

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ADVANCED LIGHTING CONCEPTS LLC,
Petitioner,

v.

MATE LLC.,
Patent Owner.

IPR2023-01264
Patent 9,078,310 B2

Before KRISTINA M. KALAN, KIMBERLY McGRAW, and
JAMES J. MAYBERRY, *Administrative Patent Judges*.

MAYBERRY, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

Advanced Lighting Concepts, LLC (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1, 2, 5, 6, 8–13, 16, 17, 19, and 20 (the “Challenged Claims”) of U.S. Patent No. 9,078,310 B2 (Ex. 1001, “the ’310 patent”). Paper 1 (“Pet.”), 1. Patent Owner, mate LLC, waived preliminary response to the Petition. Paper 7.

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2023) (permitting the Board to institute trial on behalf of the Director). To institute an *inter partes* review, we must determine that the information presented in the Petition shows “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we decline to institute *inter partes* review on any of the asserted grounds of unpatentability.

B. *Real Parties-in-Interest*

Petitioner identifies Advanced Lighting Concepts, LLC as the real party-in-interest. Pet. 1. Patent Owner identifies mate LLC as the real party-in-interest. Paper 4, 2.

C. *Related Matters*

The parties each identify the following litigation as a matter related to the ’310 patent: *mate LLC v. Advanced Lighting Concepts, LLC d/b/a Environmental Lights*, 3:22-cv-1095-CAB-DEB (S.D. Cal.). Pet. 1–2; Paper 4, 2.

Patent Owner also identifies the following *inter partes* review proceedings for patents involved in the litigation: IPR2023-01257,

IPR2023-01264
Patent 9,078,310 B2

IPR2023-01258, IPR2023-01259, IPR2023-01265, and IPR2023-01266.
Paper 4, 2.

D. The '310 Patent

The '310 patent, titled “Configurable LED Driver/Dimmer for Solid State Lighting Applications,” issued July 7, 2015, from application US 14/597,788, filed January 15, 2015. Ex. 1001, codes (54), (45), (21), (22). The '310 patent ultimately claims priority to provisional application, US 61/097,963, filed on September 18, 2008, and US 13/941,871, filed July 15, 2013, and US 13/059,336, filed as PCT/CA2009/001295, on September 17, 2009. *Id.* at codes (60), (63).

The '310 patent relates to a configurable light emitting diode (“LED”) driver for powering a set of light fixture loads. Ex. 1001, code (57). According to the '310 patent, “[i]n recent years, controllable power sources for Solid State Lighting (SSL) applications have entered the market with integrated features,” and “[i]n addition, digital controllers within power sources have enabled the development of configurable options to provide a wider flexibility of solutions for Solid State Lighting applications.” *Id.* at 1:31–36. The '310 patent further states “[t]he ability to dim the light output of LEDs is also important to reduce energy consumption.” *Id.* at 1:36–37.

The '310 patent states that “lighting companies are faced with considerable challenges in adopting SSL technology due to their unfamiliarity and lack of expertise in the driving and dimming requirements for LEDs,” and that “[t]herefore, there is provided a novel LED Driver/dimmer for solid state lighting applications.” Ex. 1001, 1:38–43

We reproduce Figure 3 of the '310 patent below.

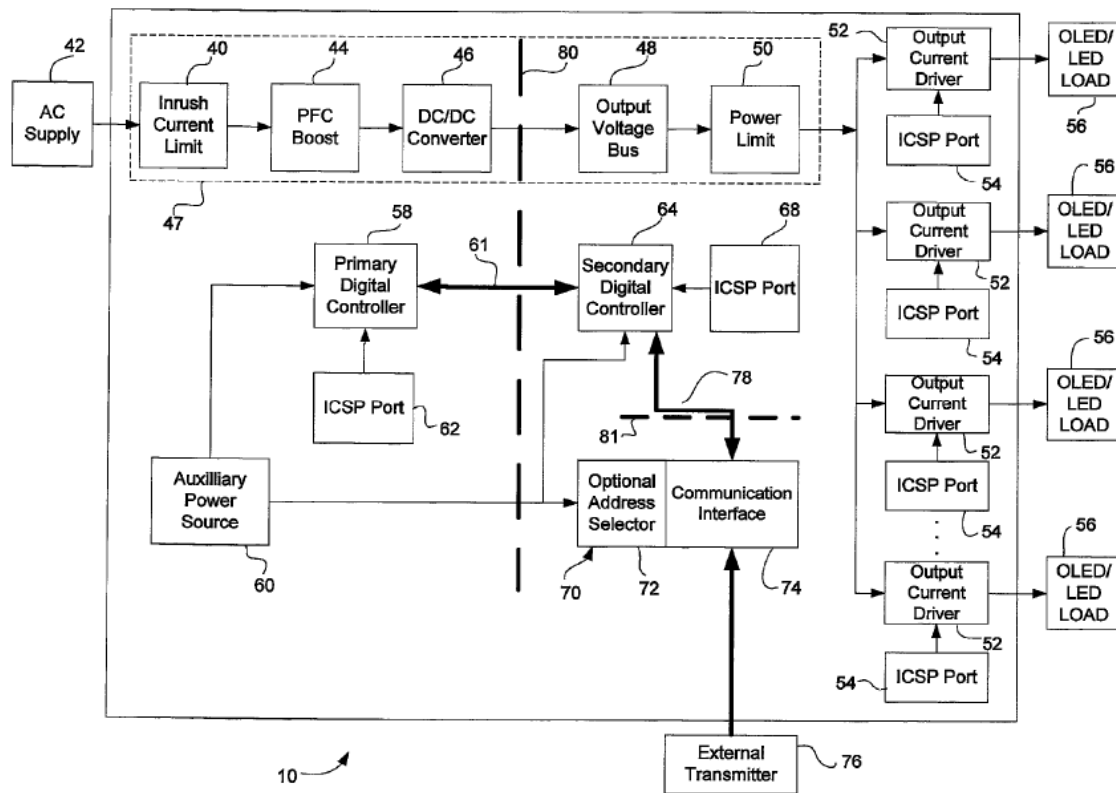


FIGURE 3

Figure 3 depicts “a schematic block diagram of the configurable LED Driver/dimmer.” Ex. 1001, 3:12–13. According to the ’310 patent, “[t]he LED dimmer 10 includes an inrush current limit 40, or inrush current limit circuit, which receives power from an AC power source or supply 42, located external to the dimmer 10.” *Id.* at 4:9–12. “The inrush circuit 40 is connected to a Power Factor Correction (PFC) Boost 44 which, in turn, is connected to a DC/DC Converter 46, or power conversion stage.” *Id.* at 4:12–15. Further, “[t]he converter 46 is connected to an Output Voltage bus 48 which is connected to a power limiter 50.” *Id.* at 15–17. According to the ’310 patent, “[t]he inrush circuit 40, the PFC boost 44, the DC/DC

converter 46, the Output Voltage Base bus 48 and the power limit 50 can be seen as a power circuit 47.” *Id.* at 4:17–19.

The ’310 patent further discloses that “[t]he power limiter 50 is connected to a set of output current drivers 52, whereby each of the output current drivers 52 has an associated in-circuit serial programming (ICSP) port 54.” Ex. 1001, 4:22–25. “The output of the output current drivers 52 is connected to individual Organic Light-Emitting Diodes (OLED)/Light-Emitting Diodes (LED) loads 56.” *Id.* at 4:25–27.

E. Challenged Claims

The Petition challenges claims 1, 2, 5, 6, 8–13, 16, 17, 19, and 20. Claim 1 is the sole independent claim, which we reproduce below.

1. [p]¹ A configurable light emitting diode (LED) driver for powering a set of light fixture loads comprising:

[a] a power circuit including:

[b] an inrush current limit;

[c] an apparatus for power factor correction and DC/DC conversion, and;

[d] a regulated output voltage bus connected to the apparatus for power factor correction and DC/DC conversion;

[e] a primary controller for controlling the power circuit;

[f] a set of output current drivers, each of the set of output current drivers connected to one of the set of light fixture loads for powering the connected light fixture load, and;

[g] an apparatus for mapping the set of output current drivers to various dimming zones and for mapping output channels into groups.

Ex. 1001, 10:46–61.

¹ We include Petitioner’s limitation labels. *See* Pet. 65.

F. Prior Art and Asserted Grounds

Petitioner asserts that the Challenged Claims are unpatentable based on three grounds:

Claims Challenged	35 U.S.C. §	References/Basis
1, 2, 8, 10–13, 16, 17	102 ²	Shteynberg ³
1, 2, 5, 8, 10–12, 16	102	Morgan ⁴
6, 8, 9, 19, 20	103	Shteynberg, Gandhi ⁵

Pet. 14–60.

Petitioner also relies on the declaration testimony of Joseph C. McAlexander. Ex. 1002; *see also* Ex. 1003 (providing Mr. McAlexander’s Curriculum Vitae).

The following subsections provide brief descriptions of the asserted prior art references.

1. Shteynberg (Ex. 1005)

Shteynberg, titled “Current Regulator for Modulating Brightness Levels of Solid State Lighting,” issued March 8, 2011, from application US 11/655,308, filed January 19, 2007. Ex. 1005, codes (54), (45), (21), (22).

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 296–07 (2011), took effect on September 16, 2011, with the changes to 35 U.S.C. §§ 102 and 103 in the AIA taking effect March 16, 2013. Petitioner appears to assume an effective filing date no earlier than July 15, 2013 (the filing date of the application that matured into US 9,049,759 B2, the parent to the ’310 patent) for at least claims 6, 8, 9, 19, and 20, as Petitioner contends that Gandhi is prior art to those claims. Because our analysis in the Decision does not depend on whether the claims should be evaluated under the AIA statute or pre-AIA statute, we apply the AIA statute to all Challenged Claims.

³ US 7,902,769; issued Mar. 8, 2011 (Ex. 1005, “Shteynberg”).

⁴ WO 03/067934; published Aug. 14, 2003 (Ex. 1006, “Morgan”).

⁵ US 2012/0323394; published Dec. 20, 2012 (Ex. 1007, “Gandhi”).

phase modulation module/dimmer, such as a dimmer switch 75.” *Id.* at 13:61–63. “The switching power supply 150A is implemented in two stages, an AC/DC converter 265 and a buck converter 270.” *Id.* at 13:65–67. The switching power supply 150A also comprises a controller 260.” *Id.* at 14:18–19. According to Shteynberg,

The AC/DC converter 265 is utilized to provide a high input impedance, thereby eliminating the high input capacitance that the single stage approaches have (and which can cause triacs of dimmers to misfire . . .). This first stage will convert a relatively poor, phased modulated AC voltage into a manageable DC voltage, while the second stage (buck converter 270) will perform LED driving using current PWM, through switching transistor 355 (Q2).

Id. at 13:67–14:8.

Further according to Shteynberg, “the controller 260 may determine V_{RMS} using measurements from connections to the output of dimmer switch 75 on lines 381 and 382,” and “may determine $V_{NOMINAL}$ using measurements from connections to the output of dimmer switch 75 on lines 381 and 382, using measurements from connections to the AC line voltage 35 on lines 382 and 383 (dashed line), or using stored parameter values.” Ex. 1005, 14:22–28. “The controller 260 correspondingly adjusts the duty cycle of the pulse-width modulation of current provided to the LEDs 140 through switching transistor 355 (Q2).” *Id.* at 14:29–31. Shteynberg indicates that “[a] ‘controller’ or ‘processor’ . . . may be any type of controller or processor, and may be embodied as one or more controllers . . . , adapted to perform the functionality discussed.” *Id.* at 18:8–11.

2. *Morgan (Ex. 1006)*

Morgan, titled “Controlled Lighting Methods and Apparatus,” published August 14, 2003, from international application PCT/US03/03632, filed February 6, 2003. Ex. 1006, codes (54), (43), (21), (22). The application claims priority to four provisional applications, US 60/354,692, filed February 6, 2002, US 60/401,964 filed August 8, 2002, US 60/401,965, filed August 8, 2002, and US 60/415,897, filed October 3, 2002. *Id.* at code (30).

Morgan discloses lighting systems that include a circuit board, and an illumination source mounted on the circuit board, such as an LED or plurality of LEDs. Ex. 1006, 7:8–10. According to Morgan, “the illumination source is associated with the at least one circuit, wire, bus, conductor, or plurality of conductors . . . compris[ing] at least one data conductor and at least one power conductor.” *Id.* at 7:12–14. Morgan further discloses that “the wire is electrically associated with the circuit through an insulation displacement system.” *Id.* at 7:14–15.

3. *Gandhi (Ex. 1007)*

Gandhi, titled “Control System for Color Lights,” published December 20, 2012, from application US 13/465,619, filed May 7, 2012. Ex. 1007, codes (54), (43), (21), (22). The application claims priority to application No. PCT/US2009/069938, filed on December 31, 2009. *Id.* at code (63). Gandhi “relates to lighting systems based on light-emitting devices and more specifically to a method and apparatus of controlling one or more Light-Emitting diodes (LED) clusters or triplets in order to provide a display of different colors as perceived by a person, and still more

precisely, to effect various colors and display patterns from an array of LEDs based on high-low DC logical methods of signaling.” *Id.* ¶ 2.

II. ANALYSIS OF PETITIONER’S CHALLENGES

A. *Applicable Law*

Petitioner’s asserted grounds of unpatentability are based on anticipation under 35 U.S.C. § 102 and on obviousness under 35 U.S.C. § 103. A “prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

With respect to obviousness under 35 U.S.C. § 103,

[a] patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103 (2011); *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, objective evidence, such as commercial success, long felt but unsolved needs, and

failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); see *KSR Int’l Co.*, 550 U.S. at 407 (“While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.”). The Court in *Graham* explained that these factual inquiries promote “uniformity and definiteness,” for “[w]hat is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context.” 383 U.S. at 18.

For institution, “[t]he ‘reasonable likelihood’ standard is a somewhat flexible standard that allows the Board room to exercise judgment.” Patent Trial and Appeal Board Consolidated Trial Practice Guide 53 (Nov. 2019), available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

B. Level of Ordinary Skill in the Art

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Petitioner’s declarant, Joseph C. McAlexander, testifies that a person having ordinary skill in the art to which the ’310 patent pertains “would have had at least a bachelor’s degree in electrical engineering, computer science, or a related field and significant experience with power regulation devices, like LED drivers and dimmers.” Ex. 1002 ¶ 31.

We apply this definition of the level of ordinary skill in the art. We determine that this definition is consistent with the prior art of record and the skill reflected in the Specification of the ’310 patent, based on our review of the limited record.

C. Claim Construction

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

Petitioner states that “[e]ach claim term challenged by this Petition should be construed in accordance with its ordinary and customary meaning for purposes of resolving the issues raised in this Petition.” Pet. 14.

We determine that we need not expressly construe any claim terms to resolve the parties’ disputes on the current record. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms that . . . are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Ground 1: Asserted Anticipation of Claims 1, 2, 8, 10-13, 16, and 17 by Shteynberg

Petitioner contends that Shteynberg anticipates each limitation of claims 1, 2, 8, 10–13, 16, and 17. Pet. 14–36. We address Petitioner’s relevant contentions below.

1. *Independent claim 1*

a) *Limitations 1(a)⁶ and 1(b)*

Claim 1 recites, in relevant part, “a power circuit including” “an inrush current limit.” Ex. 1001, 10:48–49 (limitations 1(a) and 1(b) of claim 1). Petitioner contends that “Shteynberg discloses the [recited] inrush current limit.” Pet. 16. Specifically, Petitioner cites to Shteynberg’s discussion of its Figure 5 for the disclosure. *Id.* We reproduce this discussion in its entirety below:

For example, as illustrated in FIG. 5, a switching off-line LED driver 90 typically includes a full wave rectifier 20 with a capacitive filter 15, which allows current to flow to the filter capacitor (C) 15, when the input Voltage is greater than the Voltage across the capacitor. The inrush current to the capacitor is limited by the resistance in series with the capacitor. Under normal operating conditions, there may be a Negative Temperature Coefficient resistor (NTC) or thermistor in series with the capacitor to minimize inrush current during initial charging.

Id. (quoting Ex. 1005, 3:42–51). Petitioner contends that a person having ordinary skill in the art “would readily understand that using a resistor in series with a capacitor to limit inrush current as described in Shteynberg is analogous to the inrush current limit of the ‘310 [p]atent.” *Id.* (referencing Ex. 1002 ¶ 56).

⁶ We use the limitation labels for claim 1 used by Petitioner. *See* Pet. 15–23 (labeling limitations 1(a)–1(g)).

In addressing dependent claim 16,⁷ Petitioner states “as discussed above (and as shown in Figure 10), Shteynberg discloses that the inrush current limiter (capacitor 345) is directly connected to the DC/DC converter.” Pet. 34–35 (referencing Ex. 1005, 14:11–18). We understand from this statement that Petitioner contends that Shteynberg’s capacitor 345, depicted in Figure 10, corresponds to the recited inrush limit.

Mr. McAlexander testifies that “[i]nrush current occurs when a device is turned on and, during the initial stage, a huge amount of current rushes into the circuit.” Ex. 1002 ¶ 56 (citing Sourav Gupta, *Inrush Current—Causes, Effects Protection Circuits and Design Techniques*, CIR. DIG. (Nov. 27, 2019), available at <https://circuitdigest.com/tutorial/inrush-current-causes-effects-protection-circuits-and-design-techniques>).

Mr. McAlexander continues that “[a]n inrush current limiter is a component used to limit inrush current to avoid gradual damage to components and avoid blowing fuses or tripping circuit breakers.” *Id.* Mr. McAlexander opines that “[u]sing a resistor in series with a capacitor to limit inrush current as described in Shteynberg is analogous to the inrush current limit of the ‘310 [p]atent because the *resistor* when used as described limits current to an amount that is proportional to the amount of the resistance.” *Id.* (emphasis added).

We have considered Petitioner’s contentions and Mr. McAlexander’s testimony and find that Petitioner fails to demonstrate a reasonable

⁷ Claim 16 depends from claim 1 and further recites “wherein the apparatus for power factor correction and DC/DC conversion comprises: a DC/DC converter; and a power factor correction (PFC) boost connected to the inrush current limit and the DC/DC converter.” Ex. 1001, 12:6–10.

likelihood that Shteynberg discloses the recited inrush current limit. First, to the extent that Petitioner relies on the disclosure in Shteynberg's Figure 5 beyond background support for Petitioner's contentions, such reliance is misplaced. Shteynberg's Figure 5 depicts a prior art current regulator (or converter). Ex. 1005, 3:36–55, 7:24–25, Fig. 5 (labeled as "PRIOR ART"). Indeed, in describing its invention, Shteynberg discloses first and second embodiments of its current regulator (or converter). *Id.* at 8:52–9:26, Figs. 6, 7. This description of Shteynberg's embodiments does not mention inrush current limiters.

Second, Petitioner states that a person having ordinary skill in the art "would readily understand that using a *resistor in series with a capacitor* to limit inrush current as described in Shteynberg is analogous to the inrush current limit of the '310 [p]atent." Pet. 16 (emphasis added). Petitioner, however, identifies a *capacitor* only—capacitor 345, in connection with its claim 16 arguments. *Id.* at 34–35. Petitioner does not identify any resistor in series with capacitor 345 to act as the inrush current limiter in discussing claim 16.

Similarly, Mr. McAlexander explains that "the *resistor* when used as described limits current to an amount that is proportional to the amount of the resistance." Ex. 1002 ¶ 56. Consistent with Shteynberg's disclosure, Mr. McAlexander makes it clear that it is the *resistor* that limits the flow of current, not a capacitor. Neither Petitioner nor Mr. McAlexander identifies a resistor in Shteynberg's current regulator or switching power supply that limits the inrush current. *Cf. Net MoneyIN, Inc.*, 545 F.3d at 1369. Also, we are not persuaded that Petitioner's "analogous to" argument comports with the standard for anticipation. Under the applicable standard for anticipation,

neither Petitioner nor its declarant provides persuasive analysis that would show that one skilled in the art would have reasonably understood or inferred from Shteynberg that its capacitor 345 is the claimed inrush current limit. *Cf. Eli Lilly & Co. v. L.A. Biomedical Research Inst.*, 849 F.3d 1073, 1074–1075 (Fed. Cir. 2017) (“[T]he dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference”).

For these reasons we find that Petitioner fails to demonstrate a reasonable likelihood that Shteynberg discloses a power circuit that includes an inrush limit as recited in limitations 1(a) and 1(b).

b) Limitations 1(f) and 1(g)

Claim 1 also recites, in relevant part, “a set of output current drivers, each of the set of output current drivers connected to one of the set of light fixture loads for powering the connected light fixture load.” Ex. 1001, 10:56–58 (limitation 1(f) of claim 1). Relatedly, claim 1 recites “an apparatus for mapping the set of output current drivers to various dimming zones and for mapping output channels into groups.” *Id.* at 10:59–61 (limitation 1(g) of claim 1).

Petitioner contends, with respect to limitation 1(f), that

Shteynberg discloses that:

LED driver circuits and LEDs [(i.e., light fixture loads)] will be wired within existing lighting infrastructure, such as replacing an incandescent bulb (placed within an Edison socket) or replacing an incandescent lamp, with wiring to existing switches, such as dimmer switches. In a second phase, existing switching connections may be rewired, allowing LED driver circuits to be co-located in the same junction or wall box as the switches, but wired directly to the AC line voltage, with existing switching

(such as dimmers) generating only a control signal to regulate LED brightness.

Pet. 22–23 (quoting Ex. 1005, 8:20–29). Petitioner contends that this disclosure supports Petitioner’s contention that “Shteynberg discloses a set of output current drivers for controlling the LED brightness.” *Id.* (referencing Ex. 1002 ¶ 61). Petitioner does not identify any particular component in Shteynberg that corresponds to the recited “set of output current drivers.”

Petitioner contends, with respect to limitation 1(g), that “Shteynberg discloses ‘the controller 160 (and 260, FIG. 10) is programmed, adapted or configured to emulate the brightness or intensity control provided by the dimmer switch 75, to control the switching power supply 150 and correspondingly modify the brightness (or intensity) provided by the LEDs 140.’” Pet. 23 (referencing Ex. 1005, 9:21–26); *see id.* at 24 (reproducing Shteynberg’s Figure 7).

Petitioner also contends, with respect to limitation 1(g), that

Shteynberg further discloses:

A controller (or processor) (such as controller 160, 260), with its associated memory, may be adapted or configured (via programming, FPGA interconnection, or hard-wiring) to perform the methodology of the invention, as discussed below. For example, the methodology may be programmed and stored, in a controller 160,260 with its associated memory (and/or memory 155) and other equivalent components, as a set of program instructions or other code (or equivalent configuration or other program) for Subsequent execution when the processor is operative (i.e., powered on and functioning).

Pet. 24 (referencing Ex. 1005, 18:29–39). Petitioner contends that, from this disclosure, a person having ordinary skill in the art “would understand, as discussed above, that controller 160 *can be programmed* with a set of

instructions or other code to map current drivers to dimming zones and map output channels into groups.” *Id.* at 25 (referencing Ex. 1002 ¶ 61) (emphasis added). We understand Petitioner to contend that controller 160 is the recited apparatus of limitation 1(g).

Mr. McAlexander does not address limitations 1(f) and 1(g) directly. *See* Ex. 1002 ¶¶ 54–63 (addressing Ground 1). In paragraph 60, cited by Petitioner, Mr. McAlexander testifies that Shteynberg’s controller 160 corresponds to the recited primary controller and Shteynberg’s controller 260 corresponds to the recited secondary controller. *Id.* ¶ 60. Mr. McAlexander testifies that these controllers can perform functions, but does not specify the functions. *See id.* He does not testify how the controllers relate to output current drivers or configuring the set of output current drivers to an output current set point. *See id.*

In paragraph 61, cited by Petitioner, Mr. McAlexander testifies (with respect to claim 11) that a person having ordinary skill in the art

would understand that controllers, such as microprocessors, digital signal processors (“DSPs”), parallel processors, multiple core processors, custom ICs, application specific integrated circuits (“ASICs”), field programmable gate arrays (“FPGAs”), adaptive computing ICs, and other ICs and components disclosed in the Shteynberg are digital because they each operate using a binary system as opposed to having to modify specific components as with analog controllers. Controllers can be programmed either via programming or hard-wiring which would require a port for connecting the programming device.

Ex. 1002 ¶ 61.

We have considered Petitioner’s contentions and Mr. McAlexander’s testimony and find that Petitioner fails to demonstrate a reasonable likelihood that Shteynberg discloses the subject matter of limitations 1(f)

and 1(g). As an initial matter, Petitioner does not identify any structural component in any of Shteynberg's circuits that correspond to the recited "set of output current drivers." We recognize that Shteynberg, at column 8, lines 20 to 29, mentions "LED driver circuits," that is, plural circuits. But this disclosure in Shteynberg, in and of itself, is insufficient to support Petitioner's contentions. The statement upon which Petitioner relies discusses generally the transition to solid state lighting, including the three phases that Shteynberg anticipates will occur during the transition. *See* Ex. 1005, 8:18–29. Petitioner does not direct us to any specific embodiment to which this discussion applies. *Cf. Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) ("[I]t has long been understood that ambiguous references do not, as a matter of law, anticipate a claim."); *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1120 (Fed. Cir. 2002) ("A single reference must describe the claimed invention with sufficient precision and detail to establish that the subject matter existed in the prior art.").

We next turn to Shteynberg's Figure 7, which we reproduce below, because Petitioner presents this Figure in discussing limitation 1(g).

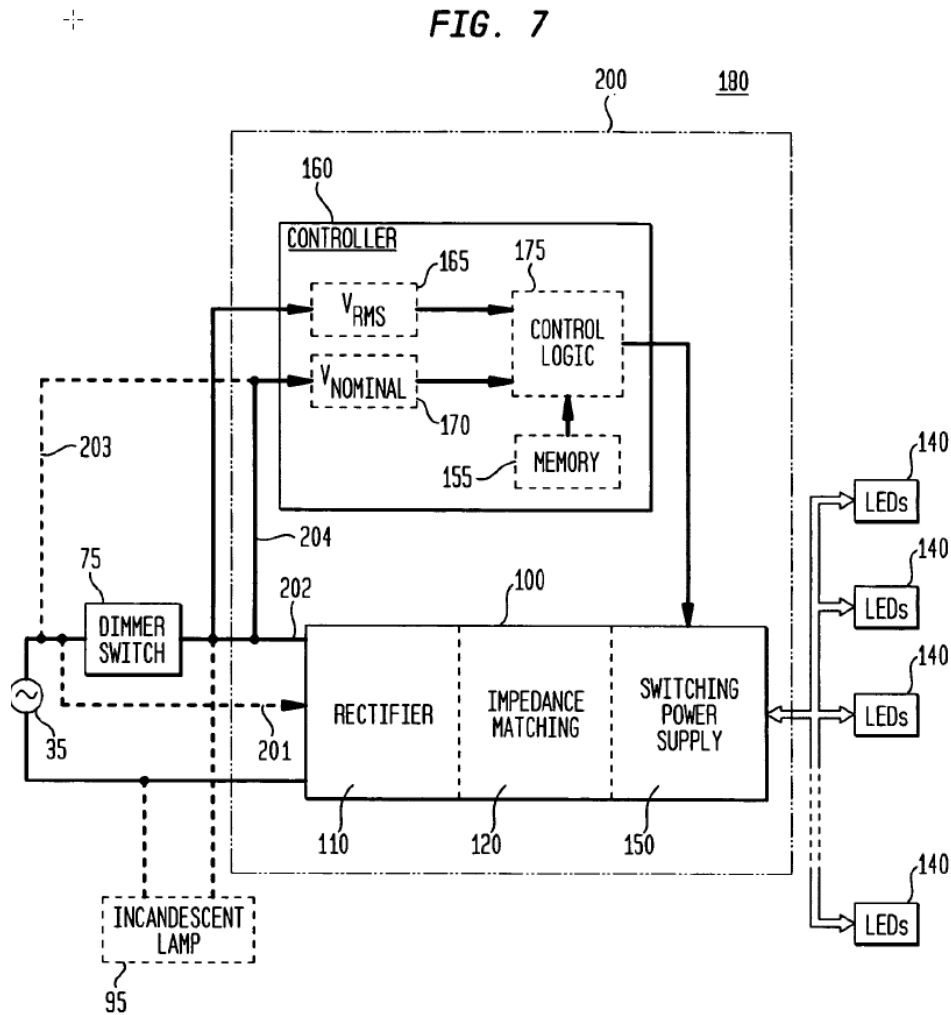


Figure 7 depicts “a block diagram of an exemplary second embodiment of a current regulator (or converter).” Ex. 1005, 7:29–30. Current regulator 200 includes rectifier 110, impedance matching circuit 120, switching power supply (or driver) 150, and controller 160. *Id.* at 9:5–8. These components are coupled to dimmer switch 75 and receive output signals from the dimmer switch. *Id.* at 9:8–9. Current regulator 200 also provides power to one or more LEDs 140. *Id.* at 9:9–10.

As seen in Figure 7 above, Shteynberg discloses a single current regulator 200, connected to a set of LEDs 140. That is, to the extent that

Petitioner relies on the disclosure from Figure 7, Petitioner does not explain adequately how Shteynberg discloses *a set* of output current drivers.

We recognize that Shteynberg, at column 8, lines 20 to 29 (relied upon at Pet. 25) mentions “LED driver circuits,” that is, plural circuits. But this disclosure in Shteynberg, in and of itself, is insufficient to support Petitioner’s contentions. The statement upon which Petitioner relies discusses generally, the transition to solid state lighting, including the three phases that Shteynberg anticipates will occur during the transition. *See* Ex. 1005, 8:18–29. Again, Petitioner does not direct us to any specific embodiment to which this discussion applies. *Cf. Wasica Fin. GmbH*, 853 F.3d at 1284; *Verve, LLC*, 311 F.3d at 1120.

Even if we accept that a person having ordinary skill in the art would have understood Shteynberg to disclose the subject matter of limitation 1(f), Petitioner does not adequately explain how controller 160 or controller 260 may be used for mapping the set of output current drivers to various dimming zones and for mapping output channels into groups. Indeed, all Petitioner says is that controller 160 could have been programmed with instruction to perform these functions. Petitioner offers no claim construction to support the interpretation of the claim, where the functional language is satisfied by the mere capability of performing a function. Significantly, we do not discern where Shteynberg discloses the concept of dimmer zones, nor does Petitioner or Mr. McAlexander identify any such disclosure. *Cf. Net MoneyIN, Inc.*, 545 F.3d at 1369 (“[A] prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’”).

As we state above, Mr. McAlexander does not specifically address claim limitations 1(f) and 1(g). Petitioner’s reliance on Mr. McAlexander’s testimony that Shteynberg’s controller 160 corresponds to the recited primary controller and Shteynberg’s controller 260 corresponds to the recited secondary controller does not remedy the deficiency we identify. Controller 160 is a controller for an embodiment of a current regulator, which includes a switching power supply. *See* Ex. 1005, 9:3–10:40 (describing the embodiment of Figure 7), Fig. 7. Controller 260 is a controller for an embodiment of a switching power supply. *See id.* at 13:34–14:21 (describing Fig. 10, which is a “circuit diagram of an exemplary embodiment of a switching power supply 150A,” and includes controller 260). Petitioner does not explain adequately how Mr. McAlexander’s characterization of controller 160 and controller 260 supports Petitioner’s contention that controller 160 or controller 260 corresponds to the recited “apparatus” of limitation 1(g), including the functional limitation contained therein.

As for Mr. McAlexander’s testimony in paragraph 61, this testimony merely states that controllers are digital, and can be programmed, which might require a port connected to a programming device. *See* Ex. 1002 ¶ 61. This testimony also fails to support Petitioner’s contentions as to limitations 1(f) and 1(g).

For these reasons we find that Petitioner fails to demonstrate a reasonable likelihood that Shteynberg discloses the recited set of output current drivers and apparatus for mapping the set of output current drivers of limitations 1(f) and 1(g), arranged as recited in these limitations.

a) Conclusion

For the reasons discussed above, we determine that the information in the Petition fails to demonstrate a reasonable likelihood that claim 1 is unpatentable as anticipated by Shteynberg.

2. Dependent Claims 2, 8, 10–13, 16, and 17

Dependent claims 2, 8, 10–13, 16, and 17, depend, directly or indirectly, from claim 1. We discern nothing in Petitioner’s analysis directed to these dependent claims that remedies the deficiencies we identify for claim 1. Accordingly, we determine that the information in the Petition fails to demonstrate a reasonable likelihood that claims 2, 8, 10–13, 16, and 17 are unpatentable as anticipated by Shteynberg, for at least the reason that these claims depend from a claim that is not proven unpatentable.

E. Ground 2: Asserted Anticipation of Claims 1, 2, 5, 8, 10–12, and 16 by Morgan

Petitioner contends that claims 1, 2, 5, 8, 10–12, and 16 are anticipated by Morgan. Pet. 36–52. We address Petitioner’s contentions below.

1. Claim 1

a) Limitations 1(a) and 1(b)

Claim 1 recites, in relevant part, “a power circuit including” “an inrush current limit.” Ex. 1001, 10:49 (limitations 1(a) and 1(b) of claim 1). Petitioner contends that

Morgan discloses:

Again, a control circuit is shown that measures and responds to the output to provide a feedback system to adjust and regulate the output in real-time to maintain voltage levels. The current in the inductor 4504 is rapidly charged and then discharged through diode D3 4508 through control of switch Q2 4510 is typical of

such circuits. A small output capacitor 4512 is appended to the output to provide additional energy storage and minimize output ripple.

Pet. 37–38 (quoting Ex. 1006, 122:17–22). Petitioner contends that a person having ordinary skill in the art “would recognize that Morgan’s disclosure of a control circuit that adjusts and regulates the output in response to a power measurement is equivalent to limiting the inrush current.” Pet. 38 (referencing Ex. 1002 ¶ 65⁸). Mr. McAlexander’s Declaration makes a verbatim statement, without offering any additional support for this opinion. *See* Ex. 1002 ¶ 65; *see also id.* ¶¶ 33–37 (discussing the background technology but not discussing how a control circuit that adjusts and regulates the output in response to a power measurement is equivalent to limiting the inrush current), 56 (discussing inrush current limiters, but not in the context of Morgan).

We have considered Petitioner’s contentions and Mr. McAlexander’s testimony and find that Petitioner fails to demonstrate a reasonable likelihood that Morgan discloses a power circuit including an inrush current limit as required by limitations 1(a) and 1(b). Petitioner fails to explain adequately how a control circuit that adjusts and regulates the output in response to a power measurement is equivalent to limiting the inrush current.

Also, we afford little weight to Mr. McAlexander’s verbatim testimony, because he does not provide any basis for his opinion, nor does he provide any evidence in support of his opinion. *See* 37 C.F.R. § 42.65(a)

⁸ The Petition references paragraph 63 of Mr. McAlexander’s Declaration, but this language corresponds to paragraph 65.

(“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”); *see also Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15–17 (PTAB Aug. 24, 2022) (precedential) (according “little weight” to declaration testimony that contains a verbatim restatement of a petition’s conclusory assertions without additional supporting evidence or reasoning).

For these reasons we find that Petitioner fails to demonstrate a reasonable likelihood that Morgan discloses a power circuit that includes an inrush limit as recited in limitations 1(a) and 1(b).

a) Limitation 1(g)

Claim 1 also recites, in relevant part, “an apparatus for mapping the set of output current drivers to various dimming zones and for mapping output channels into groups.” Ex. 1001, 10:59–61 (limitation 1(g) of claim 1). Petitioner contends that

Morgan discloses:

These illumination sources may be associated with addressable controllers that require setting when incorporated as a part of the network or have preprogrammed lighting control programs to be selected, modified, or generated. A programming device according to the principles of the present invention may be used to program the address or perform other functions as described herein, in these illumination sources as well.

Pet. 43 (referencing Ex. 1006, 126:23–27). Petitioner contends that a person having ordinary skill in the art “would understand the addressable controller of Morgan is equivalent to the apparatus for mapping.” *Id.* (referencing Ex. 1002 ¶ 75).

In paragraph 75 of his Declaration, Mr. McAlexander testifies, with respect to claim 11, that “[c]ontrollers can be programmed with a set of

instructions or other code to map current drivers to dimming zones and map output channels into groups and can be programmed to limit power to dimmer switch. Controller[s] can also be addressable to control individual LEDs or groups of LEDs. Controllers can control a specific LED or specific part of an LED strip or LED.” Ex. 1002 ¶ 75.

We have considered Petitioner’s contentions and Mr. McAlexander’s testimony and find that Petitioner fails to demonstrate a reasonable likelihood that Morgan discloses a power circuit including an inrush current limit as required by limitation 1(g). Petitioner’s reliance on Morgan’s disclosure of an addressable controller is misplaced. The quotation reproduced above from Morgan, at page 126, lines 23–27, begins “[t]hese illumination sources.” Morgan makes clear that the referenced “illumination sources” are sources *other than* LED based lighting devices. *See* Ex. 1006, 126:21–27. Petitioner’s anticipation theory relies on Morgan’s disclosure of LED-based systems. *See, e.g.*, Pet. 36 (quoting Morgan as disclosing “Methods and systems disclosed herein include a lighting system that includes one or more of various configurations of LEDs”).

Also, Petitioner fails to explain adequately how the disclosed addressable controller relates to the LUC processor or central controller that Petitioner contends is the recited primary controller of limitation 1(e) or processor 102, or the processors of Figure 11 upon which Petitioner appears to rely. *See* Pet. 40–43. We understand that “a reference can anticipate a claim even if it ‘d[oes] not expressly spell out’ all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.”

Chamberlain Grp., Inc. v. Techtronic Indus. Co., 935 F.3d 1341, 1350 (Fed.

Cir. 2019) (quoting *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376 (Fed. Cir. 2015)). “Thus, even when a reference discloses elements in different locations in the disclosure, the relevant question is whether the reference is sufficiently clear in disclosing the combinability of those elements such that a skilled artisan would ‘at once envisage/ the claimed combination.’” *Id.* Here, however, Petitioner does not address this “relevant question”—Petitioner does not provide any contentions directed to how Morgan discloses the combinability of addressable controllers with the other circuits disclosed in Morgan upon which Petitioner relies or that “a skilled artisan would ‘at once envisage/ the claimed combination.’”

Mr. McAlexander’s testimony also does not support Petitioner’s position. Mr. McAlexander testifies that a controller can also be addressable to control individual LEDs or groups of LEDs (Ex. 1002 ¶ 75), but he neither provides a basis for this opinion, nor reconciles Morgan’s disclosure.

b) Conclusion

For the reasons discussed above, we determine that the information in the Petition fails to demonstrate a reasonable likelihood that claim 1 is unpatentable as anticipated by Morgan.

2. Dependent claims 2, 5, 10–12, and 16

Dependent claims 2, 5, 10–12, and 16 depend, directly or indirectly, from claim 1. We discern nothing in Petitioner’s analysis directed to these dependent claims that remedies the deficiencies we identify for claim 1. Accordingly, we determine that the information in the Petition fails to demonstrate a reasonable likelihood that claims 2, 5, 10–12, and 16 are unpatentable as anticipated by Morgan, for at least the reason that these claims depend from a claim that is not proven unpatentable.

F. Ground 3: Asserted Obviousness of Claims 6, 8, 9, 19, and 20 over Shteynberg and Gandhi

Petitioner contends that claims 6, 8, 9, 19, and 20, which depend directly or indirectly from claim 1, are rendered obvious by the combination of Shteynberg and Gandhi. Pet. 53–60. We discern nothing in Petitioner’s analysis directed to these dependent claims, much less any analysis directed to Gandhi’s teachings, that remedies the deficiencies we identify for claim 1. Accordingly, we determine that that the information in the Petition fails to demonstrate a reasonable likelihood that claims 6, 8, 9, 19, and 20 would have been unpatentable as obvious over Shteynberg and Gandhi, for at least the reason that these claims depend from a claim that is not proven unpatentable.

III. CONCLUSION

Based on the information presented, we determine, for the reasons provided above, that Petitioner has not established a reasonable likelihood that it would prevail with respect to any of the Challenged Claims. Accordingly, we decline to institute an *inter partes* review.

IV. ORDER

In consideration of the foregoing, it is hereby:
ORDERED that an *inter partes* is not instituted.

IPR2023-01264
Patent 9,078,310 B2

For PETITIONER:

Winston O. Huff
Jamil N. Alibhai
MUNSCH HARDT KOPF & HARR, P.C.
EL-mate-IPRs@munsch.com

For PATENT OWNER:

Melanie J. Reichenberger
Kevin P. Moran
MICHAEL BEST & FRIEDRICH LLP
mjreichenberger@michaelbest.com
kpmoran@michaelbest.com