 correspond accordingly to a single forward voltage
19 of a range of voltages.

Exhibit 1038 (Ducharme Depo.), 66:11-19; Paper 20 (Reply), 5.

7 Q. Second sentence of page 9 of Exhibit 2051
8 it says, "Forward voltage for a diode varies only
9 slightly for changes in forward current and
10 temperature and is fixed by the chemical composition
11 of the P-N junction."

12 Do you see that?

13 A. I do see that.

14 Q. Do you agree with that statement?

15 A. I agree with that statement in the context
16 of diodes in general.

17 Q. LEDs are a type of diode; correct?

18 A. That's correct.

Exhibit 1038 (Ducharme Depo.), 63:7-18; Paper 20 (Reply), 5.

Dr. Bretschneider Confirms a Single Forward Voltage

Paper 20 (Reply), 5.

Q For a particular unit of the Samsung LED product at a constant temperature and constant current, there will be a single forward voltage; correct?

A Correct.

Exhibit 1036 (Bretschneider Depo.) 61:21-62:3; Paper 20 (Reply), 5.

Dr. Neikirk Confirms a Single Forward Voltage

Paper 20 (Reply), 5.

25 Q. I see "forward voltage." And if I go to the
1 right of that, I see a range of 5.9 to 6.1.
2 A. And what that refers to is that each die will
3 be one value. But due to manufacturing variations, any
4 given die will have a forward voltage, as stated in this
5 table, somewhere between 5.9 and 6.1. It doesn't mean a
6 single LED takes on that range. These are -- this is
7 traditional in a specification shift to give minimum and
8 maximums.

Exhibit 2047 (Neikirk Depo.), 80:25-81:8; Paper 20 (Reply), 5.

6 Q. And both have a range of voltages associated
7 with them. Correct?
8 A. Well, but the 5.9 to 6.1 is clearly not the
9 voltage range that's shown in the graph. One of
10 ordinary skill reading a specification sheet would know
11 that the VF for a diode is determined by the material
12 characteristics, the doping. Basically, the
13 fabrication. And because of the way these are
14 fabricated, there might well be a small range, but any
15 given device will have one VF in the ideal diode
16 equation.

Exhibit 2047 (Neikirk Depo.) 84:6-16; Paper 20 (Reply), 5.

PO Improperly Reads “Operating” Into “Forward Voltage”

Paper 20 (Reply), 2.

PO’s Response

Per the express language of claim 3, a forward voltage is the voltage “provide[d]” to the claimed “operating LED circuit.” EX1001 [’705 Patent], claim 3. This mirrors PO’s construction. PO’s construction uses the term “operating” voltage for the LED circuit to clarify that the claim requires voltage in a range that will cause the LED circuit to “operat[e]”—that is, illuminate in the manner intended.

Paper 13 (POR), 9; Paper 20 (Reply), 2.

Claim 3

3. The LED lighting system of claim 1, 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.

See e.g., Exhibit 1001, claim 3; see also Exhibit 1001, claims 10, 17; Paper 20 (Reply), 2.

Selectable by A User Switching a Switch

Pet., 13-15; Paper 20 (Reply), 10-15,

1. An LED lighting system comprising:
a first operating LED circuit and at least one additional LED circuit,
at least one of the first operating LED circuit or the at least one additional LED circuit including at least two LEDs connected in either series or parallel, and the at least one additional LED circuit being configured to emit a different color light compared to the first operating LED circuit;
a switch capable of at least one of:
(a) switching a voltage level input to at least one of the first operating LED circuit or the at least one additional LED circuit, or
(b) switching the at least one additional LED circuit on or off,
wherein (a) or (b) is selectable by a user switching the switch; and
an LED driver including an input configured to connect to an AC voltage power source, the LED driver configured to provide a DC voltage output to at least one of the first operating LED circuit or the at least one additional LED circuit,
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.

Exhibit 1001, 12:39-41,.

“Selectable by a User Switching the Switch”

Pet., 26-28; Paper 20 (Reply), 8-9.

PO argues that the switch must be “physically selectable by a user” based on the limitation with the location of the switch.

Paper 13 (POR), 27; Paper 20 (Reply), 8-9.

C. “Selectable by a user switching the switch”

Petitioner argues that this term “includes ‘indirect’ selection of a switch by a user.” Pet., 27. The independent claims of the ‘705 Patent recite that the “switch is electrically connected between the DC voltage output [of the LED driver] and at least one of the first operating LED circuit or the at least one additional LED circuit.” EX1001 [‘705 Patent], claims 1, 8, 15. To the extent the Petitioner argues for “indirect” control, the switch (whether direct or indirect) must still be located electrically between the LED driver and LED circuit, and also be physically selectable by a user.

Paper 13 (POR), 27.

The Board Rejected PO's "Direct" Selection Argument in PGR2022-00009

Exhibit 1032 (PGR2022-00009 FWD), 61-63; Paper 20 (Reply), 8.

We discern no argument or evidence in the record in support of requiring the claimed "switch" to be directly controlled by the claimed "user." Merely because "switch Q1 is a transistor 'controlled by controller 224'" does not mean that the switch is "not capable of being switched by a user." *See* PO Resp. 53, 56 (citing Ex. 1004 ¶¶ 37, 38). Having reviewed the entire record developed during trial, we maintain our preliminary determination that the claims do not exclude controlling the claimed "switch" indirectly, for example, by a user through a controller. As such, we agree with Petitioner that 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. Because we determine that a user can indirectly control Bruning's panel light setting, for example by using controller 224, the period length of the transistor's cycles (i.e., on the order of microseconds) does not undermine the user's ability to control the switching. *See id.* at 22 (citing Ex. 1004 ¶ 33).

Exhibit 1032 (PGR2022-00009 FWD), 62; Paper 20 (Reply), 8.

Dr. Neikirk's Testimony Regarding a POSITA's Understanding

Exhibit 1034, ¶ 22; Paper 20 (Reply), 9.

22. Additionally, a switch that is selectable by a user and that is also electrically connected between the LED driver and LED circuit does not necessarily have to be directly selectable by a user. For example, a user can indirectly select transistors that are electrically connected between the LED driver and the LED circuit. Likewise, a user can directly select a switch assembly that comprises a user interface and that is also electrically connected between the LED driver and LED circuit.

Exhibit 1034, ¶ 22; Paper 20 (Reply), 9.

Dr. Neikirk's Testimony Regarding a POSITA's Understanding

Exhibit 1034, ¶ 24; Paper 20 (Reply), 9.

24. Patent Owner appears to argue that the portion or subcomponent of the switch that the user physically touches must be electrically connected between LED driver and an LED circuit. In my opinion, this is not supported by the plain and ordinary meaning of the claim language, and I disagree with Patent Owner. 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. 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.

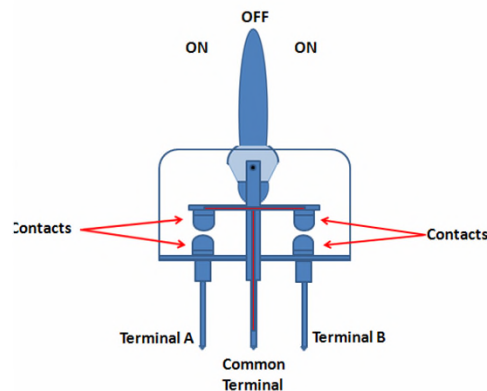
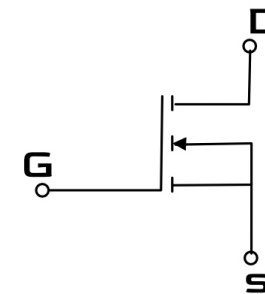
Exhibit 1034, ¶ 24; Paper 20 (Reply), 9.

Dr. Neikirk's Testimony Regarding a POSITA's Understanding

Exhibit 1034, ¶ 25; Paper 20 (Reply), 9.

25. For example, even on a mechanical toggle switch, the user would not be touching the subcomponent that is electrically connected between the LED driver and the LED circuit; the user would instead be touching a subcomponent that is electrically insulated from the current flowing through the circuitry. As another example, the user would not physically touch the gate of a MOSFET, which is insulated from the source and drain.

Exhibit 1034, ¶ 25; Paper 20 (Reply), 9.



Dr. Neikirk's Testimony Regarding a POSITA's Understanding

Exhibit 1034, ¶ 26; Paper 20 (Reply), 9.

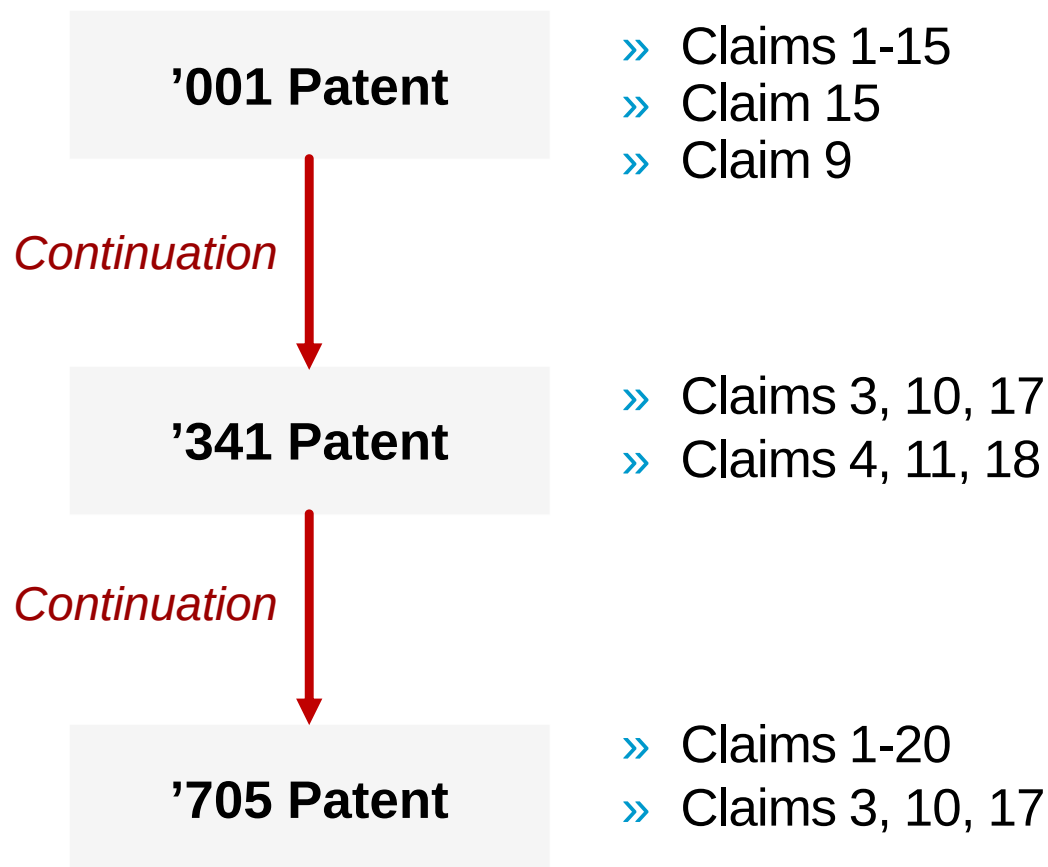
26. Thus, a POSITA would have understood the claimed switch to encompass switches with at least two components: a first component that is electrically connected as claimed and a second component, electrically isolated from the first component, that the user can safely contact. This is reflected in the construction of “switch” that encompasses multi-component switches such as electro-mechanical and programmable switches, which I understand Patent Owner does not dispute.

Exhibit 1034, ¶ 26; Paper 20 (Reply), 9.

The '705 Patent is Eligible for PGR

Overview of the '705 Patent's PGR-Eligibility

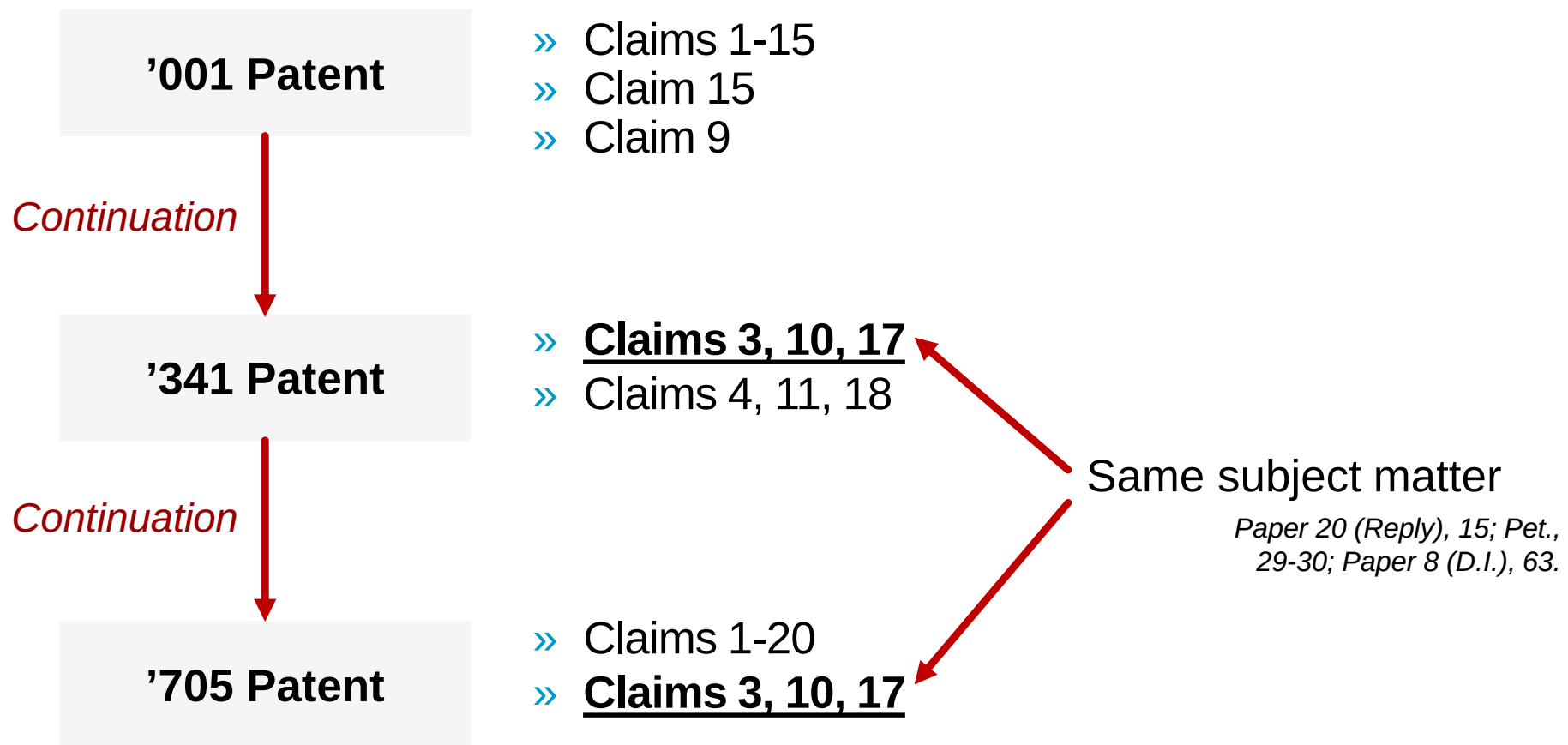
Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21; Exhibit 1032 (PGR2022-00009 FWD), 52.

Overview of the '705 Patent's PGR-Eligibility

Pet., 11-23; *Paper 20 (Reply)*, 9-21; *Exhibit 1032 (PGR2022-00009 FWD)*, 52.



Claims 3, 10, and 17 of the '705 and '341 Patents – “Forward Voltages”

Paper 20 (Reply), 15; Pet., 29-30; Paper 8 (D.I.), 63.

'705 Patent

1. An LED lighting system comprising:
a first operating LED circuit and at least one additional LED circuit.
...
a switch capable of at least one of:
(a) switching a voltage level input to at least one of the first operating LED circuit or the at least one additional LED circuit, or
(b) switching the at least one additional LED circuit on or off,
wherein (a) or (b) is selectable by a user switching the switch; and
...

Exhibit 1001, claim 1.

3. The LED lighting system of claim 1, 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.

See e.g., Exhibit 1001, claim 3; see also Exhibit 1001, claims 10, 17.

'341 Patent

1. An LED lighting device comprising:
a first operating LED circuit and at least one additional LED circuit,
...
a switch capable of at least one of:
(a) switching a voltage level input to at least one of the first operating LED circuit or the at least one additional LED circuit, or
(b) switching the at least one additional LED circuit on or off,
wherein (a) or (b) is selectable by a user switching the switch. and
...

Exhibit 1006, claim 1.

3. The LED lighting device of claim 1, 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.

See e.g., Exhibit 1006, claim 3; see also Exhibit 1006, claims 10, 17.

The Board's Ruling in PGR2022-00009

Exhibit 1032 (PGR2022-00009 FWD), 51-52; Paper 20 (Reply), 15.

We are persuaded that the '597 PCT lacks sufficient written description support for the inventions recited in claims 3, 10, and 17 of the '341 patent. *Supra* § III.D. Dependent claims 3, 10, and 17 of the '341 patent are therefore not entitled to an effective filing date as early as that of the '597 PCT (i.e., 2010). *Id.* Independently, the '597 PCT lacks an enabling disclosure for the inventions recited in claims 3, 10, and 17 of the '341 patent—for this additional reason, these claims do not receive an effective filing date corresponding to the '597 PCT.

Exhibit 1032 (PGR2022-00009 FWD), 51; Paper 20 (Reply), 15.

that the claims are not entitled to any priority date. PO Resp. 32. In this case, the effective filing date is, at best, only as early as the filing date of the '295 application from which the '341 patent matured. Patent Owner has not demonstrated that any of the applications intervening between the '597 PCT and the '295 application—U.S. Patent Application Nos. 16/274,164, 15/685,429, and 14/172,644—provide sufficient support (i.e., enablement or written description) for claims 3, 4, 10, 11, 17, and 18 of the '341 patent.

Exhibit 1032 (PGR2022-00009 FWD), 51; Paper 20 (Reply), 15.

No Pre-AIA Support for a “Switch Providing ... Two Forward Voltages”

Pet., 16-19; Paper 20 (Reply), 15-18.

[Para 28] According to another aspect of the invention at least two single voltage LED circuits are formed on a single chip or on a substrate, and at least one bridge circuit made of LEDs is formed on the same single chip or substrate providing a multi-voltage and/or multi-brightness LED device for direct DC power operation. Each single voltage LED circuit has at least two LEDs connected to each other in series. Each single voltage LED circuit is designed to be driven with a predetermined forward voltage and preferably matching forward voltages for each circuit such as 12VDC, 24VDC, 120VDC, or other DC voltage levels for each single voltage LED circuit. Each multi-voltage and/or multi-brightness LED device would be able to be driven with at least two different DC forward voltages resulting in a first forward voltage drive level when the two single voltage LED circuits are connected in parallel and a second forward voltage drive level that is twice the level of the first forward voltage drive level when the at least two LED circuits are connected in series.

Exhibit 1018 ('597 PCT), [28], [30] (same); Paper 13 (POR), 45-47; Paper 20 (Reply), 16.

No Pre-AIA Support for a “Switch Providing ... Two Forward Voltages”

Pet., 16-19; Paper 20 (Reply), 15-18.

voltage coupling or constant voltage DC power source coupling. This invention comprises circuits and devices that can be driven with more than one AC or DC forward voltage "multi-voltage" at 6V or greater based on a selectable desired operating voltage level that is achieved by electrically connecting the LED circuits in a series or parallel circuit configuration and/or more than one level of brightness "multi-brightness" based on a switching means that connects and/or disconnects at least one additional LED circuit to and/or from a first LED circuit. The desired operating voltage level and/or the desired brightness level electrical connection may be achieved and/or completed at the LED packaging level when the multi-voltage and/or multi-brightness circuits and/or single chips are integrated into the LED package, or the LED package may have external electrical contacts that match the integrated multi-voltage and/or multi-brightness circuits and/or single chips within, thus allowing the drive voltage level and/or the brightness level select-ability to be passed on through to the exterior of the LED package and allowing the voltage level or brightness level to be selected at the LED package user, or the PCB assembly facility, or the end product manufacturer.

Exhibit 1018 ('597 PCT), [15]; Paper 13 (POR), 46; Paper 20 (Reply), 16-17.

No Disclosure of a Switch for Switching between Parallel and Series Configuration

Paper 20 (Reply), 17; see also Pet., 7-8.

According to another aspect of the invention, at least one multi-voltage and/or multi-brightness LED devices may be integrated within a LED lamp. The at least two individual LED circuits within the multi-voltage and/or multi-brightness LED device(s) may be wired in a series or parallel circuit configuration by the LED packager during the LED packaging process thus providing for at least two forward voltage drive options, for example 12 VAC and 24 VAC or 120 VAC and 240 VAC that can be selected by the LED packager.

Exhibit 1001, 6:25-34; Paper 20 (Reply), 17.

The Dimmer Switch Does Not Switch Between Parallel and Series Configurations

Paper 20 (Reply), 17-18; see also Pet., 9.

[Para 22] According to other aspects of the invention, the LED circuit driver may be coupled to a dimmer switch that regulates voltage or frequency or may have integrated circuitry that allows for adjustability of the otherwise relatively fixed voltage and/or relatively fixed frequency output of the LED circuit driver. The LED circuits get brighter as the voltage and/or frequency of the LED circuit driver output is increased to the LED circuits.

Exhibit 1014 ('215 application), [22]; Paper 20 (Reply), 17-18; Pet., 9.

The Dimmer Switch Does Not Provide Two DC Forward Voltages

Paper 20 (Reply), 17-18; see also Pet., 9

14 Q. The dimmer switch in paragraph 22 of
15 Exhibit 1014 does not change the connection of the
16 LED circuits from series to parallel; correct?

17 MR. MCBRIDE: Objection. Form.

18 THE WITNESS: My understanding of paragraph
19 22 is it's -- it's not suggesting any changing of
20 configuration from series to parallel or vice
21 versa.

22 By MS. DAHL:

23 Q. The dimmer switch in paragraph 22 of
24 Exhibit 2 -- apologies. The -- strike that.

25 The dimmer switch in paragraph 22 of
1 Exhibit 1014 does not connect or disconnect an
2 additional LED circuit to or from a power source;
3 correct?

4 A. **No, that's not described in paragraph 22.**

EX1038 (Ducharme Depo.), 83:14-21; Paper 20 (Reply), 17-18.

The Two-/Three- Way Switch Does Not Provide Two DC Forward Voltages

Paper 20 (Reply), 17.

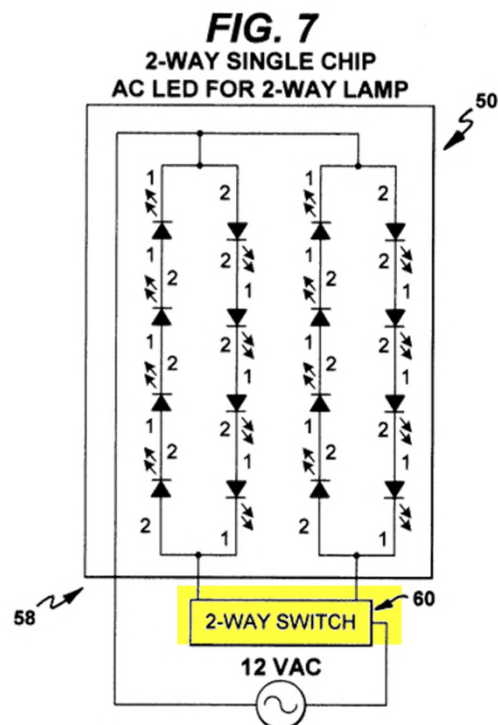
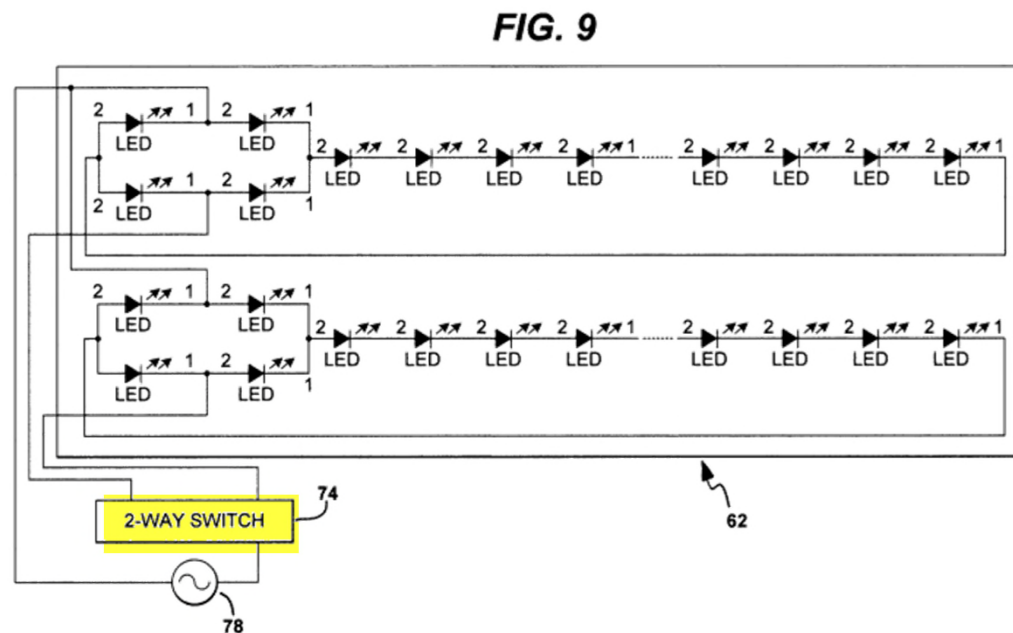


Exhibit 1018 ('597 PCT), Figs. 7, 9; Paper 20 (Reply), 17.

20 Q. Okay. What does the two-way switch 74 do
21 in Figure 9 of Exhibit 1018?

22 A. The two-way switch 74 switches the power
23 from the AC source 78 to either terminal 72b of
24 Figure 8 or 72c of Figure 8.

Exhibit 1038 (Ducharme Depo.), 42:20-24; Paper 20 (Reply), 17.

13 A. Both circuits 69 in Figure 9 are connected
14 to the source. They would be -- they're connected
15 in parallel.

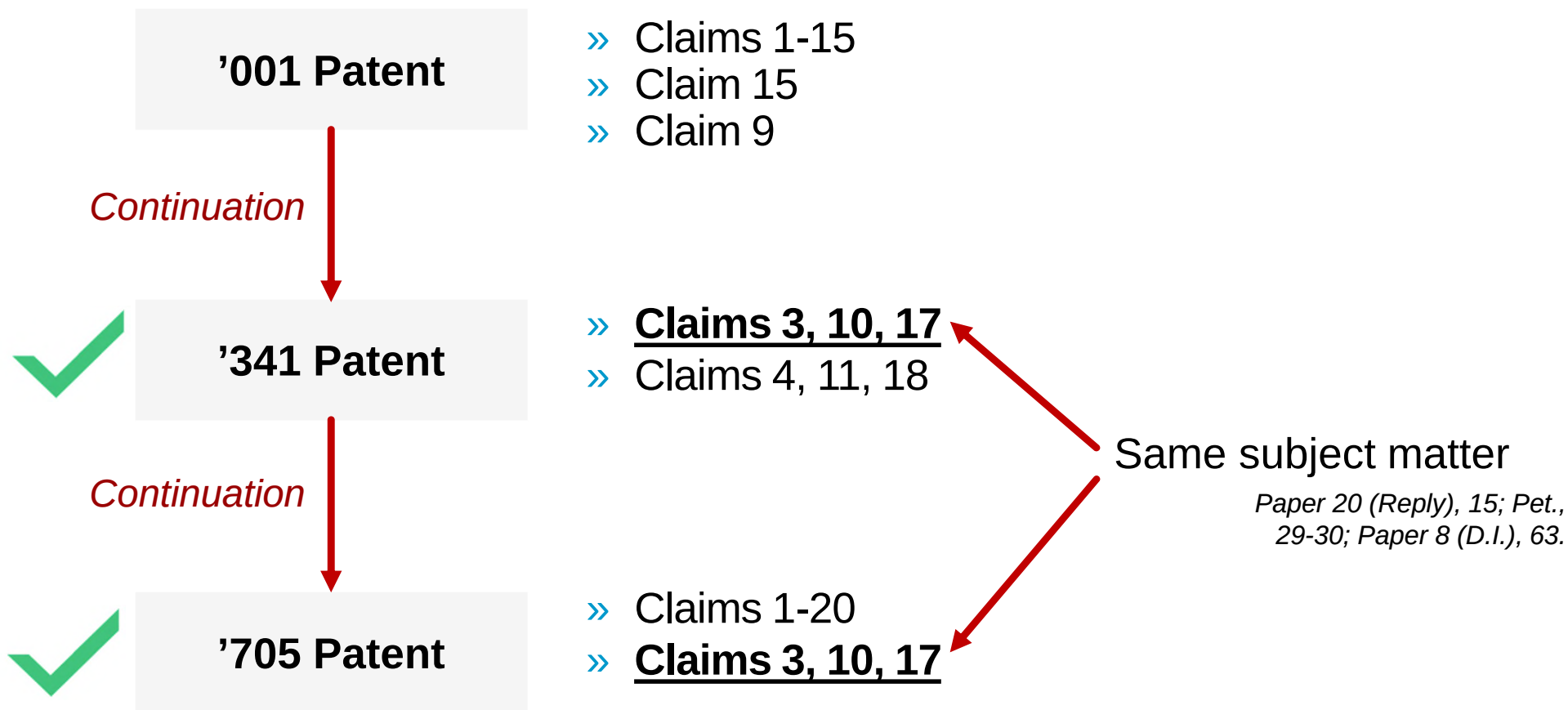
16 Q. When both circuits in Figure 9 of Exhibit
17 1018 are connected in parallel, the same AC voltage
18 is applied to both circuits; correct?

19 A. Yes, that's correct.

Exhibit 1038 (Ducharme Depo.), 44:13-19; Paper 20 (Reply), 17.

Overview of the '705 Patent's PGR-Eligibility

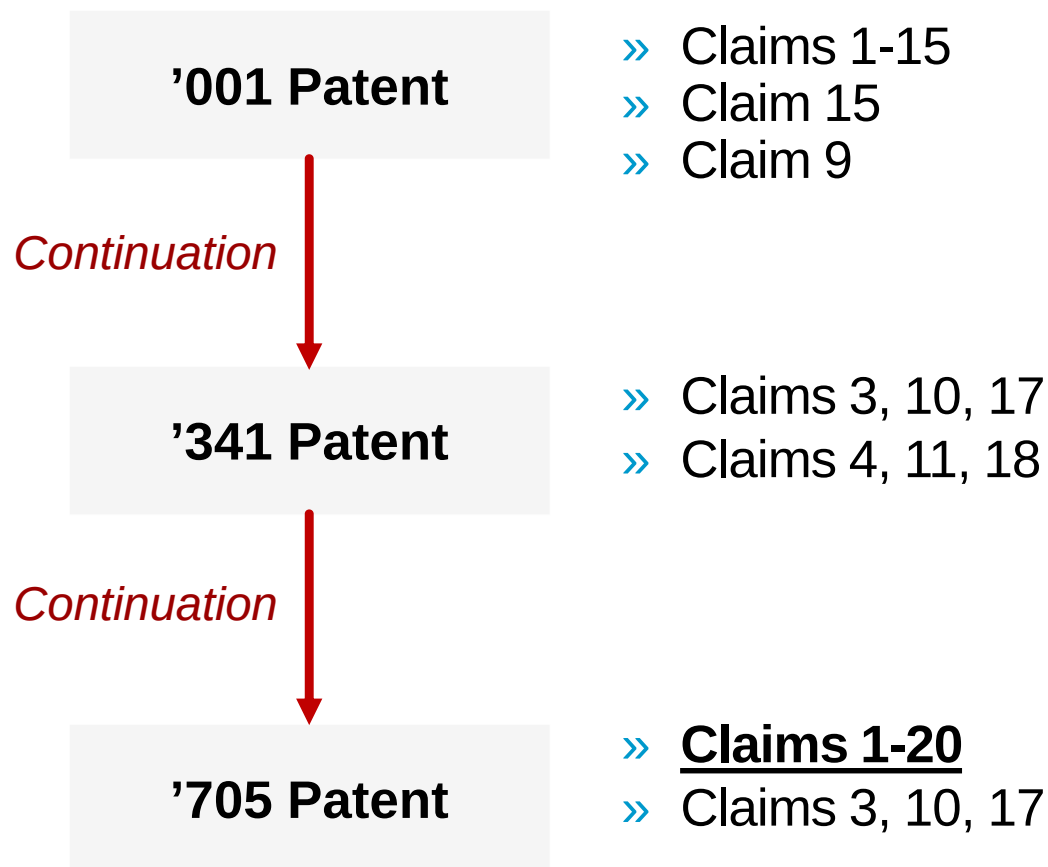
Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Overview of the '705 Patent's PGR-Eligibility

Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Claims 1-20 of the '705 Patent's Effective Filing Date is No Earlier than February 22, 2021

Pet., 13-15; Paper 20 (Reply), 10-15,

1. An LED lighting system comprising:
a first operating LED circuit and at least one additional LED circuit,
at least one of the first operating LED circuit or the at least one additional LED circuit including at least two LEDs connected in either series or parallel, and the at least one additional LED circuit being configured to emit a different color light compared to the first operating LED circuit;
a switch capable of at least one of:
(a) switching a voltage level input to at least one of the first operating LED circuit or the at least one additional LED circuit, or
(b) switching the at least one additional LED circuit on or off,
wherein (a) or (b) is selectable by a user switching the switch; and
an LED driver including an input configured to connect to an AC voltage power source, the LED driver configured to provide a DC voltage output to at least one of the first operating LED circuit or the at least one additional LED circuit,
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.

Exhibit 1001, 12:39-41, 13:17-19 (same), 14:20-22 (same); Pet., 13; Paper 20 (Reply), 10.

The '215 Application Does Not Support the Claimed Switch

Pet., 13-15; Paper 20 (Reply), 10.

[Para 22] According to other aspects of the invention, the LED circuit driver may be coupled to a dimmer switch that regulates voltage or frequency or may have integrated circuitry that allows for adjustability of the otherwise relatively fixed voltage and/or relatively fixed frequency output of the LED circuit driver. The LED circuits get brighter as the voltage and/or frequency of the LED circuit driver output is increased to the LED circuits.

Exhibit 1014 ('215 application), [22]; Paper 20 (Reply), 10; Pet., 13-15; Paper 13 (POR), 34-35, 39.

PO Admission Regarding Paragraph 22

Paper 13 (POR), 60-61.

The '215 Provisional states the “LED circuit driver may be coupled to a dimmer switch.” EX1014 ['215 Provisional], [Para 22]. That does not require the dimmer switch to be located at the output of the driver. A dimmer switch coupled to the input of the driver (between the mains power source and LED driver) would increase or decrease the voltage to the LED driver from the mains power source, thereby adjusting the voltage at the output of the LED driver. EX2045 [Ducharme Decl.], ¶158.

Paper 13 (POR), 60-61.

Dr. Neikirk's Testimony

Exhibit 1034, ¶ 29; Paper 20 (Reply), 10.

the LED circuit driver.” EX1014 [22] (emphasis added). With respect to location, paragraph 22 merely states that the switch is “coupled to” the driver. EX1014, [22]. Dimmer switches regulate the input to the LED driver in such a way that the output of the driver is adjusted, and thus a POSITA would understand the dimmer switch would normally be before the driver. For example, dimmer switches can adjust the input voltage, amplitude, and/or duty cycle to the LED driver such that the output of the LED driver is also adjusted. The diagrams below illustrate two options for the placement of the dimmer switch relative to the LED driver.

Exhibit 1034, ¶ 29; Paper 20 (Reply), 10.

The '215 Application, '597 PCT, or '705 Patent Figures Do Not Show the Claimed Switch

Paper 20 (Reply), 11; Pet., 13-15.

» Undisputed that no figure shows:

- A switch connected between a DC voltage and an LED circuit or
- A switch connected after a bridge rectifier

Paper 20 (Reply), 11; Exhibit 1038, 52:2-53:5, 53:13-54:1, 58:12-60:10, 84:5-85:24; Paper 8 (D.I.), 22-23; Exhibit 1034, ¶ 32.

The '215 Application Figures Do Not Show the Claimed Switch

Only figures with a switch:

Paper 20 (Reply), 11; Pet., 13-15.

2-WAY SINGLE CHIP AC LED FOR 2-WAY BULB

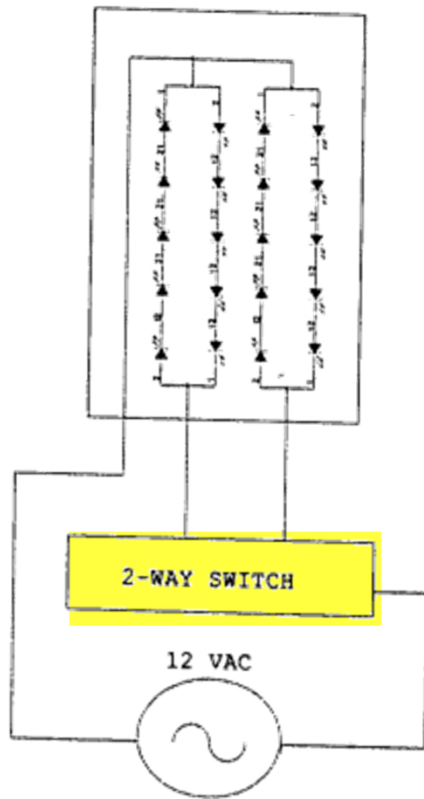


Fig. 12

3-WAY SINGLE CHIP AC LED FOR 3-WAY BULB

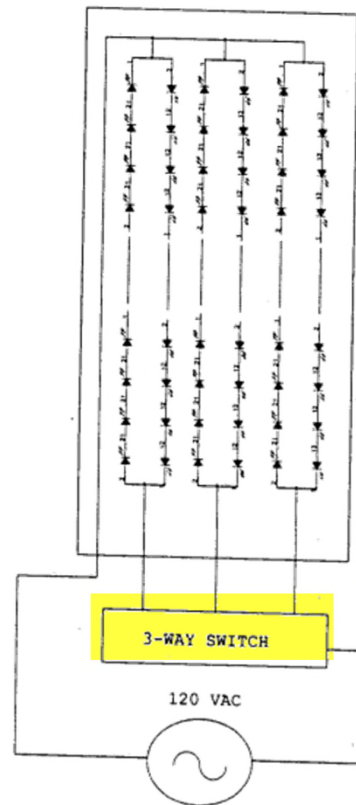


Fig. 15

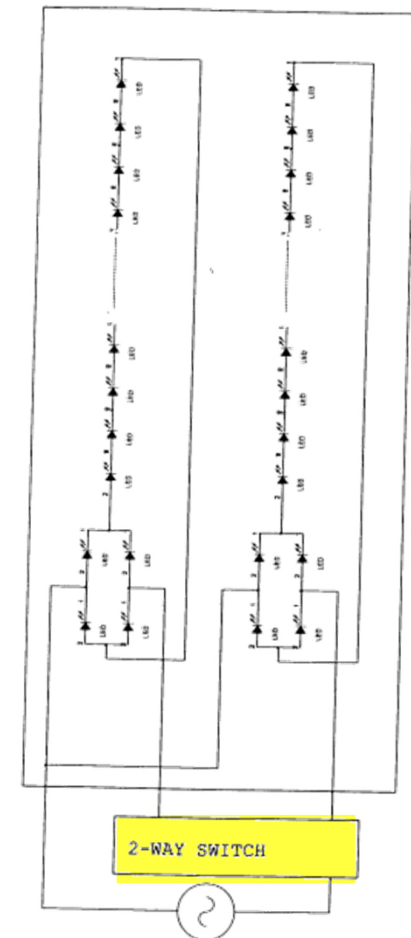


Fig. 19

Exhibit 1014 ('215 application), Figs. 12, 15, 19; Paper 20 (Reply), 11.

The '597 PCT Figures Do Not Show the Claimed Switch

Paper 20 (Reply), 11; Pet., 13-15.

Only figures with a switch:

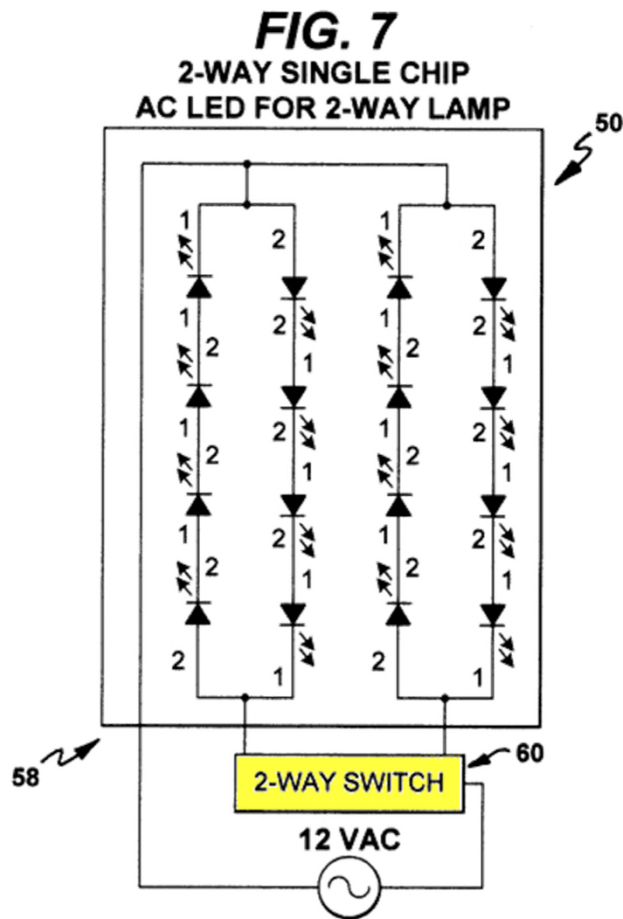
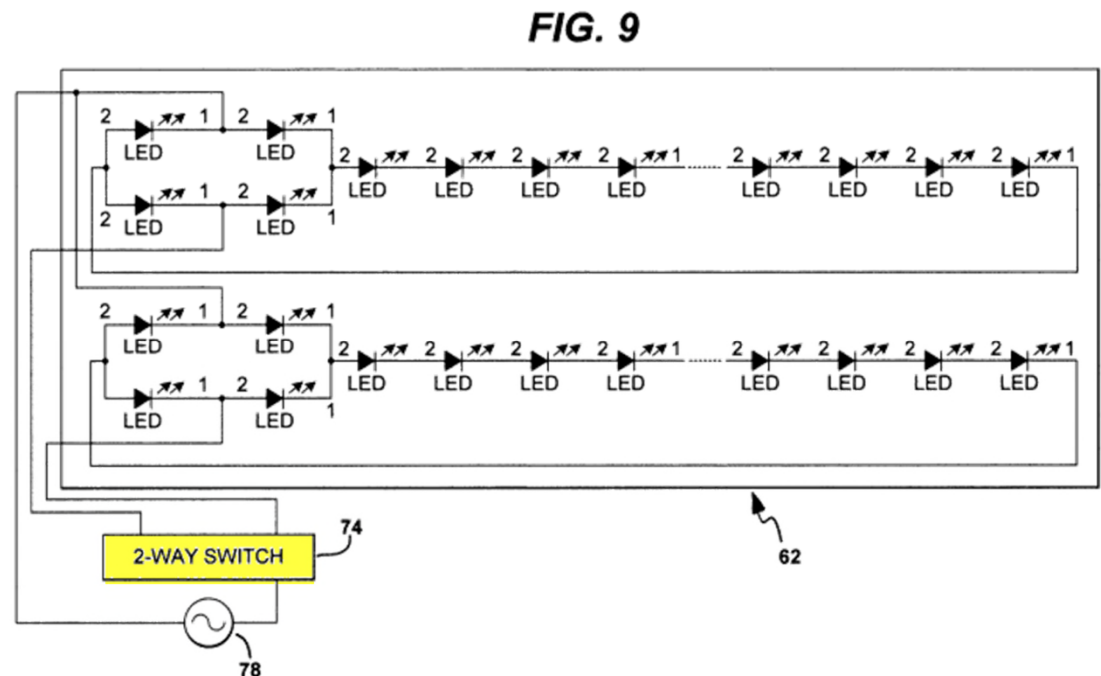


Exhibit 1018 ('597 PCT), Figs. 7, 9; Paper 20 (Reply), 11.

The '705 Patent Figures Do Not Show the Claimed Switch

Paper 20 (Reply), 11; Pet., 13-15.

Only figures with a switch:

FIG. 7

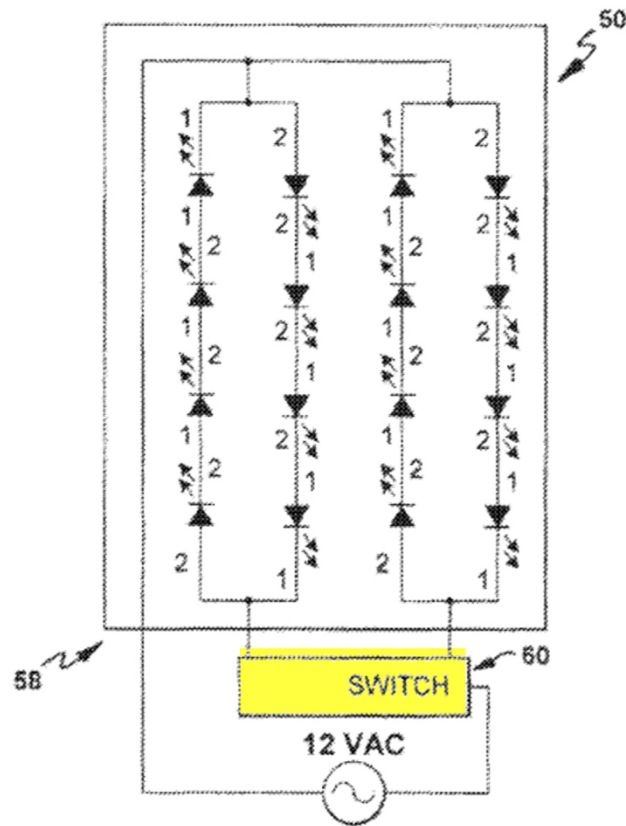


FIG. 9

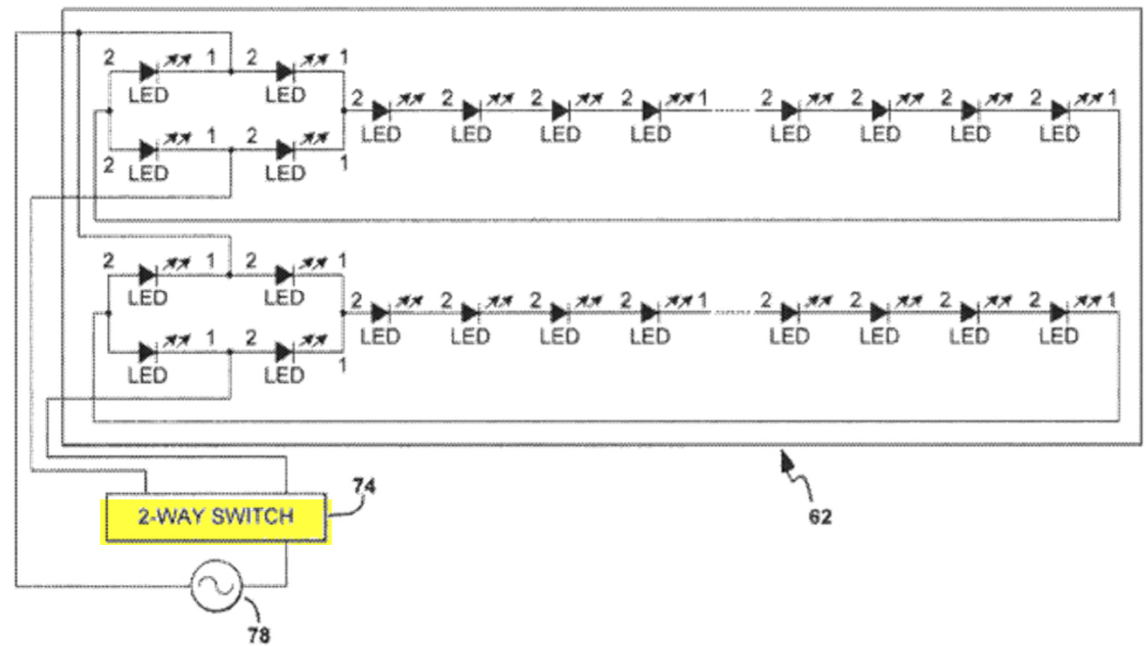


Exhibit 1001, Figs. 7, 9; Paper 20 (Reply), 11.

The '215 Application Figures Do Not Show the Claimed Switch

Paper 20 (Reply), 11; Pet., 13-15.

Only figures with a bridge rectifier:

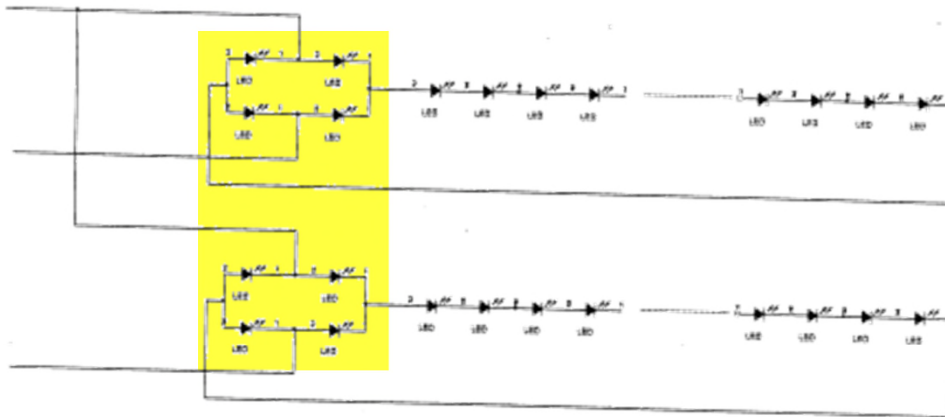


Fig. 16

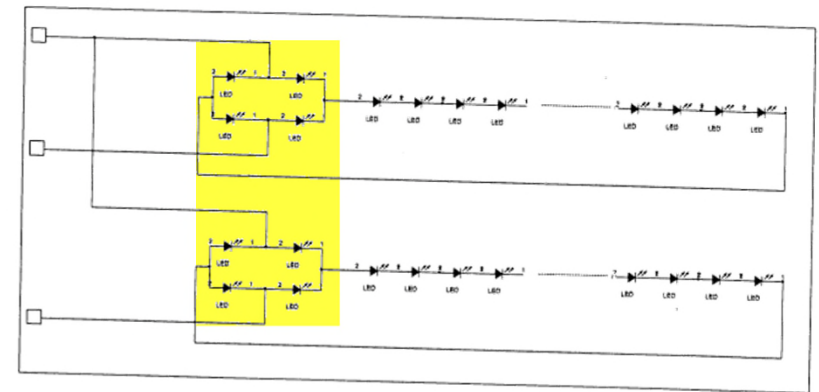


Fig. 17

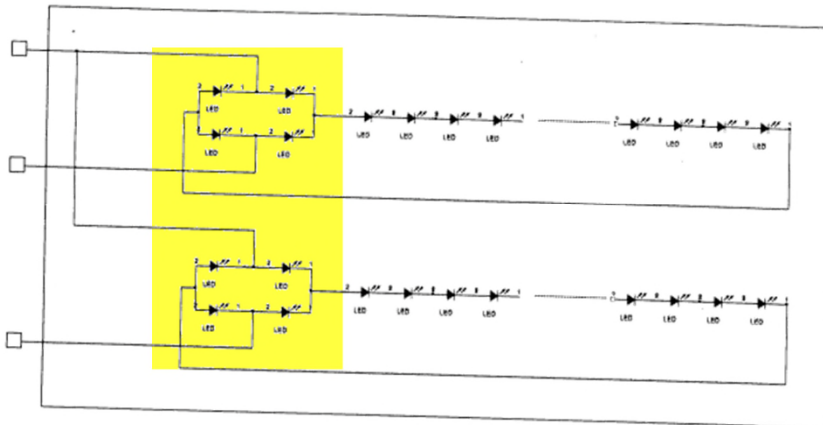


Fig. 18

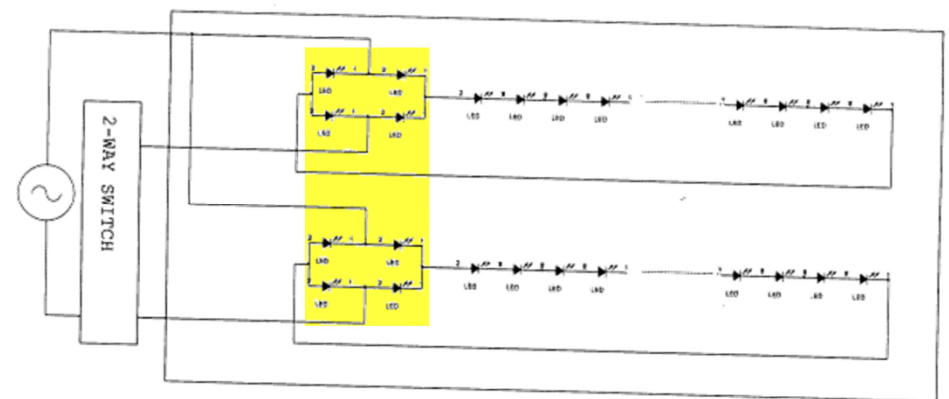


Fig. 19

Exhibit 1014 ('215 application), Figs. 16-19; Paper 20 (Reply), 11.

The '597 PCT Figures Do Not Show the Claimed Switch

Paper 20 (Reply), 11; Pet., 13-15.

Only figures with a bridge rectifier:

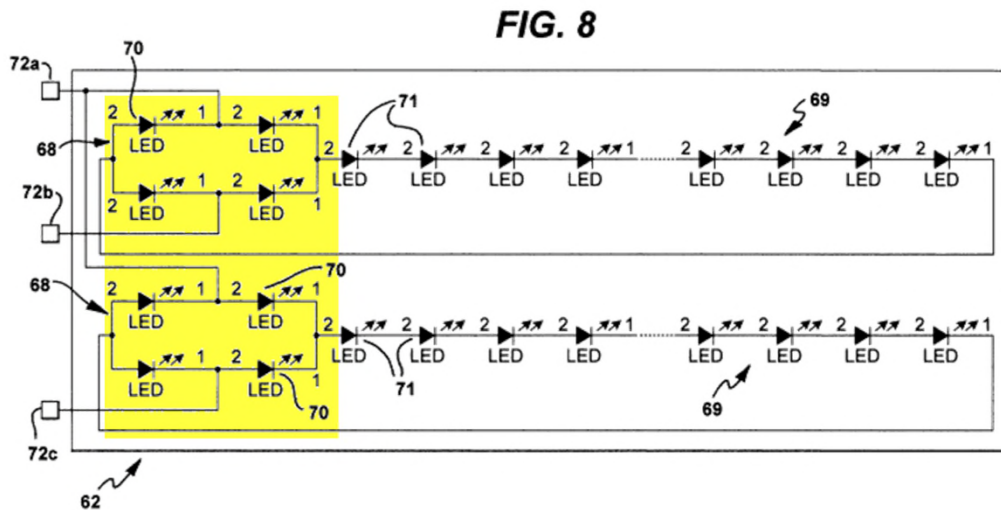
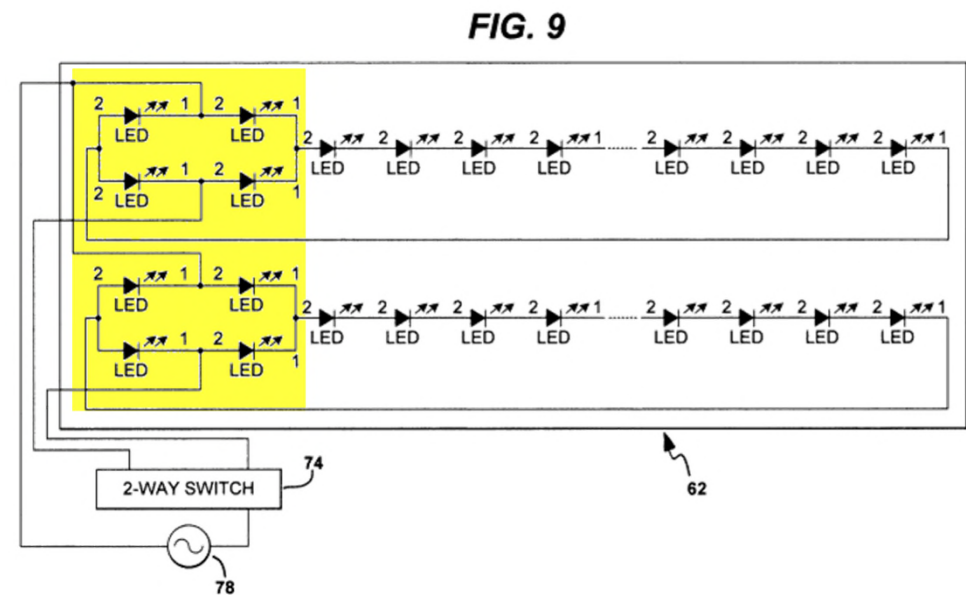


Exhibit 1018 ('597 PCT), Figs. 8, 9; Paper 20 (Reply), 11.

The '705 Patent Figures Do Not Show the Claimed Switch

Paper 20 (Reply), 11; Pet., 13-15.

Only figures with a bridge rectifier:

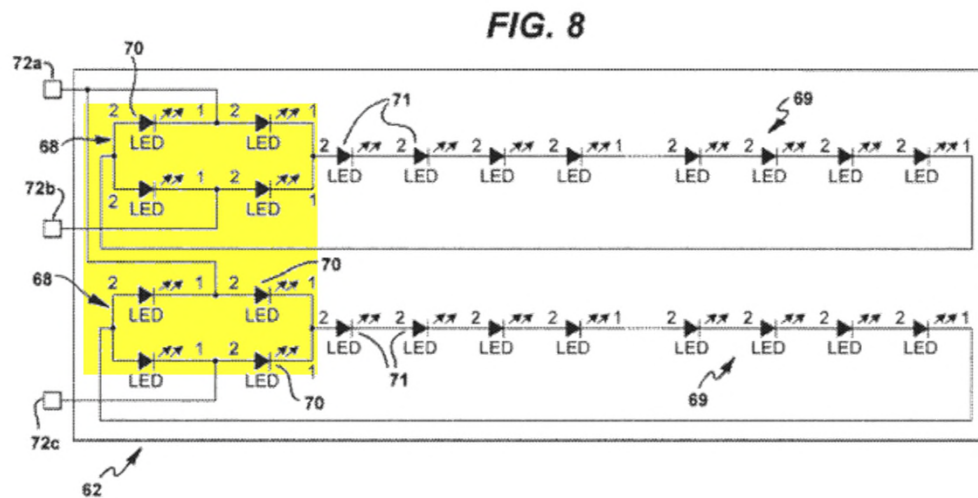
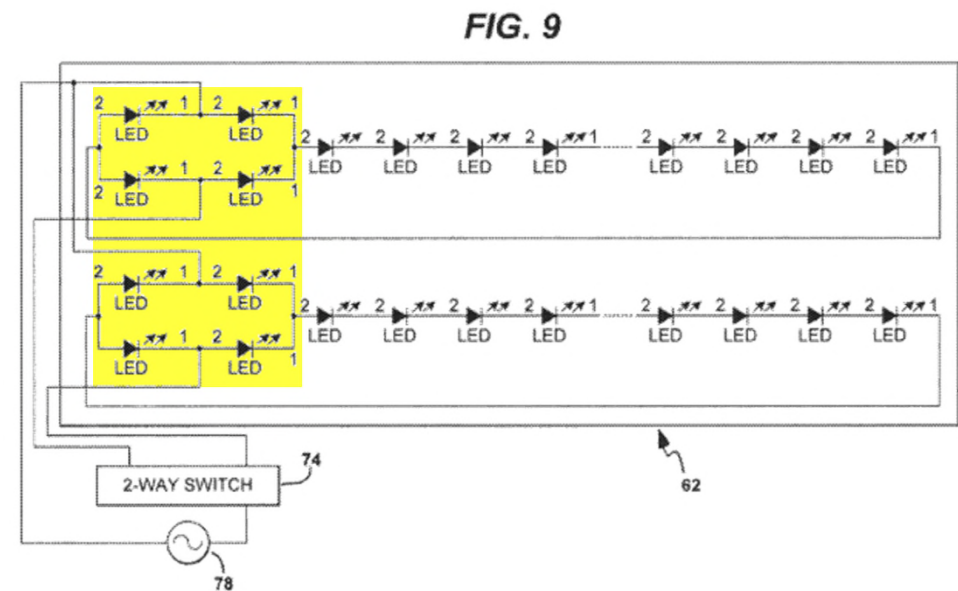


Exhibit 1001, Figs. 8, 9; Paper 20 (Reply), 11.

Options for Placement of Dimmer Switch

Exhibit 1034, ¶¶ 30-31; Paper 20 (Reply), 10.

» Option 1

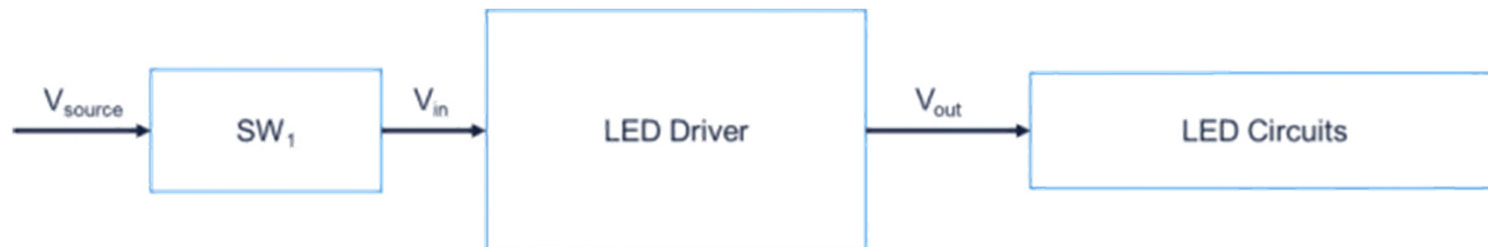


Exhibit 1034, ¶ 30; Paper 20 (Reply), 10.

» Option 2

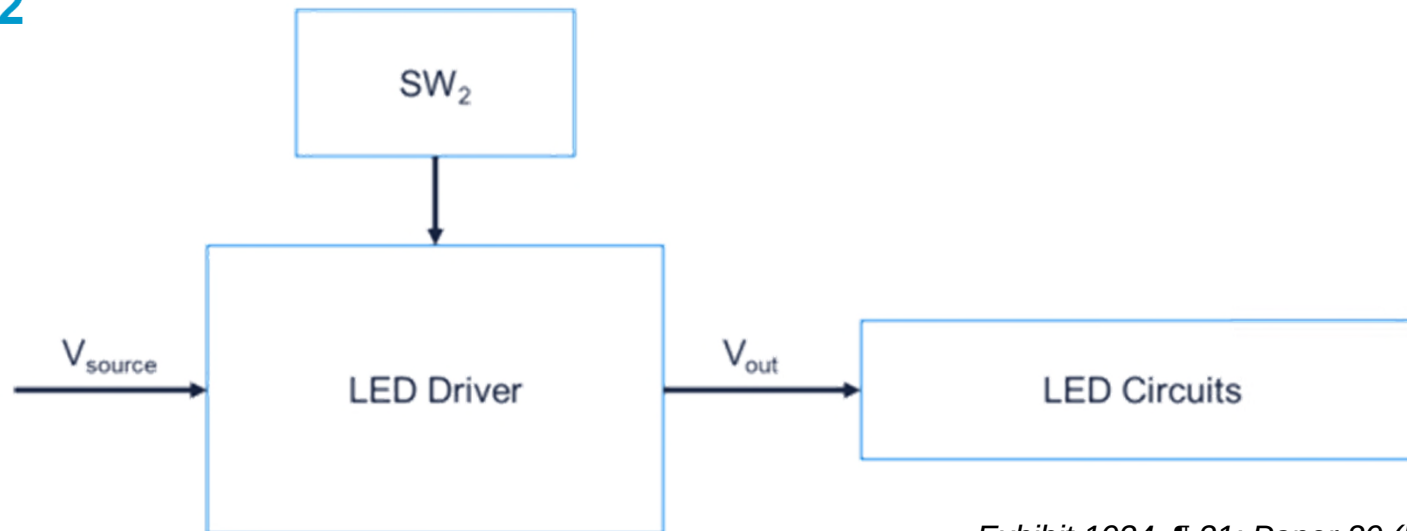


Exhibit 1034, ¶ 31; Paper 20 (Reply), 10.

Dr. Ducharme's Opinion Regarding Where the Switch "Can Be" Located Is Entitled to Little Weight

Paper 20 (Reply), 11.

16 Q. How does the dimmer switch change the
17 voltage driving the LED circuit?
18 A. My recollection is I didn't form an opinion
19 on how the changes for voltage, just that a dimmer
20 switch would be understood as a device that would
21 change voltage or regulate voltage.
22 Q. You do not have an opinion on how the
23 dimmer switch changes the voltage driving the LED
24 circuit; is that correct?
25 A. I did not form an opinion that was -- that
1 was expressed in my declaration on how the dimmer
2 switch operates, just what the function of the
3 dimmer switch was.
4 Q. Do you know if a dimmer switch can adjust
5 the output of the LED driver by providing an input
6 signal to the LED driver that causes the LED driver
7 to then adjust its output?
8 MR. MCBRIDE: Objection. Form.
9 THE WITNESS: Yeah, I'm -- to my best
10 recollection, I did not form an opinion on that.

Exhibit 1038 (Ducharme Depo.), 77:16-78:10;
Paper 20 (Reply), 11.

4 Q. Okay. I'm understanding your testimony is
5 that you have no opinion as to whether a dimmer
6 switch can adjust the input -- strike that.
7 I'm understanding your testimony is that
8 you have no opinion as to whether a dimmer switch
9 can adjust the input voltage to the LED driver such
10 that the LED driver's output is adjusted; is that
11 correct? Is my understanding correct?
12 A. I believe that mischaracterizes my answer.
13 My answer was that I have not formed an opinion on
14 that.
15 Q. You have not formed an opinion as to
16 whether a dimmer switch can adjust the input voltage
17 to the LED driver such that the LED driver's output
18 is adjusted; correct?
19 MR. MCBRIDE: Objection. Asked and
20 answered.
21 THE WITNESS: I believe I've already
22 answered it, but I have not formed an opinion
23 that -- that's -- I have not formed an opinion on
24 that.
1 Q. Are conventional dimmer switches able to
2 adjust the input voltage to an LED driver such that
3 the LED driver's output is adjusted?
4 MR. MCBRIDE: Objection. Form.
5 THE WITNESS: I believe I understand what
6 you're asking. Within the context of my
7 declaration, I did not form an opinion on that.

Exhibit 1038 (Ducharme Depo.), 79:4-80:7,
Paper 20 (Reply), 11.

16 Q. I understand that, but you have no opinion
17 as to how the dimmer switch, the method by which it
18 adjusts the -- the otherwise relatively fixed
19 voltage output of the LED circuit driver; correct?
20 I think that's what you previously testified.
21 A. Yes.

Exhibit 1038 (Ducharme Depo.), 82:16-21,
Paper 20 (Reply), 11.

PO Incorrectly Argues that “Relatively Fixed Voltage” Implies DC Output

Paper 20 (Reply), 12-13.

PO's Response

Other embodiments also disclose drivers with DC voltage outputs. For example, the '215 Provisional discusses an “LED circuit inverter driver” that provides a “relatively fixed voltage as the LED circuit load changes.” EX1014 [’215 Provisional], [Para 19]. This output voltage is a “relatively constant [*e.g.*, DC] output to a load.” *Id.*; EX2045 [Ducharme Decl.], ¶118.

Similarly, the '215 Provisional's dimmer embodiment discloses an LED circuit driver with a “relatively fixed voltage and/or relatively fixed frequency output.” *Id.*, [Para 22]. DC voltages are “relatively fixed” voltages. EX2045



Paper 13 (POR), 36.

inverter noun

in·vert·er

in-ˈvər-tər

- 1 : one that *inverts*
- 2 : a device for converting direct current into alternating current

Exhibit 1039 (Merriam-Webster definition), 1; Paper 20 (Reply), 12-13.

The '215 Application's LED Circuit Driver Outputs AC

» “Relatively fixed” voltage does **NOT** imply DC voltage
Pet., 14-15; Paper 20 (Reply), 11-12.
Paper 20 (Reply), 11-12.

[Para 17] According to one aspect of the invention, AC driven LED circuits (or “driven circuits”) permit or enable lighting systems where LED circuits may be added to or subtracted (either by choice or by way of a failure of a diode) from the driven circuit without significantly affecting the pre-determined desired output range of light from any individual LED and, without the need to: (i) change the value of any discrete component; or, (ii) to add or subtract any discrete components, of any of the pre-existing driven circuit components which remain after the change. During design of a lighting system, one attribute of the LEDs chosen will be the amount of light provided during operation. In this context, it should be understood that depending on the operating parameters of the driver chosen, the stability or range of the voltage and frequency of the driver will vary from the nominal specification based upon various factors including but not limited to, the addition or subtraction of the LED circuits to which it becomes connected or disconnected. Accordingly, as sometimes referred to herein, drivers according to the invention are described as providing “relatively constant” or “fixed” voltage and frequency. The extent of this relative range may be considered in light of the acceptable range of light output desired from the resulting circuit at the before, during, or after a change has been made to the lighting system as a whole. Thus it will be expected that a pre-determined range of desired light output will be determined within which the driven LED circuits of the invention will perform whether or not additional or different LED circuits have been added or taken out of the driven circuit as a whole.

Exhibit 1014 ('215 application), [17]; Paper 20 (Reply), 11-12.

The '215 Application's LED Circuit Driver Outputs AC

» “Relatively fixed” voltage does **NOT** imply DC voltage *Pet., 14-15; Paper 20 (Reply), 11-12.*
Paper 20 (Reply), 11-12.

[Para 18] According to an aspect of the invention, an LED circuit driver provides a relatively fixed voltage and relatively fixed frequency AC output such as mains power sources. The LED circuit driver output voltage and frequency delivered to the LED circuit may be higher or lower than mains power voltage and frequencies by using an LED circuit inverter driver.

[Para 19] The higher frequency LED circuit inverter driver may be a electronic transformer, halogen or high intensity discharge (HID) lamp type driver with design modifications for providing a relatively fixed voltage as the LED circuit load changes. Meaning if the LED circuit inverter driver is designed to have an output voltage of 12V LED circuit driver would provide this output as a relatively constant output to a load having one or more than one LED circuits up to the wattage limit of the LED circuit driver even if LED circuits were added to or removed from the output of the LED circuit driver.

[Para 20] The higher frequency inverter having a relatively fixed voltage allows for smaller components to be used and provides a known output providing a standard reference High Frequency LED circuit driver.

Exhibit 1014 ('215 application), [18]-[20]; Paper 20 (Reply), 11-12.

The '215 Application's LED Circuit Driver Outputs AC, not DC

» “Relatively fixed” voltage does **NOT** imply DC voltage *Pet., 14-15; Paper 20 (Reply), 11-12.*
Paper 20 (Reply), 11-12.

[Para 21] Prior art for single chip LED circuits, for example those disclosed in O2004023568 and JP2004006582 do not provide a way to reduce the number of LEDs within the chip below the total forward voltage drop requirements of the source. The present invention however, enables an LED circuit to be made with any number of LEDs within a single chip, package or module by using capacitors or RC networks to reduce the number of LEDs needed to as few as one single LED. Improved reliability, integration, product and system scalability and solid state lighting design simplicity may be realized with LED circuits and the LED circuit drivers. Individual LED circuits being the same or different colors, each requiring different forward voltages and currents may be driven from a single source LED circuit driver. Each individual LED circuit can self-regulate current by matching the capacitor or RC network value of the LED circuit to the known relatively fixed voltage and frequency of the LED circuit driver whether the LED circuit driver is a mains power source, a high frequency LED circuit driver or other LED circuit driver capable of providing a relatively fixed voltage and relatively fixed frequency output.

Exhibit 1014 ('215 application), [21]; Paper 20 (Reply), 11-12.

The '215 Application and '597 PCT Teach Away from the Claims

Paper 20 (Reply), 13-14.

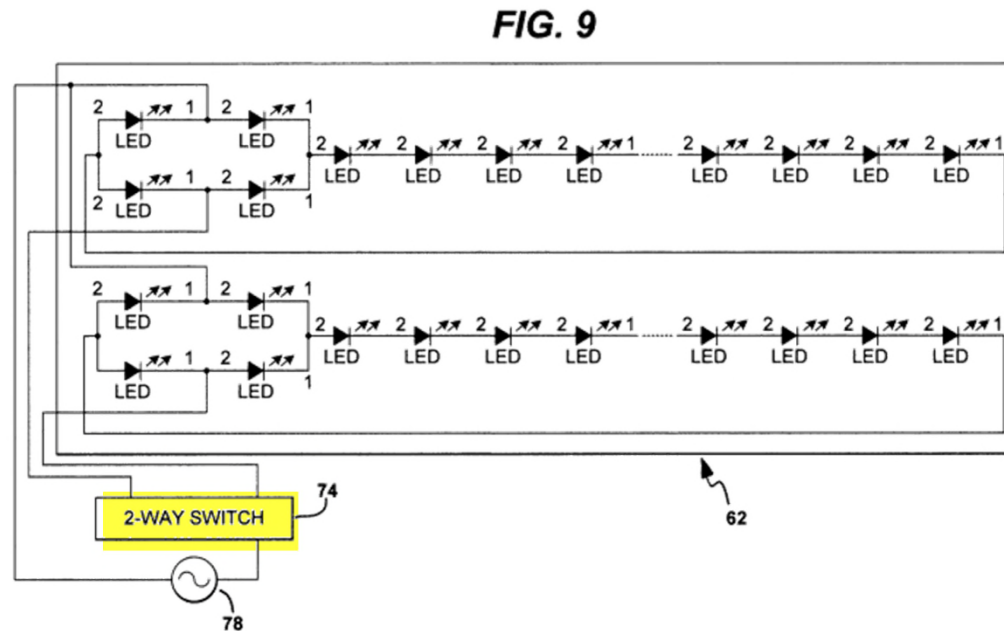


Exhibit 1018 ('597 PCT), Fig. 9; Paper 20 (Reply), 13-14.

Applicant Distinguished *Lefebvre* Based on this New Matter

Pet., 13-14; *Paper 20 (Reply)*, 14; *Exhibit 1003*, 182-184, 188.

The Office Action points to Fig. 5 from *Lefebvre* as disclosing an LED driver. For convenience, Fig. 5 from *Lefebvre* is reproduced below. Fig. 5 fails to show a switch electrically connected between a DC voltage output (of an LED driver) and at least one of a first operating LED circuit or at least one additional LED circuit. Instead, Fig. 5 shows bridge rectifiers (80, 86, 88) connected to terminals (54, 55, 56, 57) and a lighting assembly (70). Fig. 4 from *Lefebvre* shows switches (66, 68) connected to an AC power source, but do not show LED drivers, let alone switches (66, 68) electrically connected between a DC voltage output (of an LED driver) and at least one of a first operating LED circuit or at least one additional LED circuit.

Exhibit 1003, 182; *Pet.*, 13-14; *Paper 20 (Reply)*, 14.

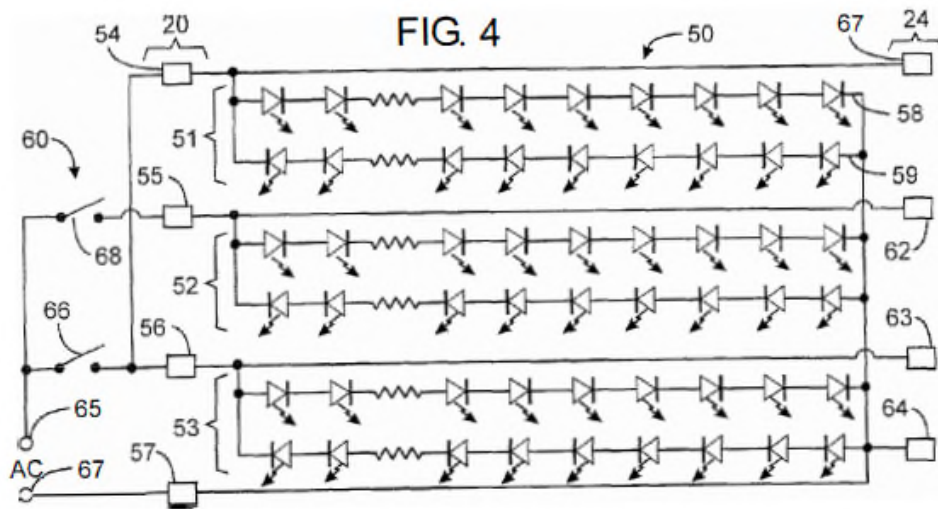
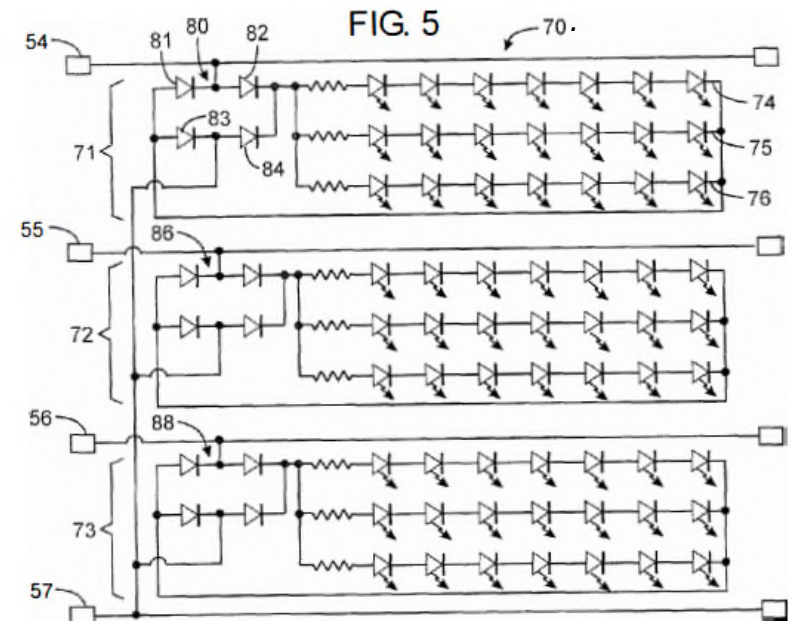


Exhibit 2007 (Lefebvre), Figs. 4-5; *Paper 20 (Reply)*, 14-15.

PO's Argument that the Switches Disclosed in the Applications "Can Be" Moved to the Claimed Location is Inconsistent with the Prosecution History

Even if *Lefebvre*'s circuits of Figs. 4 and 5 were combined, the switches would be placed *before* the bridge rectifiers (80, 86, 88). The switches of Claim 1 instead are located *after* a DC voltage output (of an LED driver), which provides for control of a DC voltage rather than attempting to control an AC voltage that is later converted into a DC voltage. Placing a switch *after* an LED driver is *more efficient* since the LED driver can optionally output a lower voltage, thereby *reducing the amount of high voltage isolation* needed for the switch. This LED driver-switch configuration enables the use of *smaller and safer switches*, and is *safer for a user* to actuate the switch while there is power being delivered through the lighting system. For at least this reason, *Lefebvre* fails to disclose a switch electrically connected between a DC voltage output (of an LED driver) and at least one of a first operating LED circuit or at least one additional LED circuit. Independent Claim 1 is accordingly patentable over *Lefebvre*.

Pet., 13-14; *Paper 20*
(*Reply*), 14; *Exhibit 1003*,
182-184.

Exhibit 1003, 183; *Paper 20* (*Reply*), 14.

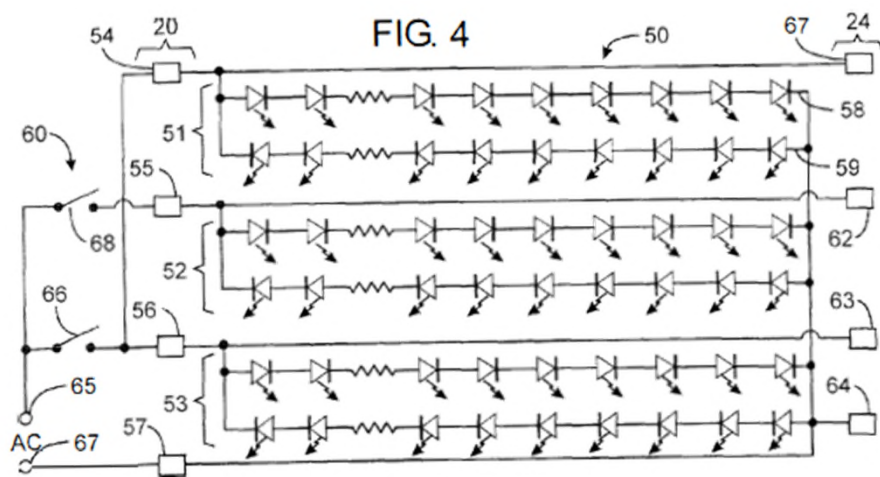
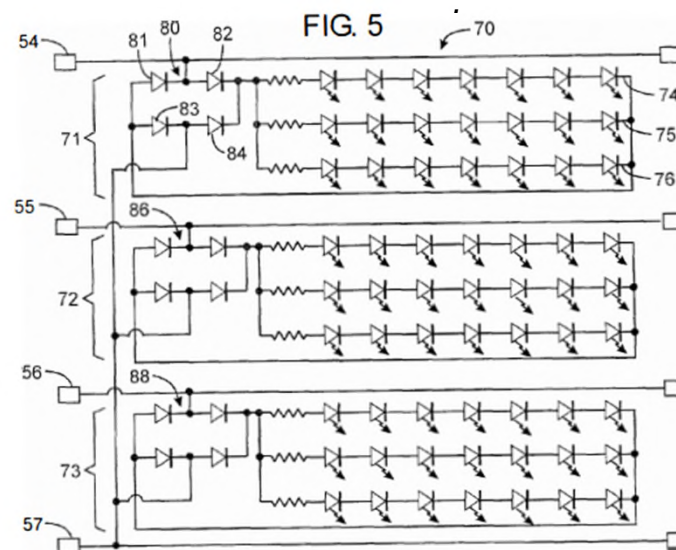


Exhibit 2007 (*Lefebvre*), Figs. 4-5; *Paper 20* (*Reply*), 14-15.

The Board's Preliminary Finding is Correct

Paper 8 (D.I.), 19-25; Paper 20 (Reply), 10.

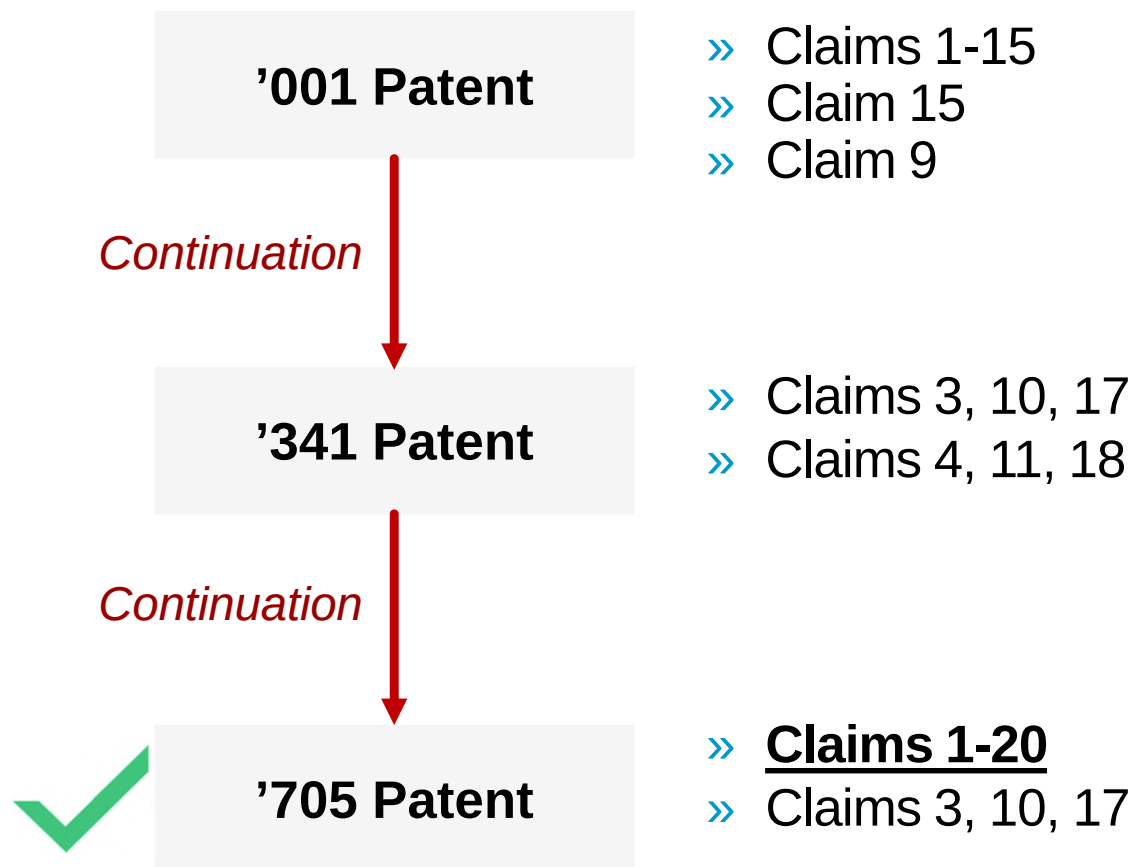
Based on the record before us, and for the foregoing reasons (*see* Pet. 11–15), we determine that the '215 provisional (and other Pre-AIA Applications) does not provide sufficient written description support to reasonably convey to the skilled artisan that, as of the filing date of the '215 provisional, the inventors had possession of 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,” as recited in claim 1. *See Ariad Pharm.*, 598 F.3d at 1351. Accordingly, on this record, we are persuaded that the '215 provisional lacks sufficient written description support for the inventions recited in claims 1–20 of the '705 patent. Thus, on this record, claims 1–20 of the '705 patent are not entitled to priority and, for purposes of institution, do not receive an effective filing date as early as that of the '597 PCT (i.e., 2010) or any other Pre-AIA Application.

In this case, 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. Petitioner shows persuasively that none of the applications

Paper 8 (D.I.), 24; Paper 20 (Reply), 10.

Overview of the '705 Patent's PGR-Eligibility

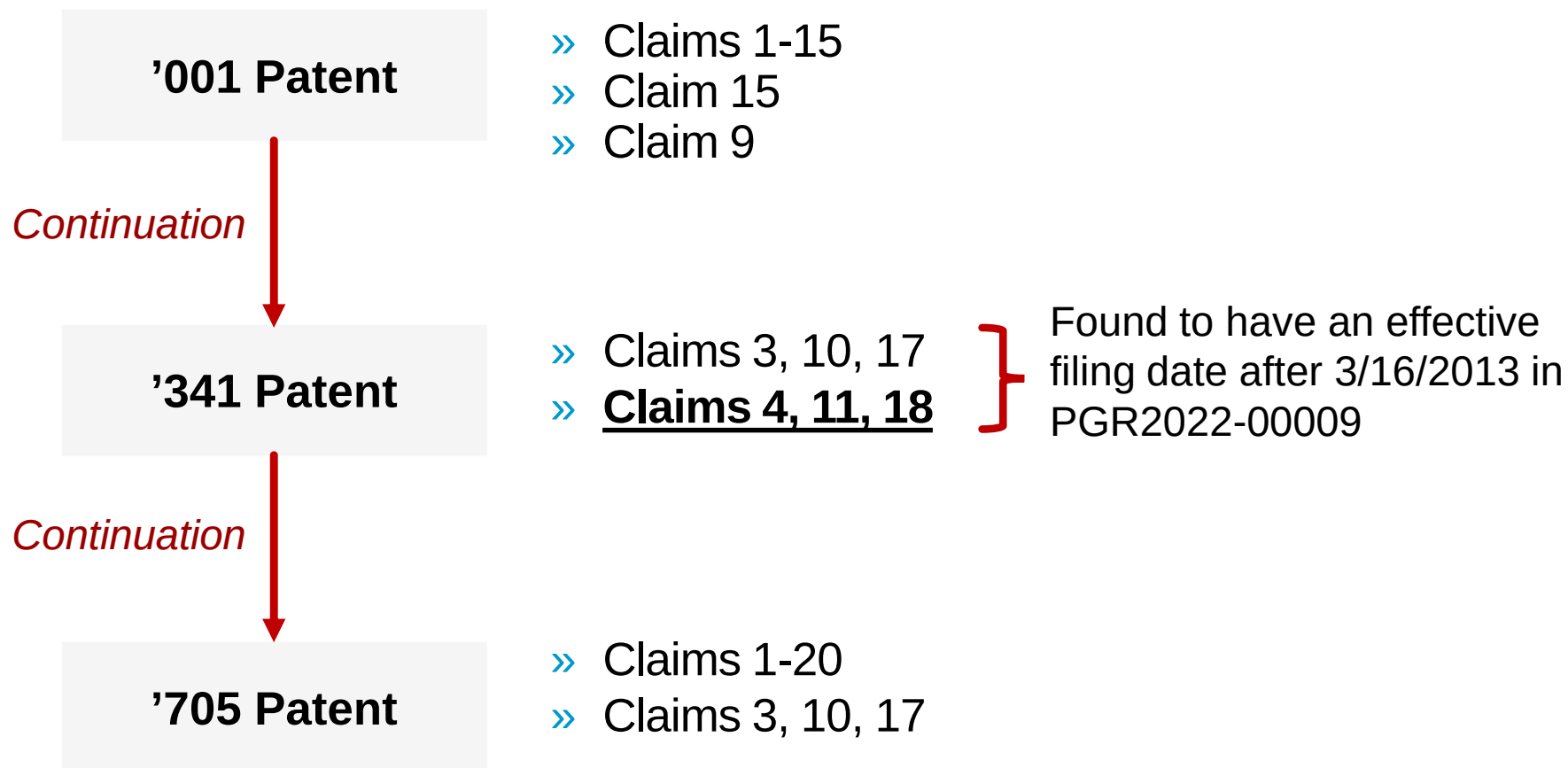
Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Overview of the '705 Patent's PGR-Eligibility

Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Claims 4, 11, and 18 of the '341 Patent: “Switch” and “LED Lighting Device”

Pet., 20; Paper 20 (Reply), 18-19.

1. An LED lighting device comprising:
a first operating LED circuit and at least one additional
LED circuit,

...

a switch capable of at least one of:

(a) switching a voltage level input to at least one of the
first operating LED circuit or the at least one addi-
tional LED circuit, or

(b) switching the at least one additional LED circuit on
or off,

wherein (a) or (b) is selectable by a user switching the
switch, and

wherein the LED lighting device is configured to connect
to an AC voltage power source.

Exhibit 1006, claim 1.

4. The LED lighting device of claim 1, wherein the switch
is connected between the AC voltage power source and the
LED lighting device.

See e.g., Exhibit 1006, claim 4; see also Exhibit 1006, claims 11, 18.

The '597 Application Does Not Disclose the Claimed Structure

Pet., 20; Paper 20 (Reply), 18-19.

FIG. 9

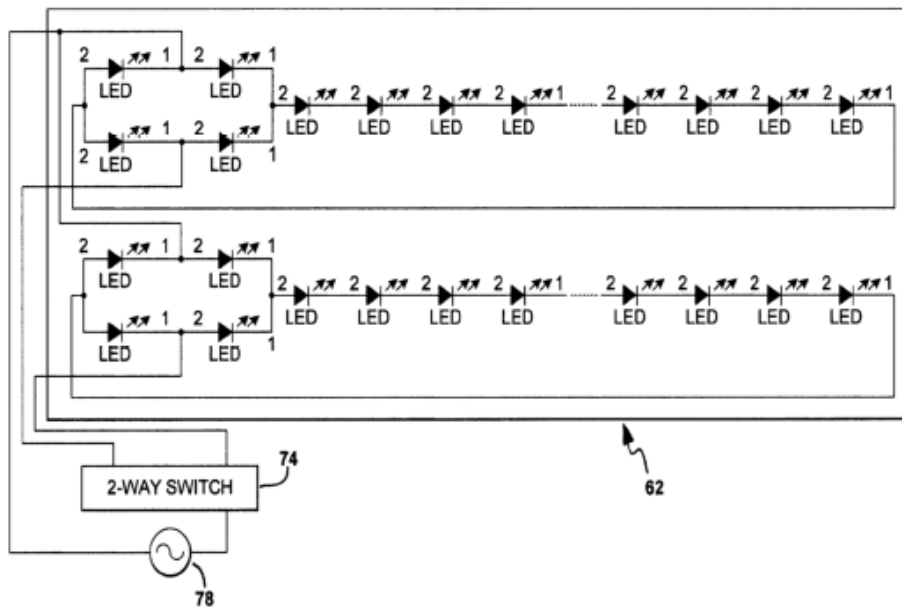


FIG. 7
2-WAY SINGLE CHIP
AC LED FOR 2-WAY LAMP

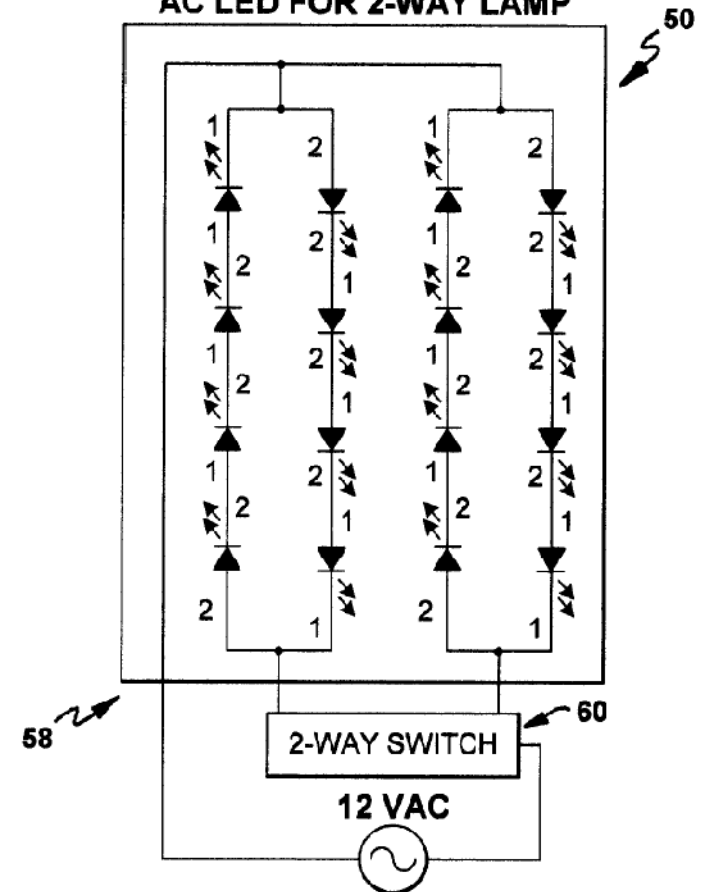
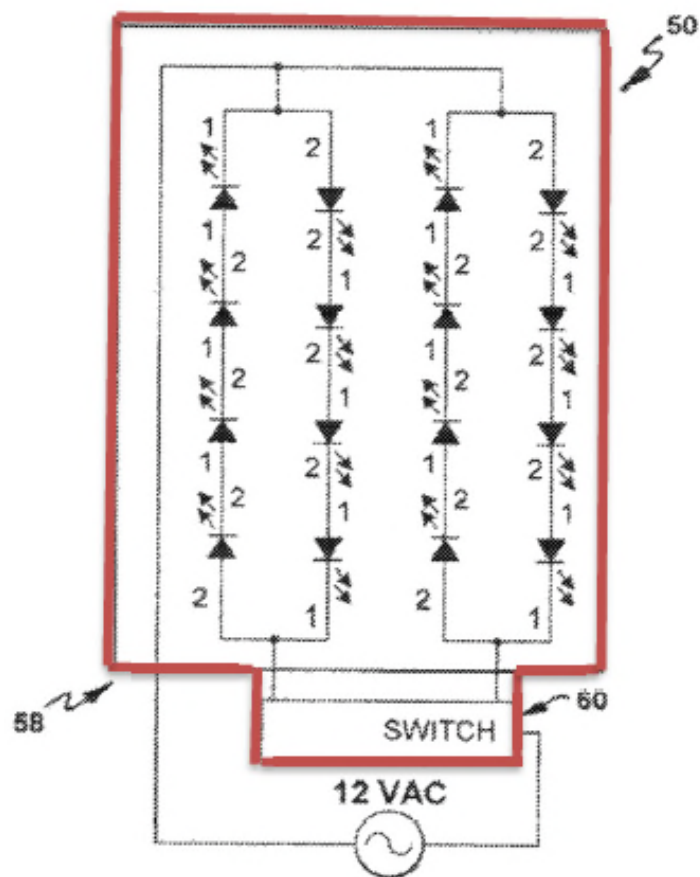


Exhibit 1018 ('597 PCT), Figs. 7, 9; Paper 13 (POR), 55-57; Paper 20 (Reply), 18-19.

PO's Manufactured Embodiment

Paper 13 (POR), 55; Paper 20 (Reply), 19.

FIG. 7



Paper 13 (POR), 55.

FIG. 7 discloses a schematic diagram similar to the multi-voltage and/or multi-brightness LED device 50 shown in FIG. 6 integrated within a lamp 58 and connected to a switch 60 to control the brightness level of the multi-voltage and/or multi-brightness LED lighting device 50.

Exhibit 1006, 11:18-22.

The Board Rejected PO's Alternative "Interface" Argument in PGR2022-00009

Paper 20 (Reply), 19; Paper 13 (POR), 55-57; Exhibit 1032, 46-47.

As to Patent Owner's alternative "interface" contention, even 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 of independent claims 1, 8, and 15 *and* also be "connected between the AC voltage power source and the LED lighting device," as recited in claims 4, 11, and 18, which depend directly from claims 1, 8, and 15.

Exhibit 1032 (PGR2022-00009 FWD), 46-47; Paper 20 (Reply), 19.

The Board's Ruling in PGR2022-00009

Exhibit 1032 (PGR2022-00009 FWD), 47; Paper 20 (Reply), 18.

We agree that the portions of the '295 application corresponding to the portions of the '341 patent and the '597 PCT cited by Patent Owner do not and cannot show the claimed switch as being part of the claimed LED lighting device and at the same time being disposed between the voltage source and the claimed LED lighting device.

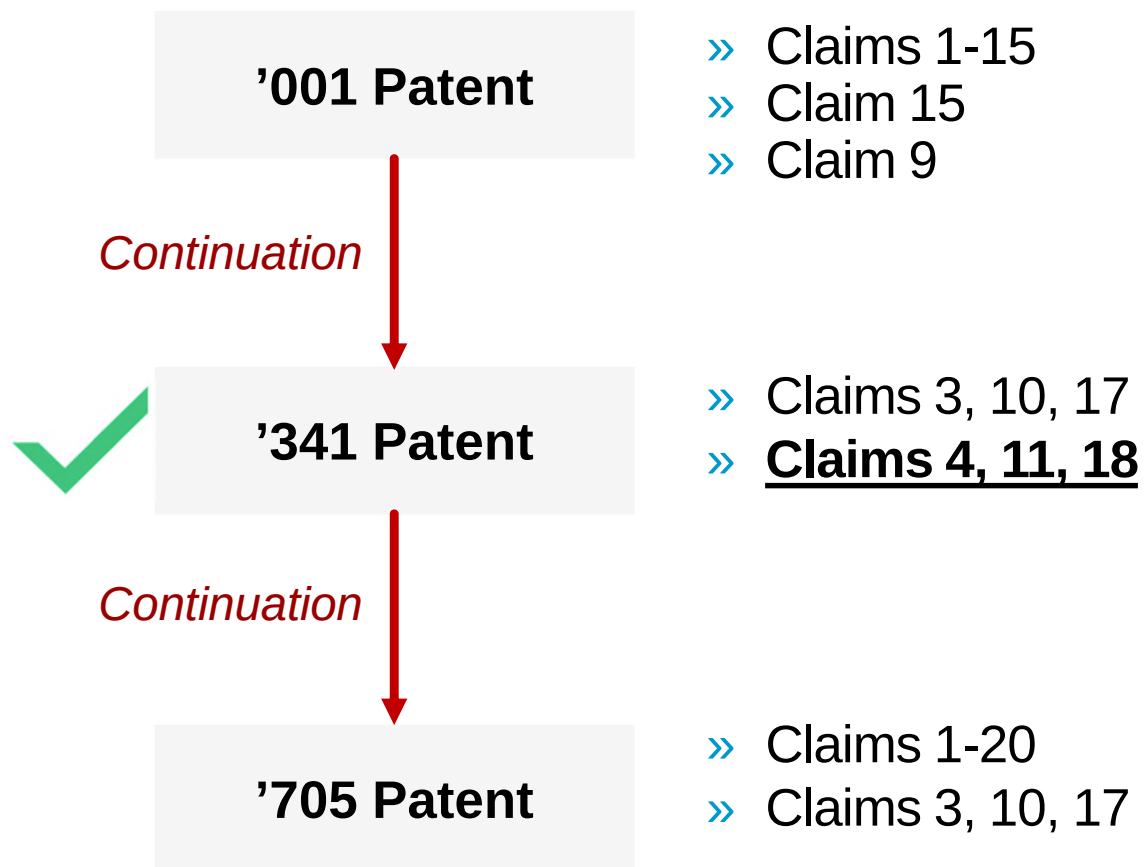
We are persuaded that the Petition shows by a preponderance of the evidence that claims 4, 11, and 18 lack sufficient written description support in the '295 application underlying '341 patent as required by 35 U.S.C. § 112(a).

With regard to the *enablement* requirement, we are persuaded that the '295 application does not “teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation’” because it is “impossible” for the switch to be both part of the LED lighting device and between the LED lighting device and the voltage source, as discussed above in this section.

Exhibit 1032 (PGR2022-00009 FWD), 47; Paper 20 (Reply), 18.

Overview of the '705 Patent's PGR-Eligibility

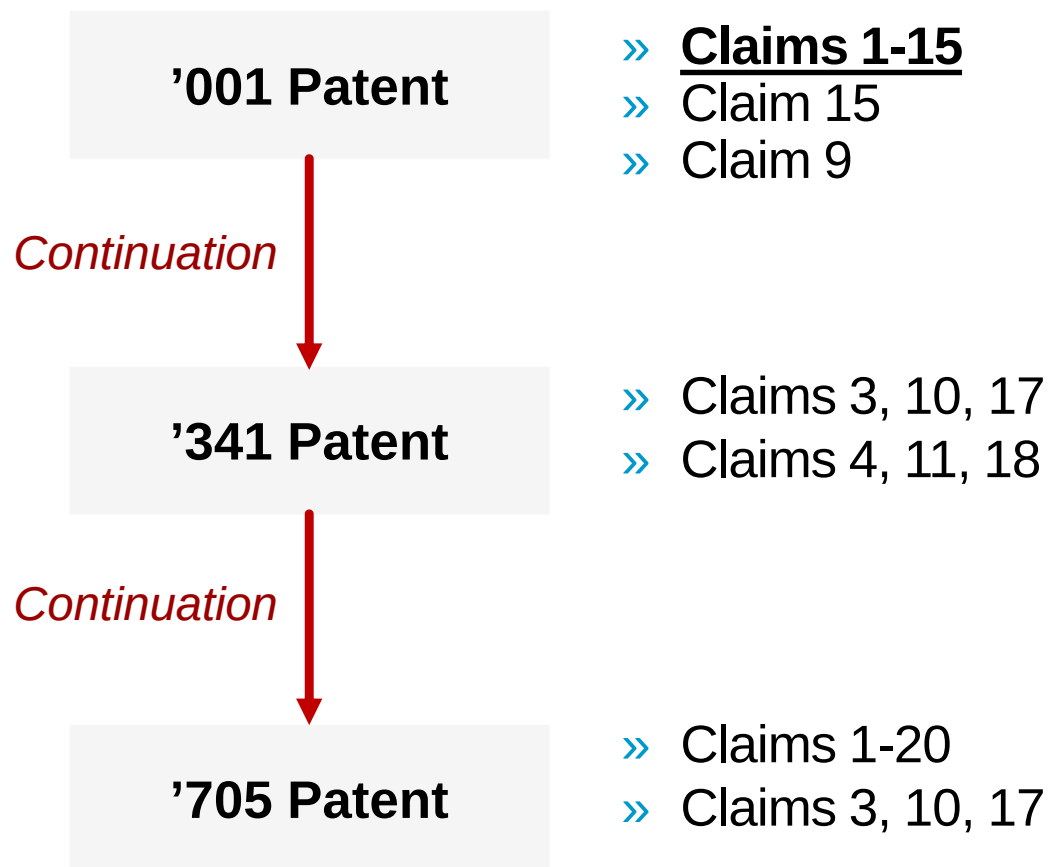
Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Overview of the '705 Patent's PGR-Eligibility

Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Claims 1-15 of the '001 Patent – “Independently” Switch

Pet., 21, Paper 20 (Reply), 19-20.

11. An LED lighting device comprising:
a first LED circuit and at least one additional LED circuit,
each of the first LED circuit and the at least one
additional LED circuit including at least two LEDs
connected in series or parallel;
a switch, wherein switching of the switch is selectable by
a user to independently switch on or off at least one of
the first LED circuit or the at least one additional LED
circuit;
wherein the LED lighting device is configured to connect
to a driver connected to an AC voltage power source;
wherein the driver has an output voltage lower than the
AC voltage power source and increases a frequency to
be higher than the AC voltage power source frequency;
wherein the first LED circuit and the at least one addi-
tional LED circuit both have a forward voltage of 6V
or greater; and
wherein the first LED circuit, the at least one additional
LED circuit, and the switch are integrated within or
onto an LED package.

*Exhibit 1020 ('001 Patent), claim 11;
see also id., claims 1 and 6.*

The '597 PCT Does Not Disclose “Independently” Switch

Pet., 21, Paper 20 (Reply), 19-20.

[Para 18] It would further be advantageous to provide multi-brightness LED devices that can be switched to different levels of brightness by simply switching additional circuits on or off in addition to a first operating circuit within a single chip and or LED package. This would allow LED lamps to switch to higher brightness levels just like 2-way or 3-way incandescent lamps do today.

Exhibit 1018 ('597 PCT), [18]; Pet., 21; Paper 20 (Reply), 19-20.

The '597 PCT Does Not Disclose “Independently” Switch

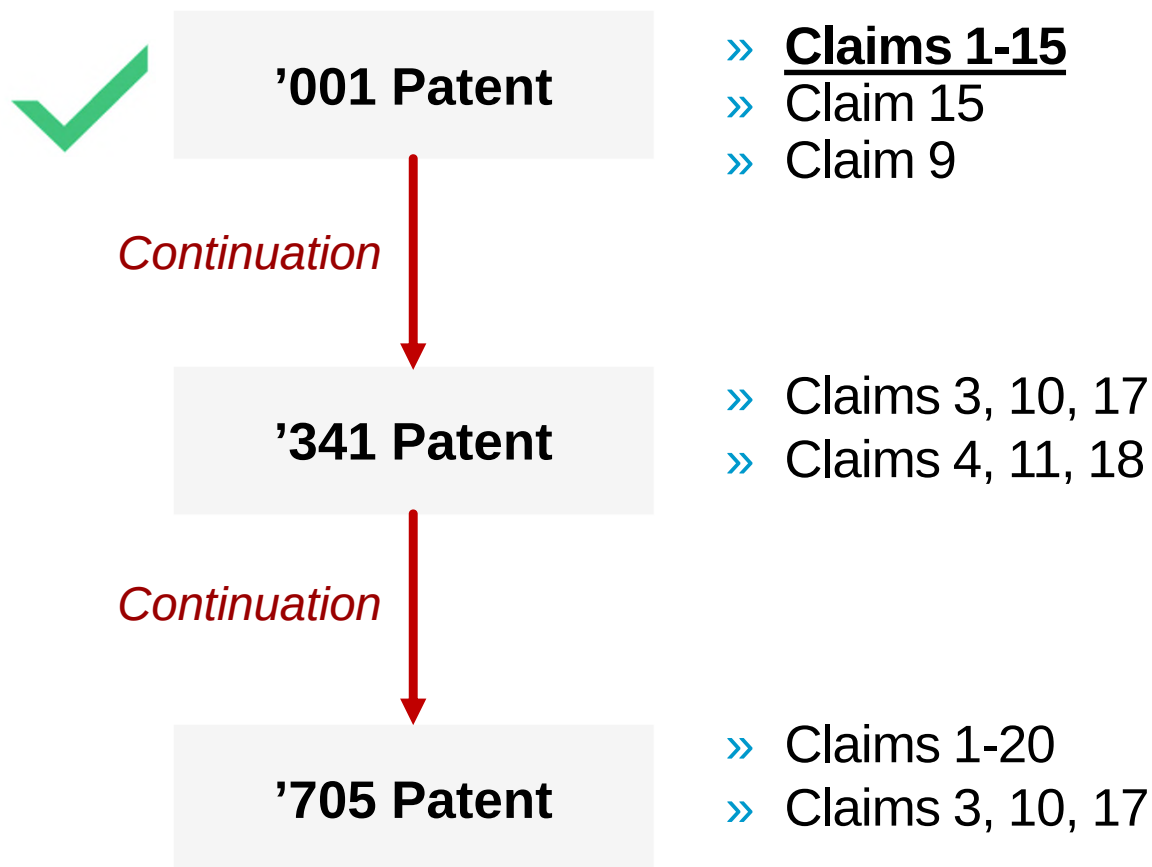
Pet., 21, Paper 20 (Reply), 19-20.

[Para 56] Figure 6 discloses a schematic diagram of a multi-voltage and/or multi-brightness LED lighting device 50. The multi-voltage and/or multi-brightness LED lighting device 50 comprises at least two AC LED circuits 52, each of which have at least two LEDs 54 in series and anti-parallel relation. The at least two AC LED circuits 52 have at least three electrical contacts 56a, 56b and 56c. The at least two AC LED circuits 52 are electrically connected together in parallel at one end 56a and left unconnected at the opposing ends of the electrical contacts 56b and 56c. One side of an AC voltage source line is electrically connected to 56a and the other side of an AC voltage source line is individually electrically connected to 56b and 56c with either a fixed connection or a switched connection thereby providing a first brightness when AC voltage is applied to 56a and 56b and a second brightness when an AC voltage is applied to 56a, 56b and 56c. It is contemplated that the multi-voltage and/or multi-brightness LED lighting device 50 is a single chip, an LED package, an LED assembly or an LED lamp. The multi-brightness switching capability

Exhibit 1018 ('597 PCT), [56]; Paper 13 (POR), 58-59; Paper 20 (Reply), 19-20.

Overview of the '705 Patent's PGR-Eligibility

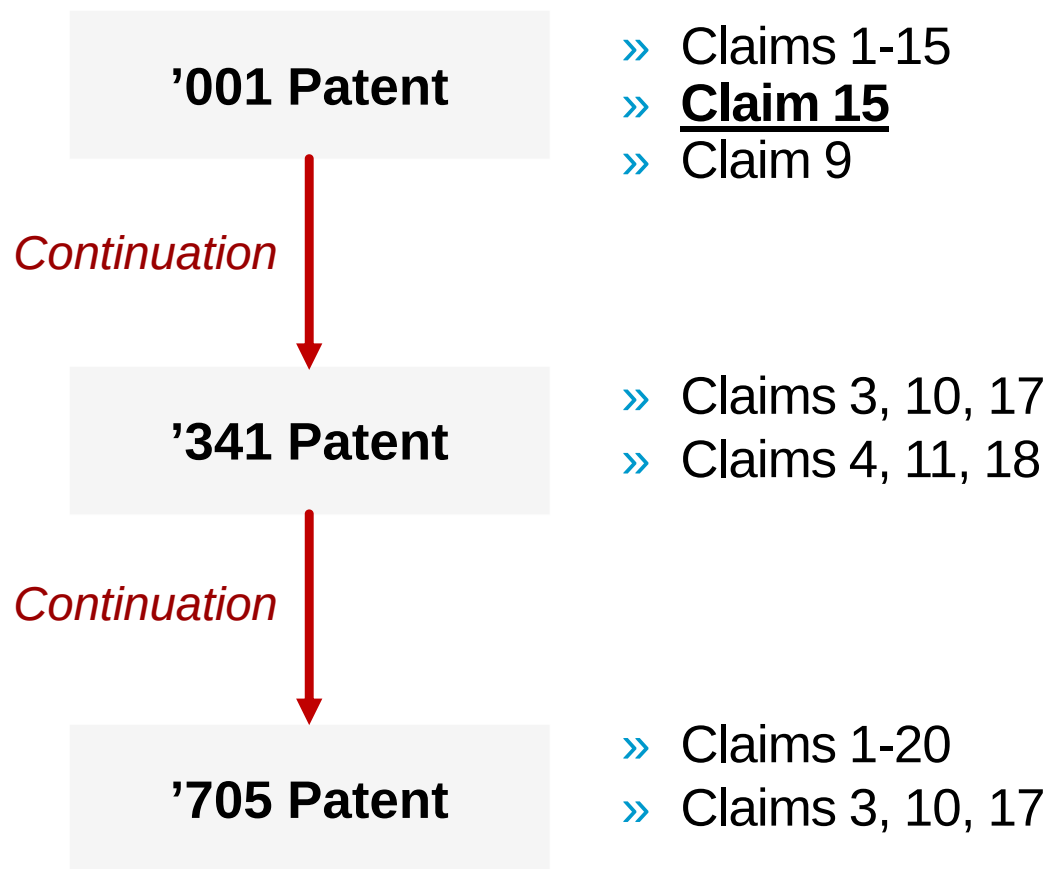
Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Overview of the '705 Patent's PGR-Eligibility

Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Claim 15 of the '001 Patent – A Second, Dimmer Switch

Pet., 21-23; Paper 20 (Reply), 20.

11. An LED lighting device comprising:
a first LED circuit and at least one additional LED circuit,
each of the first LED circuit and the at least one
additional LED circuit including at least two LEDs
connected in series or parallel;
a switch, wherein switching of the switch is selectable by
a user to independently switch on or off at least one of
the first LED circuit or the at least one additional LED
circuit;
wherein the LED lighting device is configured to connect
to a driver connected to an AC voltage power source;
wherein the driver has an output voltage lower than the
AC voltage power source and increases a frequency to
be higher than the AC voltage power source frequency;
wherein the first LED circuit and the at least one addi-
tional LED circuit both have a forward voltage of 6V
or greater; and
wherein the first LED circuit, the at least one additional
LED circuit, and the switch are integrated within or
onto an LED package.

Exhibit 1020 ('001 Patent), claim 11.

15. The LED lighting device of claim 11, wherein the AC
voltage power source is a mains power source, and wherein
the LED lighting device is configured to be coupled to a
dimmer switch, wherein the dimmer switch adjusts a voltage
of the mains power source to dim the first LED circuit or the
at least one additional LED circuit regardless of a user's
selection via the switch.

Exhibit 1020 ('001 Patent), claim 15.

The '215 Application Does Not Support Claim 15

Pet., 21-23; Paper 20 (Reply), 20.

15. The LED lighting device of claim **11**, wherein the AC voltage power source is a mains power source, and wherein the LED lighting device is configured to be coupled to a **dimmer switch**, wherein the dimmer switch adjusts a voltage of the mains power source to dim the first LED circuit or the at least one additional LED circuit **regardless of a user's selection via the switch.**

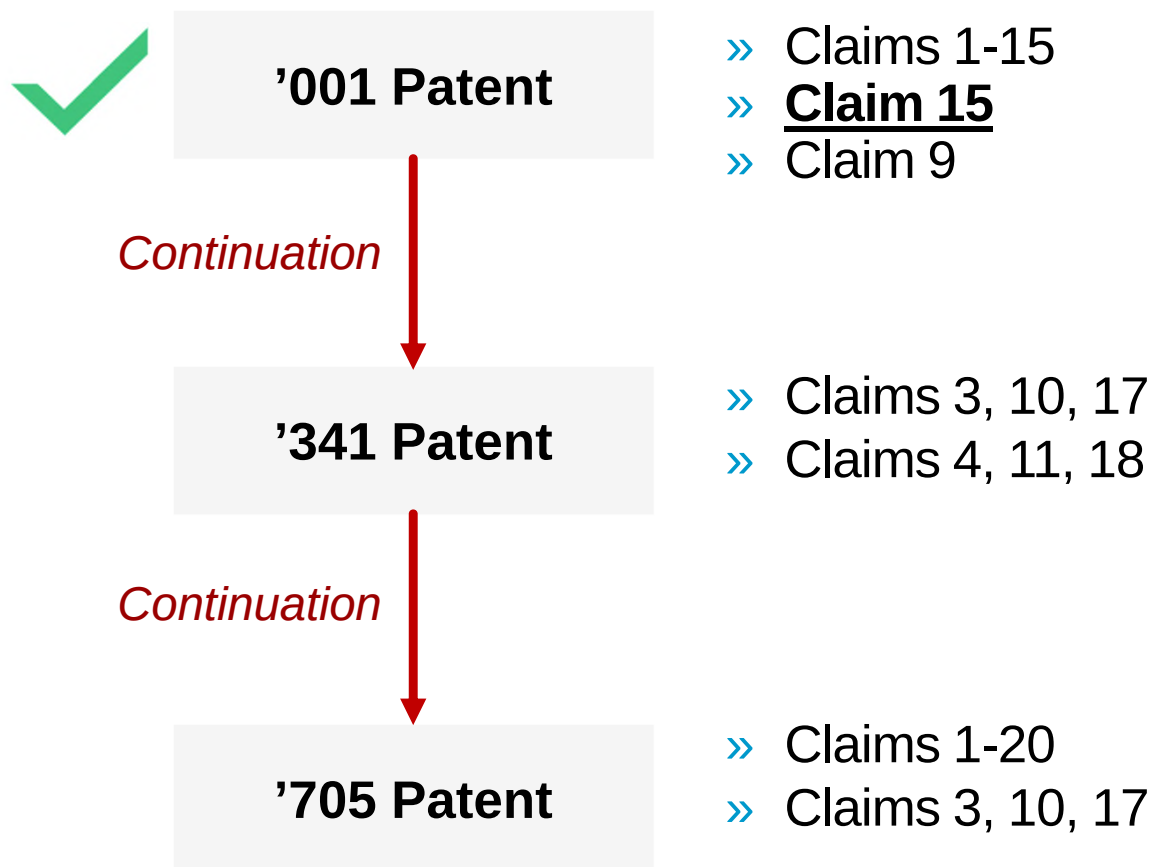
Exhibit 1020 ('001 Patent), claim 15.

[Para 22] According to other aspects of the invention, the LED circuit driver may be coupled to a dimmer switch that regulates voltage or frequency or may have integrated circuitry that allows for adjustability of the otherwise relatively fixed voltage and/or relatively fixed frequency output of the LED circuit driver. The LED circuits get brighter as the voltage and/or frequency of the LED circuit driver output is increased to the LED circuits.

Exhibit 1014 ('215 application), [22]; Paper 13 (POR), 60-61.

Overview of the '705 Patent's PGR-Eligibility

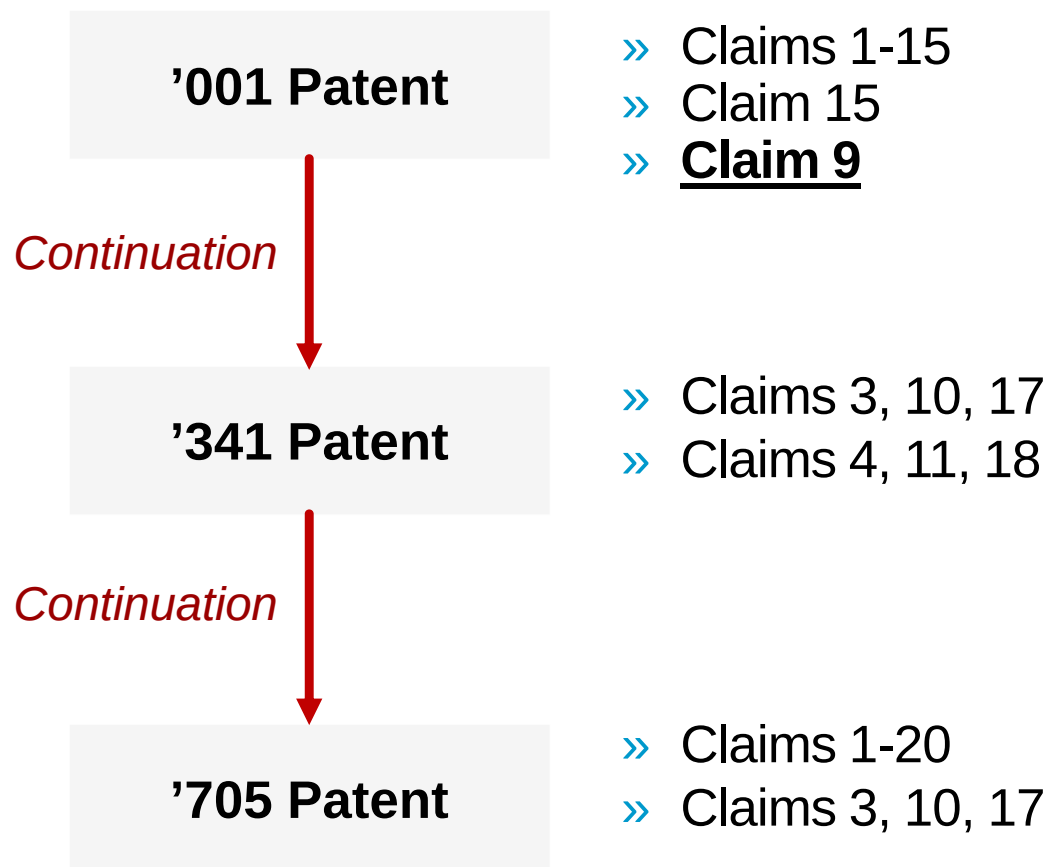
Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Overview of the '705 Patent's PGR-Eligibility

Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Claim 9 of the '001 Patent – “Driver” and “LED Lighting Device”

Pet., 23; Paper 20 (Reply), 20-21.

6. A multi-brightness LED lighting device comprising:
a first LED circuit and at least one additional LED circuit.

• • •

wherein the LED lighting device is configured to connect to a driver connected to an AC voltage power source; wherein the driver has an output voltage lower than the AC voltage power source and increases a frequency to be higher than the AC voltage power source frequency; wherein the first LED circuit and the at least one additional LED circuit both have a forward voltage of 6V or greater; and wherein the first LED circuit and the at least one additional LED circuit are mounted on an insulating substrate.

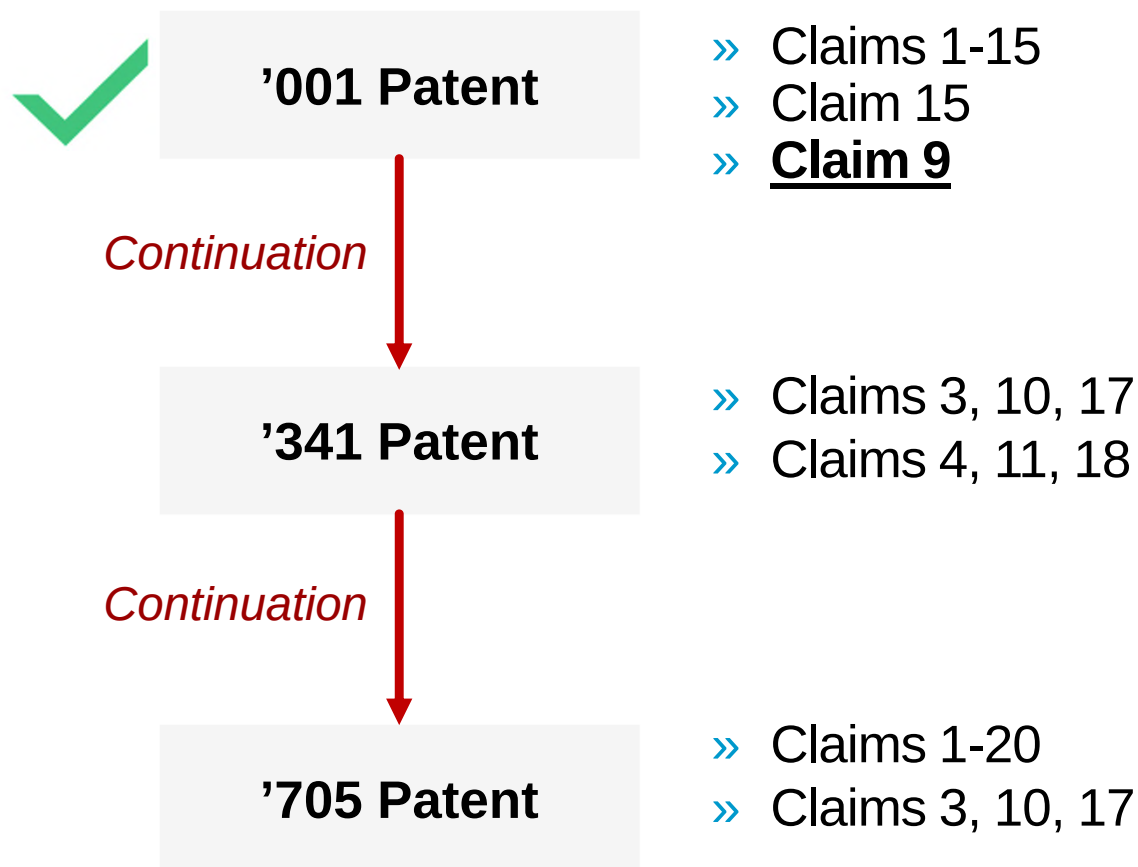
Exhibit 1020 ('001 Patent), claim 6.

9. The multi-brightness LED lighting device of claim 6, further comprising the driver.

Exhibit 1020 ('001 Patent), claim 9.

Overview of the '705 Patent's PGR-Eligibility

Pet., 11-23; Paper 20 (Reply), 9-21.



Pet., 11-23; Paper 20 (Reply), 9-21.

Ground 1: Invalid under Section 112

Claims 3, 10 and 17

Claims 3, 10, and 17 are Impossible

Pet., 28-30; Paper 20 (Reply), 21-24.

1. An LED lighting system comprising:
a first operating LED circuit and at least one additional LED circuit.
...
a switch capable of at least one of:
(a) switching a voltage level input to at least one of the first operating LED circuit or the at least one additional LED circuit, or
(b) switching the at least one additional LED circuit on or off,
wherein (a) or (b) is selectable by a user switching the switch; and
...

Exhibit 1001, claim 1.

3. The LED lighting system of claim 1, 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.

See e.g., Exhibit 1001, claim 3; see also Exhibit 1001, claims 10, 17.

The Board's Ruling in PGR2022-00009

Exhibit 1032 (PGR2022-00009 FWD), 26-43; Paper 20 (Reply), 21.

Petitioner's "impossibility of multiple minimum voltages" arguments with respect to the inventions recited in claims 3, 10, and 17 are persuasive to show a lack of written description as discussed above, as well as to show a lack of enablement, indefiniteness, and PGR eligibility, as discussed below. We agree that, "[b]ecause each circuit has only one such minimum, there is only one 'forward voltage' for each circuit, and no switch can provide 'at least two different DC forward voltages' to either [individual] circuit." Pet. 18.

Exhibit 1032 (PGR2022-00009 FWD), 40-41; Paper 20 (Reply), 21.

The Board's Ruling in PGR2022-00009

Exhibit 1032 (PGR2022-00009 FWD), 26-43; Paper 20 (Reply), 21.

We are persuaded that it is more likely than not that the '295 application underlying the '341 patent “fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus*, 572 U.S. at 901. That is, it is unclear what the scope of claims 3, 10, and 17 is, given that a POSITA could not possibly apply two different DC forward voltages, under the construction of “forward voltage” that we adopted in Section III.C, to only one of the two single voltage LED circuits. That is, apply two different DC forward voltages to: (1) *only* the claimed the first operating LED circuit; or (2) *only* the at least one additional LED circuit, as is encompassed by the scope of claims 3, 10, and 17. We are persuaded that Petitioner establishes that claims 3, 10, and 17 are indefinite because it would have been impossible to apply two different minimum voltages (i.e., the claimed “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). *Cf. Synchronoss Techs., Inc. v. Dropbox, Inc.*,

Exhibit 1032 (PGR2022-00009 FWD), 42; Paper 20 (Reply), 21.

Ground 2: Bruning

Claims 15, 17, and 19

PO Has Waived any Arguments with Respect to Ground 2

Paper 20 (Reply), 24; D.I., 2-3.

» PO does not dispute that claims 15, 17, and 19 are anticipated by Bruning



Paper 20 (Reply), 24.

Ground 3: Bruning in view of Evanicky

Claims 1-3, 5, 7-10, 12, 14, and 16

Ground 3 – Overview of Disputes

- “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” (claims 1-3, 5, 7-10, 12, 14, and 16)
Paper 20 (Reply), 24-25; Paper 13 (POR), 70-71.
- “Wherein the switch has at least two positions” (only claims 2, 9, 16)
Paper 20 (Reply), 25; Paper 13 (POR), 71.

Petition

In the combination, the color-specific switches of Bruning are the switch.

Alternatively, the combination of the color-specific switches of Bruning, the controllers, and the slider/knob of Evanicky together are the switch. EX1002, ¶112.

Pet., 53-54; Paper 20 (Reply), 24-25.

2. **Claim 2: The LED lighting system of claim 1, wherein the switch has at least two positions.**

In the combination, the switch includes the slider or knob of Evanicky. A slider or knob explicitly discloses at least two positions, as the user will slide the slider or turn the knob between multiple positions. *See* claim 1; EX1002, ¶118.

Pet., 54; see also Pet., 57, 59; Paper 20 (Reply), 24-25.

Bruning's Transistors are Electrically Connected between the Driver and LED Circuits

Paper 20 (Reply), 24-25; Pet., 33-43.

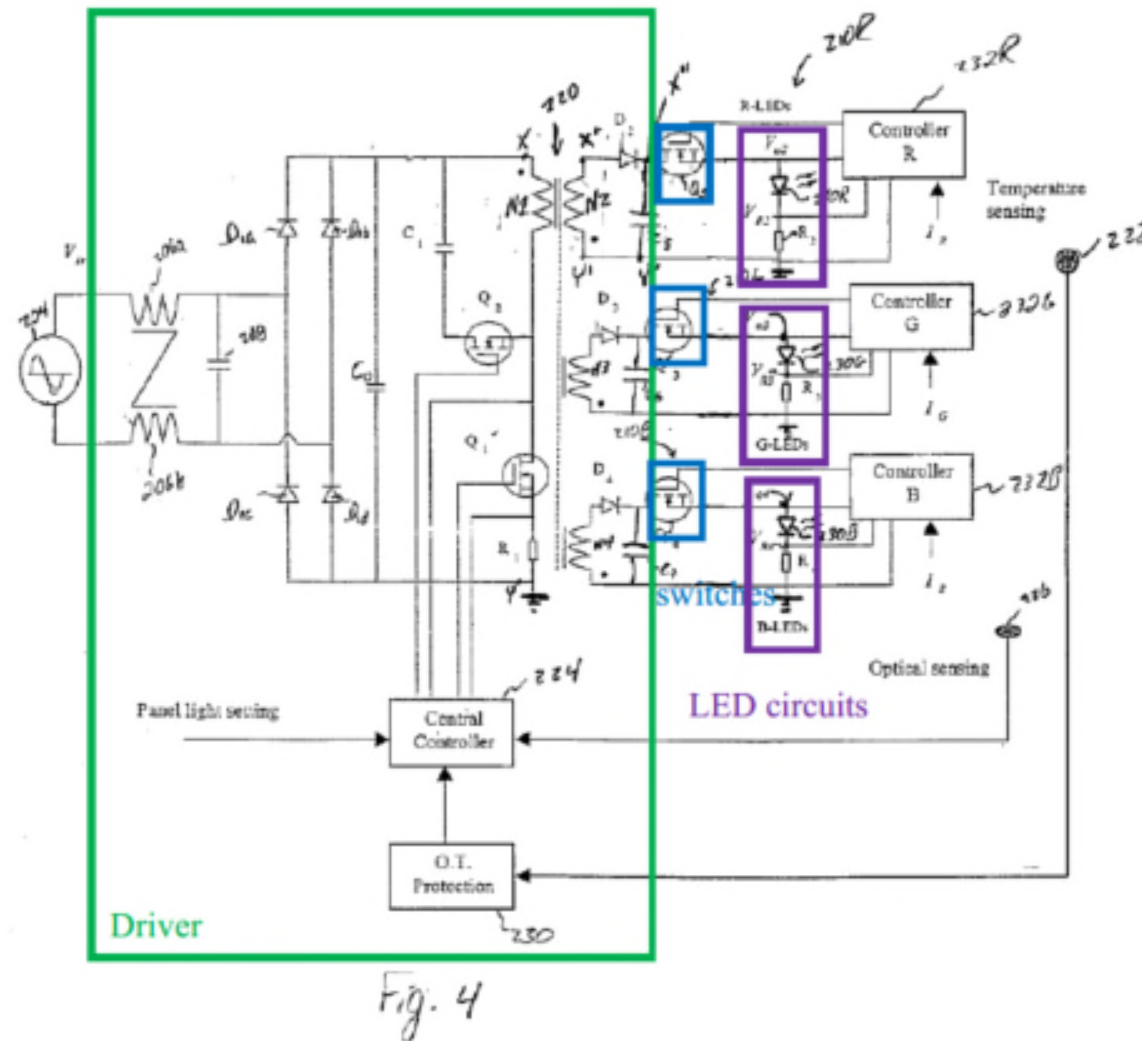


Exhibit 1004, Fig. 4; Paper 20 (Reply), 24-25; Pet., 43.

PO's Argument Fails to Address Proposed Combination

PO's Argument

Petitioner argues that “Bruning’s transistors are indirectly physically selectable.” Reply, 24. The user doesn’t switch the transistors, it switches Evanicky’s “knob/slider.” POR, 70-71. Evanicky’s “knob/slider” is not “electrically connected between the DC voltage output and” the LED circuits as required by the claim. POR, 70-71. Petitioner cites to a prior PGR (Reply, 24-25), but the claims there lacked the requirement that the “switch is electrically connected between the DC voltage output and” the LED circuits. *See, e.g.,* EX1006, claim 1. Nor do the transistors have different “positions” as required by claims 2, 9 and 16. POR, 71.

Pet., 53-54; Paper 20 (Reply), 24-25.



Paper 21 (Sur-Reply), 27.

Petition

In the combination, the color-specific switches of Bruning are the switch. Alternatively, the combination of the color-specific switches of Bruning, the controllers, and the slider/knob of Evanicky together are the switch. EX1002, ¶112.

Pet., 53-54; Paper 20 (Reply), 24-25.

The Board Found Bruning's Transistors to be Selectable by a User

Exhibit 1032 (PGR2022-00009 FWD), 62; Paper 20 (Reply), 8, 24-25

We discern no argument or evidence in the record in support of requiring the claimed “switch” to be directly controlled by the claimed “user.” Merely because “switch Q1 is a transistor ‘controlled by controller 224’” does not mean that the switch is “not capable of being switched by a user.” *See* PO Resp. 53, 56 (citing Ex. 1004 ¶¶ 37, 38). Having reviewed the entire record developed during trial, we maintain our preliminary determination that the claims do not exclude controlling the claimed “switch” *indirectly*, for example, by a user through a controller. As such, we agree with Petitioner that 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. Because we determine that a user can *indirectly* control Bruning’s panel light setting, for example by using controller 224, the period length of the transistor’s cycles (i.e., on the order of microseconds) does not undermine the user’s ability to control the switching. *See id.* at 22 (citing Ex. 1004 ¶ 33).

Exhibit 1032 (PGR2022-00009 FWD), 62; Paper 20 (Reply), 8, 24-25 .

Ground 4: Doheny

Claims 1-2, 5, 7-9, 12, 14-16, and 19

Ground 4: Overview of Dispute

- » PO's only response is an attempt to antedate Doheny based on '597 PCT and the '215 application

Paper 13 (POR), 71-97; Paper 20 (Reply), 26.

	
US 20180035510A1	
(19) United States	
(12) Patent Application Publication	(10) Pub. No.: US 2018/0035510 A1
Doheny et al.	(43) Pub. Date: Feb. 1, 2018
<hr/>	
(54) CONFIGURABLE LIGHTING SYSTEM	H05B 37/02 (2006.01)
	F21V 23/00 (2006.01)
(71) Applicant: Cooper Technologies Company , Houston, TX (US)	(52) U.S. Cl.
	CPC H05B 33/0863 (2013.01); H05B 37/0272 (2013.01); F21S 8/026 (2013.01); H05B 33/0845 (2013.01); F21V 17/12 (2013.01); F21V 23/001 (2013.01); F21V 5/04 (2013.01); F21V 7/00 (2013.01); H05B 33/089 (2013.01); F21V 23/06 (2013.01); F21V 19/0015 (2013.01); F21Y 2115/10 (2016.08)
(72) Inventors: Seth Doheny , Newman, GA (US); Steven Walter Pyschos , Peachtree City, GA (US)	
(21) Appl. No.: 15/727,833	
(22) Filed: Oct. 9, 2017	(57) ABSTRACT

Exhibit 1011, 1; Pet., 59.

The Board's Preliminary Ruling was Correct

Paper 8 (D.I.), 24-25; Pet., 13-18; Paper 20 (Reply), 26.

In this case, 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. Petitioner shows persuasively that none of the applications intervening between the '597 PCT and the '802 application provide sufficient support (i.e., written description and enablement) for claims 1–20 of the '705 patent. The '802 application was filed on February 22, 2021,

Paper 8 (D.I.), 24-25; Paper 20 (Reply), 26.

Ground 5: Van Winkle

Claims 1-2, 5, 7-9, 12, 14-16, and 19

Ground 5: Overview of Dispute

» PO's only response to Ground 5 is an attempt to antedate Van Winkle.

Paper 13 (POR), 97; Paper 20 (Reply), 26.

	
US 20180206305A1	
(19) United States	
(12) Patent Application Publication	(10) Pub. No.: US 2018/0206305 A1
Van Winkle	(43) Pub. Date: Jul. 19, 2018
(54) MANUALLY CONTROLLABLE LED CORRELATED COLOR TEMPERATURE LIGHT FIXTURE	Publication Classification
(71) Applicant: ETi Solid State Lighting Inc. , Vernon Hills, IL (US)	(51) Int. Cl. H05B 33/08 (2006.01) H05B 37/02 (2006.01) F21V 15/01 (2006.01) F21V 19/00 (2006.01)
(72) Inventor: Gary Van Winkle , Chagrin Falls, OH (US)	(52) U.S. Cl. CPC H05B 33/0857 (2013.01); F21V 19/002 (2013.01); F21V 15/01 (2013.01); H05B 37/02 (2013.01)
(73) Assignee: ETi Solid State Lighting Inc. , Vernon Hills, IL (US)	(57) ABSTRACT An LED light fixture having at least two LED light sources, each having a different correlated color temperature, with a manually controllable correlated color temperature switch- ing assembly to control an electric circuit to select a par- ticular LED light source or combination of LEDs, and a
(21) Appl. No.: 15/871,433	
(22) Filed: Jan. 15, 2018	

Exhibit 1012, 1; Pet., 76.

Ground 6: Bruning in view of Lee

Claims 1-3, 5, 7-10, 12, 14-17, and 19

PO's Argument Does Not Address the Proposed Combination

- » 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.

Paper 13 (POR), 98; Paper 20 (Reply), 33.

Petition

In the combination, the color-specific switches of Bruning are the switch, and they are indirectly selectable by the user via the slider of Lee and the controllers. Alternatively, the combination of the color-specific switches of Bruning, the controllers, and the slider of Lee together are the switch, which is directly selected by the user. EX1002, ¶258.

Pet., 102-103; Paper 20 (Reply), 33.