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Paper 12
Entered: May 3, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CURRENT LIGHTING SOLUTIONS, LLC,

and

HLI SOLUTIONS, INC.,

Petitioner,

v.

ALSI HOLDINGS, LLC,

Patent Owner.

IPR2023-00125
Patent 9,699,854 B2

Before HUBERT C. LORIN, GRACE KARAFFA OBERMANN, and DONNA M. PRAISS, *Administrative Patent Judges*.

OBERMANN, *Administrative Patent Judge*.

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

I. INTRODUCTION

Petitioner filed a Petition (Paper 3, "Pet.") requesting *inter partes* review of claims 1–15 and 8–20 of U.S. Patent No. 9,699,854 B2 (Ex. 1001, "the '854 Patent"). Patent Owner filed a Preliminary Response (Paper 7, "Prelim. Resp."), Petitioner filed a Preliminary Reply (Paper 9), and Patent Owner filed a Preliminary Sur-reply (Paper 10).

A. Real Parties-in-Interest

The Petition indicates that Current Lighting Solutions, LLC and HLI Solutions, Inc. are real parties-in-interest for Petitioner. Pet. xi. Patent Owner's Mandatory Notices indicate that ALSI Holdings, LLC is the sole real party-in-interest for Patent Owner. Paper 4, 1.

B. Related Matters

The parties identify as a related matter a pending District Court case that involves the '854 patent. Pet. xi, Paper 4, 1 (citing *ALSI Holdings, LLC v. Current Lighting Solutions, LLC, d/b/a GE Current, a Daintree Company, and HLI Solutions, Inc., f/k/a Hubbell Lighting, Inc. both d/b/a Hubbell Control Solutions and/or Current*, Case No. 6:21-cv-01187 (W. D. Tex.) (Nov. 17, 2021)).

Petitioner, but not Patent Owner, also identifies as related matters two additional petitions that challenge, respectively, U.S. Patent No. 8,322,854 and U.S. Patent No. 8,721,114. Pet. xi. We take note that those petitions are the subject matter of, respectively, IPR2023-00145 ("IPR145") and IPR2023-00198 ("IPR198"). Concurrently herewith, we enter a decision on institution in IPR145. A decision on institution in IPR198 is forthcoming.

II. BACKGROUND

A. The '854 Patent (Ex. 1001)

The '854 patent is titled "Lighting Fixture." Ex. 1001, code (54). The claimed invention relates to a light emitting diode (LED) lighting arrangement that includes LEDs arranged along a length of a lighting strip. *Id*. at code (57). Critical to this Decision, the apparatus further includes first and second multi-faceted side wall reflectors in a specified arrangement relative to the LEDs and lighting strip. *Id*. According to the Specification, those "reflectors cause light produced by the" LEDs "to be amplified and formed into a uniform beam." *Id*.

Petitioner acknowledges that a multi-faceted side wall reflector, as contemplated in the '854 patent, includes "at least one angled bend" as illustrated in the following annotated version of Figure 16:

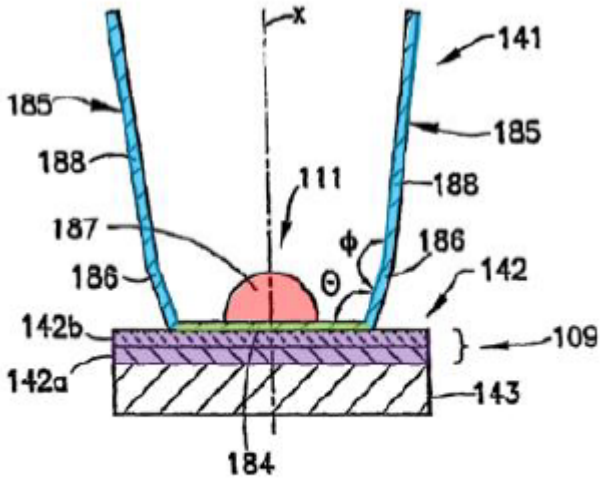


FIG.16

Pet. 4; Ex. 1001, Fig. 16. The above illustration depicts a cross-sectional view of reflector assembly 141, which the Specification describes as a lighting strip adapted for a lighting fixture for use as a streetlight. Ex. 1001, 4:29–33, 5:6–9, 17:33. "Each side wall **185** of reflector assembly **141**

includes a first facet or first portion **186** defining a first angle Θ with" base portion **184**, which is "adjacent the bottom portion of light emitting portion **187**." *Id.* at 17:41–44. Figure 16 also illustrates "a second facet or second portion **188** that defines a second angle Φ with first portion **186**." *Id.* at 17:45–46. The Specification explains, "The combination of these angles creates facets in side walls **186**, thereby creating a multi-faceted side wall which amplifies the light provided by LEDs **111**." *Id.* at 17:46–49.

Referring to this annotated version of Figure 16, Petitioner characterizes the red shaded component as an LED (element **111**), the purple shaded component as a lighting strip (element **109**), the blue shaded component as a multi-faceted side wall reflector (element **185**), and the green shaded component as a base plate (element **184**). Pet. 4 & n.3; *see* Ex. 1001, 17:31–64 (Specification, explaining Figure 16).

B. Challenged Claims

Petitioner challenges claims 1–15 and 18–20 of the '854 patent. Pet. 1. Claims 1 and 15 are the independent challenged claims. We reproduce below claims 1 and 15, which illustrate the subject matter of the claimed invention.

> 1. A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:
>
> a base plate;
>
> a lighting strip coupled to the base plate, the lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;
>
> at least one reflector sheet comprising;
>
> a first multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement along an entire

length of the lighting strip with a first edge adjacent a first side of the lighting strip and extending at an angle along an entire length of the lighting strip; and

a second multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement along an entire length of the lighting strip, the second side wall having a first edge adjacent a second, opposite side of the lighting strip at an angle that extends along an entire length of the lighting strip,

wherein the first and second multi-faceted side walls extend away from the lighting strip at an angle and are configured to cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, and

wherein the coupling between the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of LEDs comprised in the lighting strip is conducted to the base plate for transfer to the ambient environment.

Ex. 1001, 20:29–60.

15. A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side;

a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and

driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes at least one reflector sheet comprising:

a first multi-faceted side wall of the at least one reflector sheet extending at an angle from a first side of the lighting strip along an entire length of the lighting strip, the first side wall comprising a sheet bent to form the angle;

a second multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement adjacent a

second, opposite side of the lighting strip along an entire length of the lighting strip, and

wherein the first and second multi-faceted side walls extend away from the lighting strip at an angle and are configured to cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, and

wherein contact between the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of LEDs comprised in the lighting strip is conducted to the base plate for transfer to the ambient environment.

Ex. 1001, 21:56–22:20. Claims 2–14 depend directly or indirectly from claim 1, whereas claims 18–20 depend directly from claim 15.

C. Asserted Grounds of Unpatentability

Petitioner asserts grounds under 35 U.S.C. § 103,[1] as follows:

Ground	Claims Challenged	Reference(s)
1	1–15, 18–20	Stopa,[2] Stopa II[3]
2	1, 2, 6–9, 13, 15, 18–20	Medendorp,[4] Baar[5]
3	1, 2, 6–15, 18, 20	Brown,[6] Stopa

Pet. 1. The Petition is supported by the Declaration of Dr. Jack Josefowicz. Ex. 1003.

[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284 (September 16, 2011), includes revisions to Section 103 that became effective on March 16, 2013. Because the '854 patent issued from an application filed after March 16, 2013, we apply the AIA version. *See* Ex. 1001, code (22). Neither party, however, argues that the outcome would change depending on which version of the statute is applied by the Board.
[2] US 6,641,284 B2, issued Nov. 4, 2003 (Ex. 1038).
[3] US 6,318,886 B1, issued Nov. 20, 2001 (Ex. 1045).
[4] US 2008/0089069 A1, pub. Apr. 17, 2008 (Ex. 1022).
[5] US 6,257,735 B1, issued July 10, 2001 (Ex. 1037).
[6] US 2007/0121343, pub. May 31, 2007 (Ex. 1036).

III. ANALYSIS

A. Level of Ordinary Skill in the Art

The level of ordinary skill in the art at the time of the invention is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). In Petitioner's view, an ordinarily skilled artisan "would have at least a bachelor's degree in a relevant scientific field, e.g., physics, materials science or engineering, or electrical engineering, and two or more years of experience in lighting design with LED fixtures for lighting applications." Pet. 2–3 (citing Ex. 1003 ¶¶ 36–47). Patent Owner does not challenge Petitioner's definition for purposes of this Decision. Prelim. Resp. 11.

On this record, we determine that the level of ordinary skill in the art at the time of the invention is reflected adequately in the asserted prior art references. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (specific findings on the ordinary skill level are not required "where the prior art itself reflects an appropriate level and a need for testimony is not shown" (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985))). To the extent a more specific definition is required for purposes of this Decision, we adopt Petitioner's unopposed definition, which is consistent with the disclosures of the asserted prior art.

B. Claim Construction

In an *inter partes* review, claims "shall be construed 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) (2021). Under

that standard, the "words of a claim 'are generally given their ordinary and customary meaning,'" which is "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). We construe terms in dispute only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

The parties dispute only the meaning of the claim phrase "at an angle." *Compare* Pet. 12–13, *with* Prelim. Resp. 11–14. No express construction of this or any other claim term is necessary to this Decision.

C. Analysis of the Patentability Challenges

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and "the prior art are such that the subject matter, as a whole, would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). We resolve the question of obviousness based on underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness")). Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements," but "must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016); see

We apply those principles to resolve whether Petitioner demonstrates a reasonable likelihood of prevailing at trial in showing that the subject matter of at least one challenged claim would have been obvious to an ordinarily skilled artisan at the time of the invention. We organize our analysis into four main sections, first providing an overview of the asserted prior art references, and then addressing, in turn, each of the three obviousness grounds raised in the Petition. *See* Pet. 2 (grounds chart).

(1) Overview of the Asserted Prior Art

a. Stopa (Ex. 1038)

Stopa is titled "LED Light Assembly." Ex. 1038, code (54). Stopa relates to a light source having a parabolic reflector with an LED arranged at the focus of the reflector, preferably a linear focal axis. *Id*. at code (57). We reproduce below Figure 8 from Stopa.

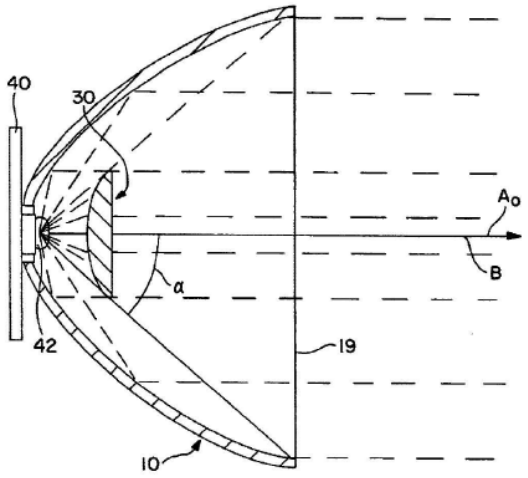


FIG. 8

Figure 8 is a sectional view through "representative parabolic reflector 10" of an "associated PC board-mounted LED. *Id.* at 6:48–49. Stopa states a linear array of point source LEDs is advantageous and arranged on a printed circuit board. *Id.* at 3:18–26.

b. Stopa II (Ex. 1045)

Stopa II is titled "High Flux LED Assembly." Ex. 1045, code (54). The LED light assembly of Stopa II includes, among other structures, a reflector subassembly that "defines an array of frustoconical reflectors." *Id.* at code (57). We reproduce below Stopa II's Figures 3 and 4B.

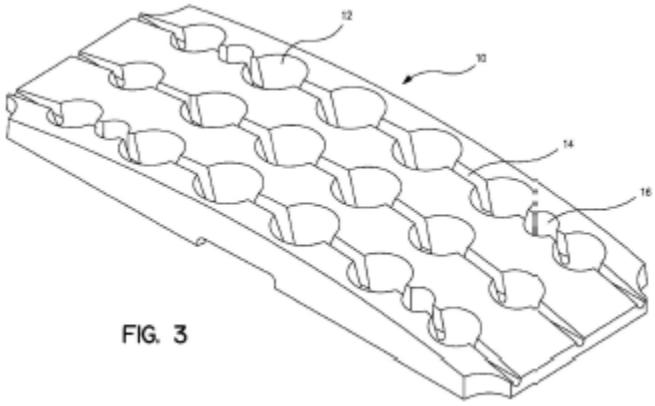


FIG. 3

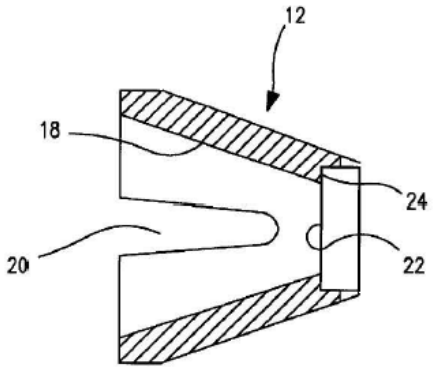


FIG. 4B

Figure 3 is a perspective view of one-piece reflector assembly 10, which includes a plurality of frustoconical reflectors 12. *Id*. at 2:61–62, 3:50–53. Figure 4B is a cross-sectional side view of a single reflector 12 of assembly 10 as shown in Figure 3. *Id*. at 2:63–65, 3:66–4:1.

Stopa II explains that "assembly 10 is preferably a molded plastic component which will be metalized to provide a reflective coating on all the forward facing surfaces thereof." *Id*. at 3:58–60. The reflective coating, which is not "separately shown" in Stopa II, "will typically be a film of aluminum applied by vacuum deposition." *Id*. at 3:60–63.

c. Medendorp (Ex. 1022)

Medendorp describes a lighting fixture that includes a heat spreading layer between an LED and a reflector to spread heat laterally away from the LED. Ex. 1022, code (57). Medendorp's system is shown in Figures 4 and 5, which we reproduce below.

FIG. 4

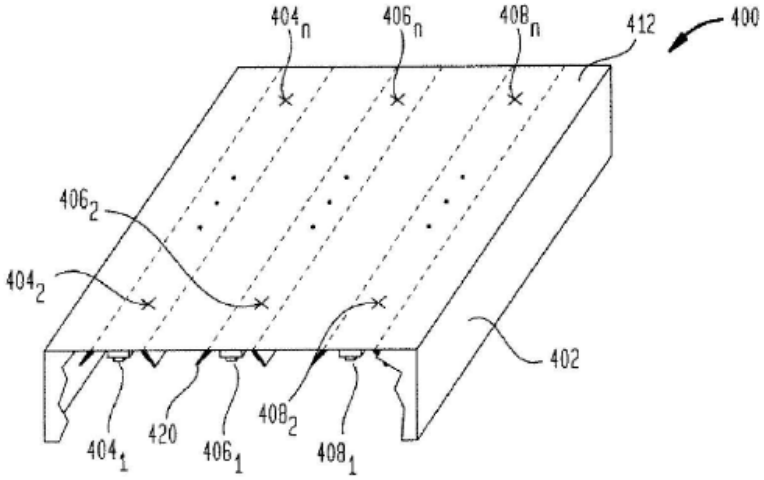


FIG. 5

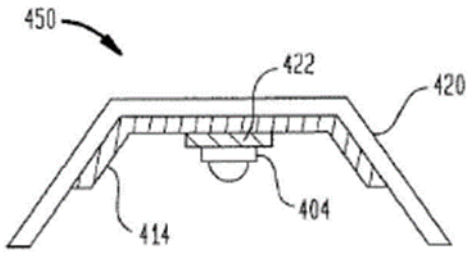


Figure 4 above depicts a side view of Medendorp's fixture and Figure 5 shows LED 404 mounted on a metal core 422 that is in thermal contact with a sheet of anisotropic heat spreading material 414 that is attached to reflector 420. *Id.* ¶ 24, Figs. 4, 5. Medendorp describes the x-y plane of the fixture as being along the plane or surface of reflector 420. *Id.* ¶ 24.

d. Baar (Ex. 1037)

Barr describes a fluorescent light reflector having a U-shaped cross-sectional configuration and an interior light-reflective surface comprising a plurality of interconnected elongated parallel panels at a prescribed angle to each other. Ex. 1037, code (57). We reproduce below Barr's Figure 5.

Fig.-5

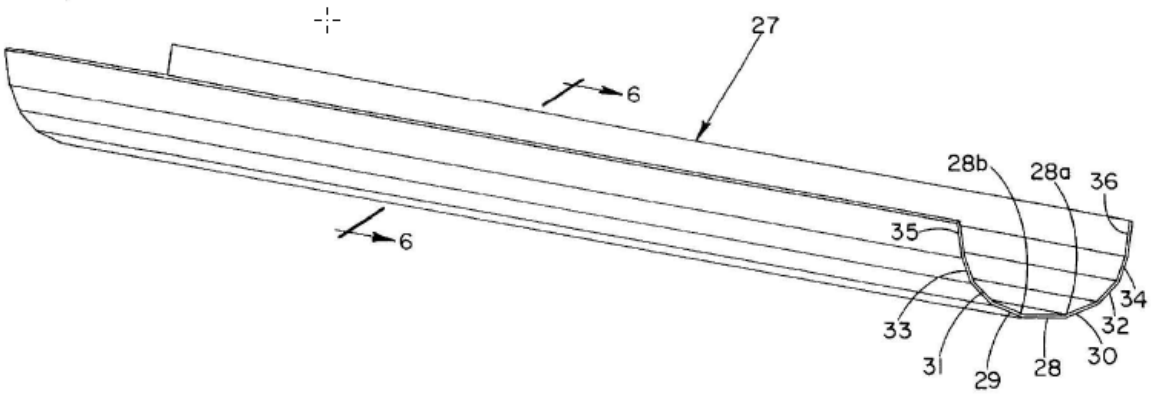


Figure 5 above is a perspective view of a reflector having a U-shaped channel extending the full length. *Id.* at 3:46–51. An elongated flat panel 28 at the base of the channel has edges that connect to the side edges of a pair of flat parallel elongated reflective panels 29, 30, which extend at an angle and are connected to a second pair of flat, parallel elongated reflective panels 31, 32, each of which extend outwardly at an angle that is 22–32 degrees. *Id.* at 3:51–4:4. Barr describes a third and fourth pair of flat, parallel elongated reflective panels extending at their side edges with the fourth pair connecting at an angle of 13–20 degrees. *Id.* at 4:5–16.

e. Brown (Ex. 1036)

Brown relates to an illumination device that includes high power white LEDs together with a reflector and an integrated diffuser. Ex. 1036, code (57). We reproduce below Brown's Figures 1 and 2.

Fig.1.

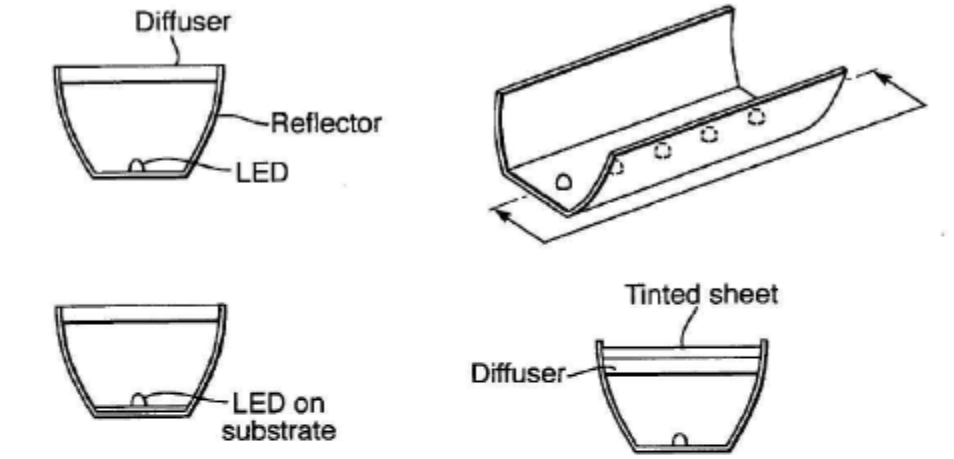


Fig.2.

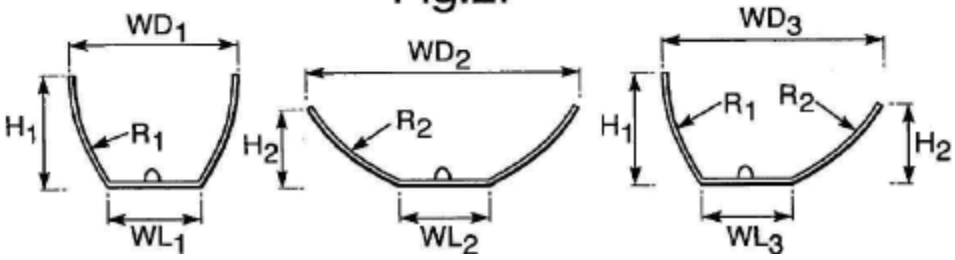


Figure 1 is an example LED lamp assembly and Figure 2 above is a cross-sectional view with various dimensions. *Id.* ¶¶ 18, 19. Brown describes the assembly as having LEDs mounted on a back panel and a reflector mounted edge to edge with the back plane on either side in a "gutter-like shape with the LED array in the bottom," but does not require the assembly to be symmetric or have the radii of the sides to be a constant curvature. *Id.* ¶¶ 26, 27. Brown indicates that "[t]he back plane and the reflector could of

course also be made out of a same sheet folded along two lines to create two reflector wings." *Id.* ¶ 26.

(2) Asserted Obviousness Over Stopa and Stopa II

Petitioner asserts that the subject matter of claims 1–15 and 18–20 would have been obvious over the combined teachings of Stopa and Stopa II. Pet. 18–35. We first assess the sufficiency of the challenge as to independent claims 1 and 15, then turn to dependent claims 2–14 and 18–20.

a. Independent Claims 1 and 15

Petitioner asserts that Stopa's reflector has a parabolic shape and "would be understood as being constructed as a highly reflective material." Pet. 18–19. Alternatively, Petitioner asserts that Stopa II teaches that a metallic coating, such as a "film of aluminum applied by vacuum deposition," may be applied to a "molded plastic reflector." *Id.* at 19.

Petitioner acknowledges that a multi-faceted side wall, according to the invention, includes "at least one angled bend" as shown in Petitioner's annotated version of Figure 16 from the '854 patent, reproduced *supra* 3. Pet. 4. Nevertheless, when discussing the limitations of claim 1 that require first and second multi-faceted side walls, Petitioner asserts that the Specification of the '854 patent "contemplates a 'multi-faceted reflector' can include reflectors having 'a parabolic shape.'" *Id.* at 20–21 (citing Ex. 1001, 17:41–54)). The cited disclosure from the Specification does not support an inference that the smooth surface of Stopa's "parabolic linear section[s]" are multi-faceted merely because the overall shape of Stopa's reflector may be parabolic. Ex. 1038, 3:8. To the contrary, the Specification of the '854 patent makes plain that "the reflectors may be of a rounded-type *with multiple facet*

angles," in other words, parabolic shaped *and* characterized by the angled bends that result in facets. Ex. 1001, 19:40–41 (Board's emphasis); Pet. 4.

To be clear, the '854 patent indicates that "a multi-faceted reflector may also include reflectors having a parabolic shape." Ex. 1001, 17:53–54. But the '854 patent does not, as Petitioner incorrectly assumes, define the multi-faceted characteristic as being the result of the side walls having a rounded-type or parabolic shape. Instead, the '854 patent describes facets in terms of angles. *Id.* at 17:46–47 ("The combination of these angles creates facets in side walls **185**, thereby creating a multi-faceted side wall."). Stated somewhat differently, a reflector having multiple facets may have a parabolic shape, but facets are a function of the inclusion of "at least one angled bend" in the shape defined by *two* angles in *each* side wall, shown as angle Θ and angle Φ in Figure 16 of the '854 patent, reproduced *supra* 3. Pet. 4. Petitioner acknowledges that Figure 16 shows two angles that define the bend that results in multiple facets, but does not show sufficiently where those angles are found in each of Stopa's smooth-surfaced side walls. *Id*.

On that point, as the Specification makes plain, "*Each* side wall" of the specified reflector includes, at minimum, "a first facet" defined by angle Θ and a "second facet" defined by "angle Φ." Ex. 1001, 41–46 (Board's emphasis). Petitioner identifies no disclosure in the applied references that suggests, much less discloses, a side wall having a bend characterized by two angles, that is, a multi-faceted side wall. *See* Pet. 21 (directing us to the smooth, parabolic side walls of Stopa's reflector) (quoting Ex. 1038, Fig. 4).

Neither Petitioner nor Dr. Josefowicz adequately explains how either of Stopa's side walls include a facet, let alone multiple facets as required by claim 1, in the absence of multiple angles. Accordingly, we find Petitioner

has not shown a reasonable likelihood of prevailing on its challenge to claim 1 of the '854 patent over Stopa and Stopa II. Our reasoning applies with equal force to independent claim 15, which similarly requires multi-faceted side walls. Ex. 1001, 22:1–9; *see* Pet. 44 (relying on the same arguments, as to claim 1, when mapping the asserted prior art to the limitations of claim 15 that similarly require multi-faceted side walls).

b. Dependent Claims 2–14 and 18–20

Each of the dependent claims challenged in this ground inherit, by direct or indirect dependence, the same multi-faceted side wall limitations of claim 1 or claim 15. Our analysis above applies with equal force to the independent claims. On this record, Petitioner is not reasonably likely to prevail in showing that the subject matter of any challenged claim would have been obvious over the combined disclosures of Stopa and Stopa II.

(3) Asserted Obviousness Over Medendorp and Baar

Petitioner also asserts that the subject matter of claims 1, 2, 6–9, 13, 15, and 18–20 would have been obvious over the combined disclosures of Medendorp and Baar. Pet. 2. We first address the challenge presented against independent claims 1 and 15, then turn to dependent claims 2, 6–9, 13, 15, and 18–20.

a. Independent Claims 1 and 15

Petitioner contends that claim 1 is unpatentable as obvious based on Medendorp in combination with Baar. Pet. 49–61. The Petition does not provide a sufficient, non-hindsight biased rationale why an ordinarily skilled artisan would have combined Medendorp with Baar in the manner claimed. *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1368 (Fed. Cir. 2012) ("[B]e careful not to allow hindsight reconstruction of references

to reach the claimed invention without any explanation as to how or why the references would be combined to produce the claimed invention.").

Petitioner acknowledges that Medendorp "does not expressly disclose a *multi-faceted side wall reflector*" as required by claim 1. Pet. 55 (Petitioner's emphasis). To remedy that deficiency in Medendorp's disclosure, Petitioner argues that an ordinarily skilled artisan would have retrofitted Baar's fluorescent reflector, "composed of a plurality of reflective panels (facets)," with Medendorp's LED lighting system. *Id*. at 56. Petitioner repeatedly contends that Baar's fluorescent bulb reflector "*could*" have been modified to include Medendorp's LED lighting strip, without directing the Board to any persuasive reason why the modification *would* have been undertaken. *Id.* at 56–57 (Board's emphasis).

The critical question is not whether any ordinarily skilled artisan *could* have undertaken the proposed modification, but rather, whether Petitioner explains adequately why one *would* have done so. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) ("obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention"); *see also Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016) ("Although the *KSR* test is flexible, the Board 'must still be careful not to allow hindsight reconstruction of references . . . without any explanation as to *how* or *why* the references would be combined to produce the claimed invention.'") (quoting *Kinetic Concepts*, 688 F.3d at 1368).

On that point, Petitioner submits, "Medendorp's reflectors are merely exemplary" and other "varying reflector shapes" would have been known in

the art. Pet. 55–56. From there, Petitioner argues that an ordinarily skilled artisan "could" retrofit Baar's multi-faceted side walls to include Medendorp's LED lighting system. *Id*. at 56–57. By way of support, Petitioner indicates, "It would have been an obvious design choice to use such a multi-faceted reflector in the Medendorp light assembly if a greater focus of light was desired. (cite)." *Id*. at 57. We detect the unmistakable taint of hindsight reconstruction in Petitioner's argument, including the conclusory and ineffective reference to a "cite" not provided. *Id*.

Even if we accept that the similarities between Medendorp and Baar establish, as a threshold matter, that they would have been considered by an ordinarily skilled artisan, that is not enough to infer a sufficient reason to combine the various components of the prior art devices in the manner claimed. *See K-Tec, Inc. v. Vita-Mix, Corp.*, 696 F.3d 1364, 1375 (Fed. Cir. 2012) (to qualify as prior art in an obviousness analysis, references must be analogous art—either in the same field of endeavor, or reasonably pertinent to the problem with which the inventor is involved). But the asserted similarities alone are not sufficient to show that a POSITA would have had a reason to combine the teachings in the manner described in the challenged claims. *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017) (It is not enough that a skilled artisan, once presented with two references, would have understood that they could be combined; Petitioner needs to establish a motivation to pick out the two references and combine them to arrive at the claimed invention.).

Petitioner does not explain how the proposed retrofitting of Baar's reflector to include Medendorp's LED lighting assembly would have facilitated a "greater focus of light" in the modified apparatus. Pet. 57

(directing the Board only to a "cite" place marker, without any supporting citation). Instead, Petitioner argues that Medendorp's non-faceted side walls "are merely exemplary," and that Medendorp describes how to install an LED lighting strip "into the reflector of pre-existing fluorescent fixtures," without identifying any adequate reason why Barr's fixture, in particular, would have been selected for retrofitting and without directing us to objective evidence sufficient to show that the proposed modification would provide any particular benefit. *Id*. at 55; *see id*. at 70–71; *see In re Schweickert*, 676 F. App'x 988, 995 (Fed. Cir. 2017) (reversing Board's obviousness determination where proposed modification of prior art is "unnecessary" to prior art system that "already" performs function of proposed additional feature and "would do little more than add unwanted cost and complexity to the system").

We take into consideration Petitioner's argument that an ordinarily skilled artisan would have known how to retrofit "Baar's pre-existing fluorescent bulbs with" Medendorp's "LED lighting solution" and would have undertaken that modification in order to "provide a more energy efficient LED system." Pet. 71 (citing Ex. 1003 ¶¶ 310–311). On this record, however, that argument appears to be driven by hindsight bias because, by way of support, Petitioner directs us to bare opinion testimony that "merely repeats, *verbatim*, the conclusory assertion for which it is offered to support." *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15 (Aug. 24, 2022) (designated precedential Feb. 10, 2023); *compare* Pet. 71, *with* Ex. 1003 ¶¶ 310–311.

To demonstrate obviousness, moreover, it is not enough for Petitioner to show merely that the prior art includes separate references covering each

separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). "This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *KSR*, 550 U.S. at 418–419. Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined or modified the prior art references in the manner claimed. *In re NuVasive, Inc.*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

On this record, for the above reasons, we find Petitioner's contentions based on the combination of Medendorp and Baar lack a sufficient rationale for combining the teachings in the manner claimed and, consequently, suffer from impermissible hindsight bias. Accordingly, Petitioner does not show a reasonable likelihood of prevailing with respect to claim 1 or claim 15 based on the ground that asserts obviousness over Medendorp and Baar.

b. Dependent Claims 2, 6–9, 13, and 18–20

Each of claims 2, 6–9, 13, and 18–20 depend directly or indirectly from claim 1 or claim 15. Ex. 1001, 20:29–45. When addressing these dependent challenged claims, Petitioner relies on the same rationale, which we find insufficient for reasons stated above, for the proposed combination of Medendorp and Baar. *See* Pet. 61–65, 69–71 (Petitioner's arguments pertaining to these dependent claims).

Our reasoning above, regarding the insufficiency of Petitioner's showing that a person of ordinary skill in the art would have been led to combine the references in the manner specified in claims 1 and 15, applies with equal force to dependent claims 2, 6–9, 13, and 18–20. On this record, therefore, Petitioner is not reasonably likely to prevail in showing that the

subject matter of any challenged claim would have been obvious over the combined disclosures of Medendorp and Baar.

(4) Asserted Obviousness Over Brown and Stopa

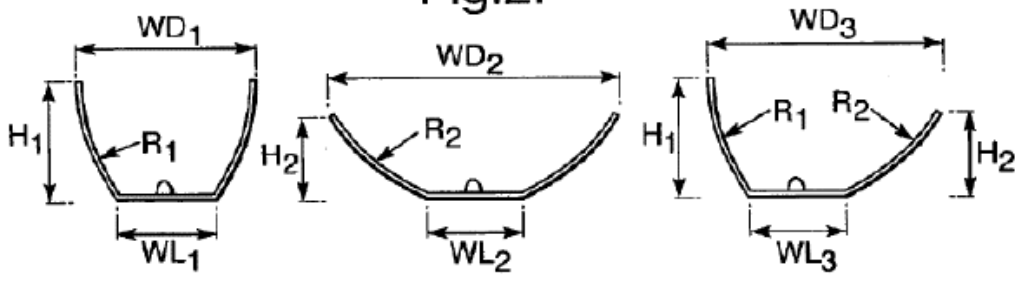
Petitioner also asserts that the subject matter of claims 1, 2, 6–15, 18, and 20 would have been obvious over the combined disclosures of Brown and Stop. Pet. 2. We first address independent claims 1 and 15, then turn to the dependent challenged claims.

a. Independent Claims 1 and 15

Petitioner argues that Brown discloses multi-faceted side walls as required by claims 1 and 15. Pet. 78–80. In that regard, however, Petitioner asserts that an ordinarily skilled artisan would have understood that "Brown's sidewalls could be designed to have a parabolic or elliptical shape," namely, a "not constant curvature design." *Id*. at 79 (citing Ex. 1003 ¶¶ 324–349) (Board's emphasis).

Here again, as with the ground based on Stopa and Stopa II, Petitioner argues that the smooth side walls of a prior art device, "when designed with a non-constant curvature," meet the limitation that requires multi-faceted side walls. *Id*. For support, Petitioner relies on Figure 2 from Brown, which we reproduce below.

Fig.2.



Ex.1036, Fig. 2

Figure 2 illustrates three "cross-sectional views of LED lamp assemblies of various dimensions." Ex. 1036 ¶ 19. Figure 2 shows Brown's side walls R_1 and R_2, which are curved but lack the angles that define the bend that introduces multiple facets in the sidewalls as required by claims 1 and 15. *See* Ex. 1001, 20:37–49, 22:1–9 (limitations of claims 1 and 15 that specify first and second multi-faceted side walls); *see also id*. at 17:41–48 (explaining that *each* side wall must contain multiple facets defined by, at minimum, two identifiable angles, that is, angle Φ and angle Θ).

For reasons explained above in connection with the smooth surfaces of the sidewalls disclosed in Stopa (*supra* 15–17), on this record, we find insufficient Petitioner's argument that the smooth surfaces of Brown's side walls R_1 and R_2 are inherently multi-faceted simply because the overall shape of Brown's side walls may be parabolic or rounded. Petitioner acknowledges that a multi-faceted side wall, according to the invention, includes "at least one angled bend" as shown in Petitioner's annotated version of Figure 16 from the '854 patent, reproduced *supra* 3. Pet. 4. It is not clear on this record, and Petitioner does not explain adequately, how or why *each* smooth sidewall, designated as R_1 and R_2 in Brown's Figure 1, includes an angled bend defined by two angles as discussed in the Specification.

Here again, we observe, "*Each* side wall" of the specified reflector includes, at minimum, "a first facet" defined by "angle Θ" and a "second facet" defined by "angle Φ." Ex. 1001, 17:41–46 (Board's emphasis). Petitioner directs us to no disclosure in Brown that suggests, much less discloses, a side wall having a bend defined by two angles, that is, a multi-faceted side wall. *See* Pet. 78–80 (directing us to smooth, parabolic side

walls R_1 and R_2 of Brown's reflector); *see also supra* 3 (reproducing Petitioner's annotated version of Figure 16 from the '854 patent, which illustrates first and second facets in a multi-faceted side wall, defined by first and second angles, as required by claims 1 and 15).

Neither Petitioner nor Dr. Josefowicz adequately explains how either of Brown's side walls include a facet, let alone multiple facets as required by claim 1 and claim 15, in the absence of multiple angles. Accordingly, we find Petitioner has not shown a reasonable likelihood of prevailing on its challenge to claim 1 or claim 15 over Brown and Stopa.

b. Dependent Claims 2, 6–14, 18, and 20

Each of the dependent claims challenged in this ground inherit, by direct or indirect dependence, the same multi-faceted side wall limitations of claim 1 or claim 15. Our analysis above applies with equal force to the independent claims. On this record, Petitioner is not reasonably likely to prevail in showing that the subject matter of any challenged claim would have been obvious over the combined disclosures of Brown and Stopa.

IV. CONCLUSION

For the above reasons, we determine that Petitioner has not shown a reasonable likelihood that it will prevail in showing that at least one of the challenged claims is unpatentable. Accordingly, we *deny* the Petition and do not institute an *inter partes* review.

V. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314, the Petition is *denied* and no *inter partes* review is instituted.

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