

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EIKO GLOBAL, LLC,
Petitioner,

v.

BLACKBIRD TECH LLC d/b/a BLACKBIRD TECHNOLOGIES,
Patent Owner.

Case IPR2017-00980
Patent 7,086,747 B2

PATENT OWNER'S PRELIMINARY RESPONSE

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LIST OF PATENT OWNER’S EXHIBITS

<u>Exhibit</u>	<u>Description</u>
2001	Transcript of December 9, 2016 Claim Construction Hearing

I. INTRODUCTION

In accordance with 37 C.F.R. § 42.107, Patent Owner Blackbird Tech LLC d/b/a Blackbird Technologies (“Blackbird”) submits this preliminary response to the Petition (the “Petition” or “Pet.”) filed by EiKO Global, LLC (“Petitioner”) requesting *inter partes* review of claims 1 and 12 (the “Challenged Claims”) of U.S. Patent No. 7,086,747 (the “’747 patent”).¹ Blackbird respectfully requests that the Board deny the Petition for at least the following reasons:

First, Petitioner fails to explain how a critical term of the Challenged Claims—“protrude through”—is to be construed and, in addition, construes at least one critical term in each Challenged Claim incorrectly.

Second, Petitioner fails to establish a reasonable likelihood of success with respect to Ground 1, obviousness over Ruskouski in view of Teich. With respect to claim 1, Petitioner fails to show that the references disclose a “ballast cover,” as that term is properly construed, or LEDs that “protrude through” the relevant surface. With respect to claim 12, Petitioner fails to show that the references disclose the preamble of claim 12 or LEDs that “protrude through” the relevant

¹ Previous petitioner Halco Lighting Technologies, LLC was terminated from this proceeding. *See EiKO Global, LLC and Halco Lighting Technologies, LLC v. Blackbird Tech LLC*, Case IPR2017-00980, Paper No. 10 (May 26, 2017).

surface.

Third, Petitioner fails to establish a reasonable likelihood of success with respect to Ground 2, anticipation based on Archer. With respect to claim 1, Petitioner fails to show that Archer discloses a “ballast cover,” as that term is properly construed, or a circuit board that is “positioned adjacent” the relevant surface, such that the LEDs “protrude through” that surface. With respect to claim 12, Petitioner fails to show that Archer discloses the preamble of claim 12 or a circuit board that is “positioned adjacent” the relevant surface, such that the LEDs “protrude through” that surface.

Fourth, Petitioner fails to establish a reasonable likelihood of success with respect to Ground 3, obviousness over Archer in light of Ruthenberg. This Ground fails for the substantially same reasons that Ground 2 failed with respect to claim 12. Petitioner relies on Ruthenberg exclusively for the “fastening mechanism” element, however, Ruthenberg fails to cure the deficiencies identified in Archer’s disclosure.

Fifth, Petitioner fails to establish a reasonable likelihood of success with respect to Ground 4, obviousness over Hunter in combination with Kanarek and, to the extent the preamble is found to be limiting, Timmermans. Petitioner fails to establish that a skilled artisan would have been motivated to combine the references as alleged by Petitioner and, furthermore, fails to establish that Hunter

discloses LEDs that “protrude through” the relevant surface.

Accordingly, the Petition fails to establish a reasonable likelihood that the Challenged Claims are unpatentable. Consequently, the Board should not institute trial in this proceeding.

II. THE '747 PATENT

The '747 patent is directed to apparatuses and methods to retrofit existing light fixtures with new, more energy efficient lighting. The Petition challenges two of the '747 patent's independent claims, claims 1 and 12, which recite two of these retrofit apparatuses.

Each of these retrofit apparatuses works with existing fluorescent light fixtures. Fluorescent light fixtures, which are the light fixtures traditionally used in office and other commercial settings, are designed to work with fluorescent lights, often in a “tube” form factor. The '747 patent teaches that “[a] typical fluorescent light fixture has an elongated housing, usually made of metal or plastic with a downwardly opening elongated cavity in which is carried one or more tubular fluorescent lamps for emitting light below the fixture.” Ex. 1001 at 1:33-37. Because fluorescent lighting generally cannot be coupled directly to AC current, “[p]ower is supplied to the fluorescent lights [in such fixtures] from an AC source by means of a ballast....” *Id.* at 5:1-2. The ballast is an electronic component that “maintains a desired current through the fluorescent lights so that the fluorescent

lights are illuminated.” *Id.* at 5:65-67. To prevent the ballast from being visible from below the light fixture, these fixtures generally have a “ballast cover [that] covers the primary wiring of the fixture, including the ballast.” *Id.* at 5:2-4.

Claim 1 recites:

An energy-efficient lighting apparatus, comprising:

a **ballast cover**;

a plurality of ballast cover holes in the ballast cover;

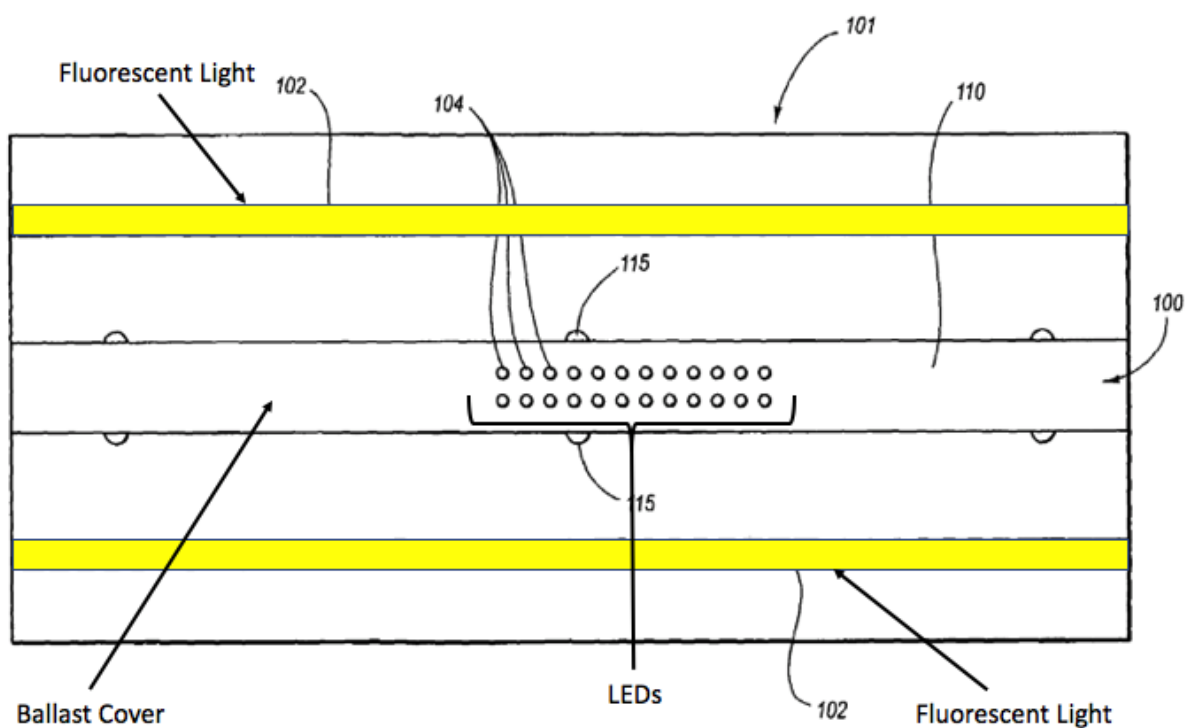
a circuit board comprising a plurality of light-emitting diodes, wherein the circuit board is positioned adjacent the ballast cover so that the plurality of light-emitting diodes **protrude through** the plurality of ballast cover holes in the ballast cover, wherein the lighting apparatus is coupled to a wall switch and wherein the illumination of the light-emitting diodes is controllable based upon the position of the wall switch.

Id. at 10:39-49.² Essentially, claim 1 recites a structure in which a circuit board, with LEDs mounted on it, is positioned behind a **ballast cover** with holes formed in it that the LEDs protrude through, which can then be attached to a light fixture. In an embodiment disclosed in the ’747 patent, the apparatus of claim 1 is installed in a fluorescent light fixture, so that the fixture can provide lighting using either fluorescent lights or the LED lights that **protrude through** the holes in the ballast

² All emphasis herein is added, unless otherwise noted, and all defined terms have the same meaning as specified in the Petition, unless otherwise specified.

cover. *Id.* at 4:44-59.

Figure 1 of the '747 patent shows this embodiment of the lighting apparatus claimed in claim 1, installed in a fluorescent light fixture. As shown below, the fixture's fluorescent lights (102) remain installed. The LEDs (104) of the apparatus protrude through holes in the ballast cover (110), which is secured to the light fixture housing (101).



Id. Fig. 1.

Claim 12 of the '747 patent is directed to a “retrofit” apparatus that is designed for use “with an existing light fixture having a **ballast cover**.” *Id.* at 11:26-27. Claim 12 recites:

An energy-efficient lighting apparatus for retrofit with an existing

light fixture having a **ballast cover**, comprising:

a housing having an attachment surface and an illumination surface;

a plurality of illumination surface holes in the illumination surface;

a circuit board comprising a plurality of light-emitting diodes, wherein the circuit board is positioned adjacent the housing so that the plurality of light-emitting diodes **protrude through** the plurality of illumination surface holes in the illumination surface; and

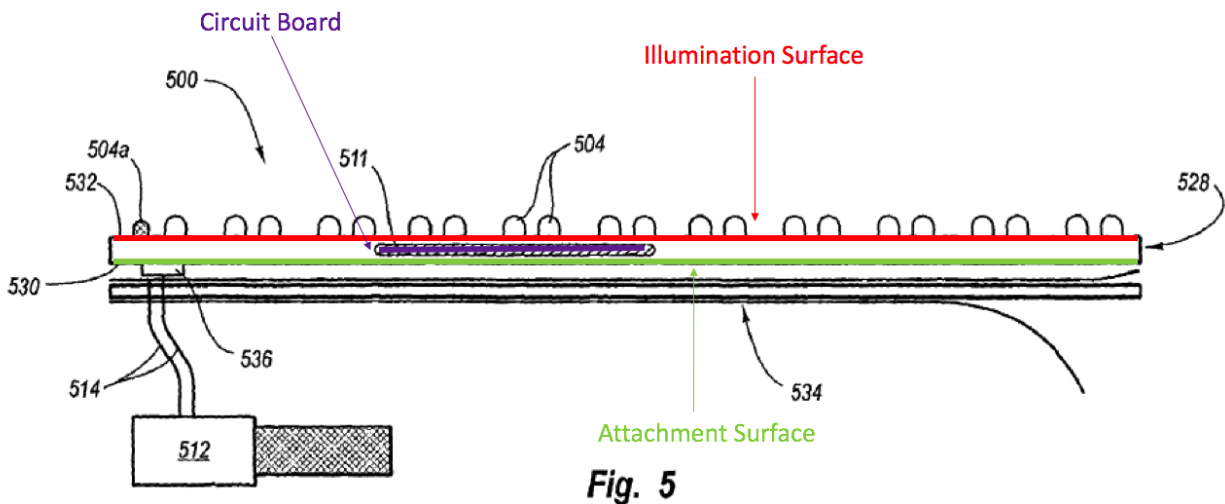
a fastening mechanism for securing the attachment surface of the lighting apparatus to the illumination surface, wherein the lighting apparatus is coupled to a wall switch and wherein the illumination of the light-emitting diodes is controllable based upon the position of the wall switch.

Id. at 11:26-42.

Thus, claim 12 recites a retrofit lighting apparatus with a particular core configuration that is contained within a housing. *Id.* That configuration comprises LEDs coupled to a circuit board, which is positioned relative to an illumination surface such that the LEDs protrude through holes in that illumination surface. *Id.* The illumination surface is secured, via a fastening mechanism, to an “attachment surface” of the housing of the retrofit apparatus. *Id.* Accordingly, in this apparatus, the circuit board is “sandwiched” between the attachment and illumination surfaces, which are secured to one another.

This core structure can be seen in Figure 5 of the '747 patent, which depicts

a “side plan view” of an embodiment of the invention recited in claim 12. *Id.* at Fig. 5, 4:9-10. It is reproduced below with annotations showing the illumination surface (532, in red), attachment surface (530, in green), and circuit board (511, in purple):



III. PETITIONER’S GROUNDS OF CHALLENGE

Petitioner alleges that the Challenged Claims are unpatentable based on the following:

- Ground 1: Claims 1 and 12 are obvious over U.S. Patent No. 5,410,453 to Ruskouski (“Ruskouski” (Ex. 1004)) in view of U.S. Patent No. 4,323,820 to Teich (“Teich” (Ex. 1005)).
- Ground 2: Claims 1 and 12 are anticipated by U.S. Patent No. 7,204,602 to Archer (“Archer” (Ex. 1006)).
- Ground 3: Claim 12 is obvious over Archer in view of U.S. Patent No. 6,184,628 to Ruthenberg (“Ruthenberg” (Ex. 1013)).
- Ground 4: Claim 12 is obvious over U.S. Patent No. 6,283,612 to Hunter (“Hunter” (Ex. 1007)), in view of U.S. Patent No. 5,226,724 to

Kanarek (“Kanarek” (Ex. 1008)), and, to the extent the preamble of claim 12 is found to be limiting, U.S. Patent No. 7,049,761 to Timmermans, et al., (“Timmermans” (Ex. 1009)).

IV. CLAIM CONSTRUCTION

A. **The Board Should Deny Institution Because The Petition Fails To Construe A Critical Claim Term That Requires Construction.**

Under 37 C.F.R. § 42.104(b)(3)-(4), “[i]t is Petitioner’s burden to explain how the challenged claims are to be construed and how they read on the prior art.” *Jiawei Tech. (HK) Ltd. v. Richmond*, IPR2014-00937, Paper 22 at 7-9 (P.T.A.B. Dec. 16, 2014) (denying institution for failing to construe a term); *Id.*, Paper 24 at 2 (P.T.A.B. Feb. 6, 2015) (denying request for rehearing of Board’s denial of review premised on “Petitioner’s failure to offer a construction and analysis of a term critical to understanding the scope of [the challenged] claims”). Petitioner has not met this burden because it failed to construe the term “protrude through,” which must necessarily be construed to resolve Petitioner’s unpatentability arguments.

Claim 1 recites “a circuit board comprising a plurality of [LEDs], wherein the circuit board is positioned adjacent the ballast cover so that the plurality of [LEDs] **protrude through** the plurality of ballast cover holes in the ballast cover.” Ex. 1001 at 10:43-46. Claim 12 recites “a circuit board comprising a plurality of [LEDs], wherein the circuit board is positioned adjacent the housing so that the

plurality of [LEDs] ***protrude through*** the plurality of illumination surface holes in the illumination surface.” *Id.* at 11:33-36. The construction of “protrude through” is critical to the understanding of the scope of the Challenged Claims, and Petitioner’s failure to propose a construction for it is fatal to the Petition.

The proper construction of “protrude though” in claim 12 was a key issue in *Blackbird Technologies v. ELB Electronics, Inc., et al.*, C.A. No. 15-cv-056-RGA (D. Delaware), in which Blackbird alleged that certain defendants infringed the ’747 patent (the “District Court Case”).³ The district court construed “protrude through” in claim 12 to mean “are at least partially beneath the surface of and jut out of,” Ex. 1012 at 2, *i.e.*, that the LEDs had to be at least partially beneath the “illumination surface” and jut out of the “plurality of illumination surface holes in the illumination surface.”

Despite failing to offer any construction of the term here, during the District Court Case, counsel for petitioner, at the time representing a different party, Ex. 1011 at cover page 3, argued for a materially different construction than that adopted by the district court. Specifically, counsel proposed that “protrude

³ The District Court Case is presently on appeal, following a stipulated judgment of non-infringement, before the United States Court of Appeals for the Federal Circuit in *Blackbird Tech LLC v. ELB Electronics, Inc., et al.*, 17-1703.

through” be construed as “passing from beneath a surface to the other side of that surface.” *See, e.g.*, Ex. 1011 at 44. This proposed construction would, if adopted, significantly alter the scope of the challenged claims. In particular, according to counsel for Petitioner, such a proposed construction of “protrude through” would require that the LEDs “physically pass from one side of the illumination surface to the other.” Ex. 2001 at 49. As counsel for Petitioner explained to the district court, this would require that the LEDs first be mounted on a circuit board and then “physically pass[ed]” through the illumination surface to the opposite side of that surface, *i.e.*, the LEDs could not be mounted from the top down.⁴ *Id.*; *see also id.* (“[T]he claims only cover products in which LEDs mounted on a circuit board positioned on one side of the illumination surface physically pass through the holes in the illumination surface to the other side.”); *id.* (“[T]he LEDs must be small enough to pass from beneath the illumination surface to the other side of that surface....”).

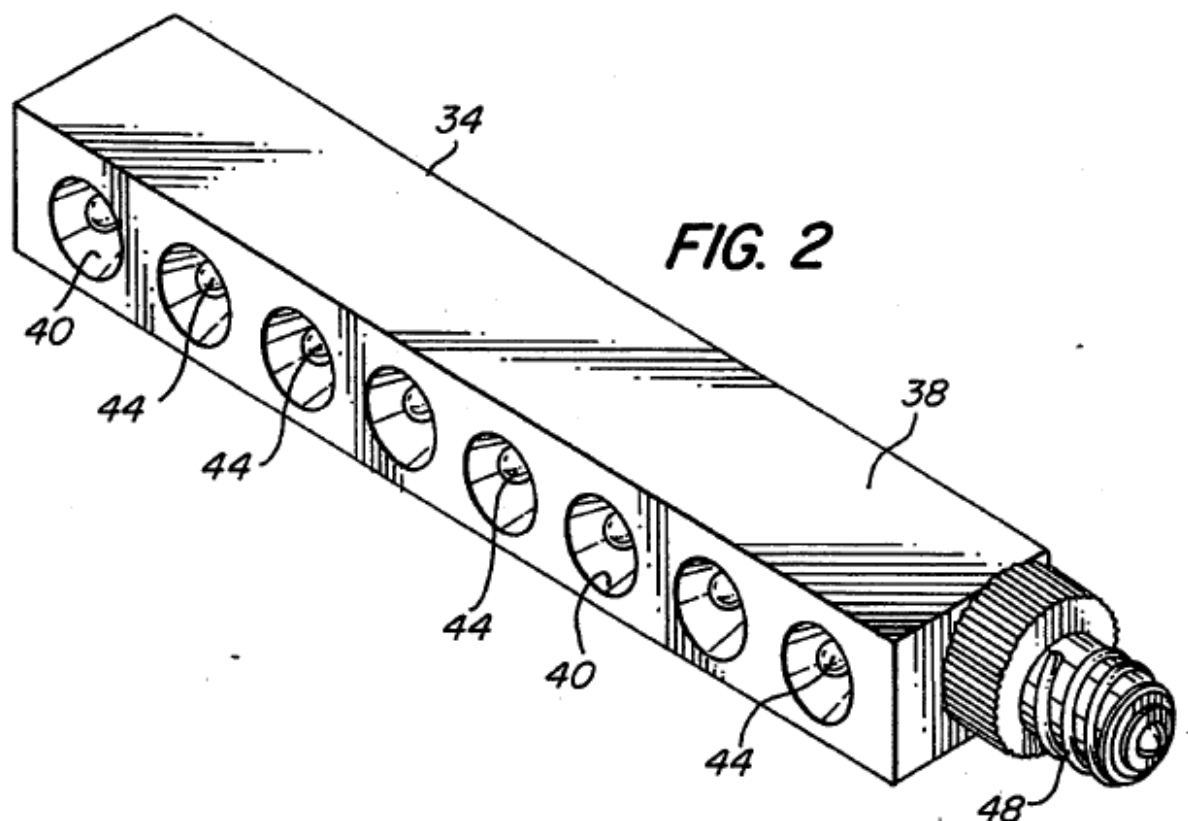
Petitioner’s failure to provide a construction for “protrude through” is significant because how that term is construed materially affects how the alleged prior art relates to the challenged claims, and, in absence of a construction,

⁴ This argument goes so far as to improperly incorporate a limitation to the method of manufacturing the claimed lighting apparatus of claim 12.

Petitioner cannot meet its burden. In particular, to the extent the district court’s construction of “protrude through” is the correct construction under the “broadest reasonable interpretation” standard, certain of Petitioner’s arguments necessarily fail. In particular, as to Ground 1, Petitioner argues that claims 1 and 12 are obvious over Ruskouski in view of Teich. Pet. at 28. With respect to claim 1, Petitioner argues that Ruskouski discloses LEDs that “‘protrude through the plurality of ballast cover holes in the ballast cover,’ in that...LEDs 44A (the ‘plurality of light-emitting diodes’) protrude through the frustoconical apertures 40A (the ‘ballast cover holes’).” Pet. at 31 (citing Ruskouski Fig. 10 (38A, 40A, 42A, 44A), 1:67-2:6, 3:60-62; 5:66-6:8 (Ex. 1004); Bretschneider Decl. ¶¶ 57-59 (Ex. 1003)). Similarly, with respect to claim 12, Petitioner argues that Ruskouski discloses LEDs that “‘protrude through the plurality of illumination surface holes in the illumination surface,’ in that...the LEDs 44A (the ‘plurality of light-emitting diodes’) protrude through the frustoconical apertures 40A (the ‘plurality of surface holes’) in the front surface 66 (the ‘illumination surface’).” Pet. 36-37 (citing Ruskouski Fig. 10 (38A, 40A, 42A, 44A), 1:67-2:6, 3:60-4:7; 5:66-6:8 (Ex. 1004); Bretschneider Decl. ¶¶ 76-78 (Ex. 1003)).

However, the LEDs disclosed in Ruskouski do not “protrude through” the frustoconical apertures 40A under the construction adopted by the district court (“are at least partially beneath the surface of and jut out of”) because they do not

“jut out” above the surface. As Ruskouski explains, rather than “protruding through” the frustoconical apertures, the LEDs disclosed in Ruskouski are “*recessed in* [the] apertures.” Ex. 1004 at abstract. This can be seen in Figure 2 of Ruskouski, which depicts the assembled device that is shown in exploded view in Figure 10:



Ex. 1004. LEDs that are “recessed in...apertures” cannot “jut out of” them, as the district court determined the “protrude through” limitation required.

Conversely, to the extent Petitioner’s previously proposed construction is correct, *i.e.*, that the LEDs must “pass from beneath a surface to the other side of

that surface,” all of Petitioner’s grounds fail. Significantly, Petitioner nowhere argues that any of the alleged prior art on which Petitioner relies for this limitation—Ruskouski, Archer, and Hunter—discloses LEDs that “pass[] from beneath a surface to the other side of that surface.” *See* Pet. 31 (ground 1, claim 1), 36-37 (ground 1, claim 12), 42-43 (ground 2, claim 1), 45-46 (grounds 2 & 3, claim 12), 61-62 (ground 4, claim 12). And, in fact, Petitioner’s alleged prior art does not disclose LEDs that “pass[] from beneath a surface to the other side of that surface.”

As discussed immediately above, the LEDs disclosed in Ruskouski do not pass “to the other side” of the surface through which they supposedly protrude; they are recessed below the surface. Archer, as shown below in Figure 2, discloses LEDs that pass through a surface, but Archer does not disclose whether the LEDs are “pass[ed] from beneath” the surface or whether they are passed from above the surface, and, under this construction only the former LEDs “protrude through.” *See, e.g.*, Ex. 1006 at 3:28-29 (“Each LED bulb 10 is fed through a perforated opening in a white reflective plate 12, such as a polycarbonate plate.”).

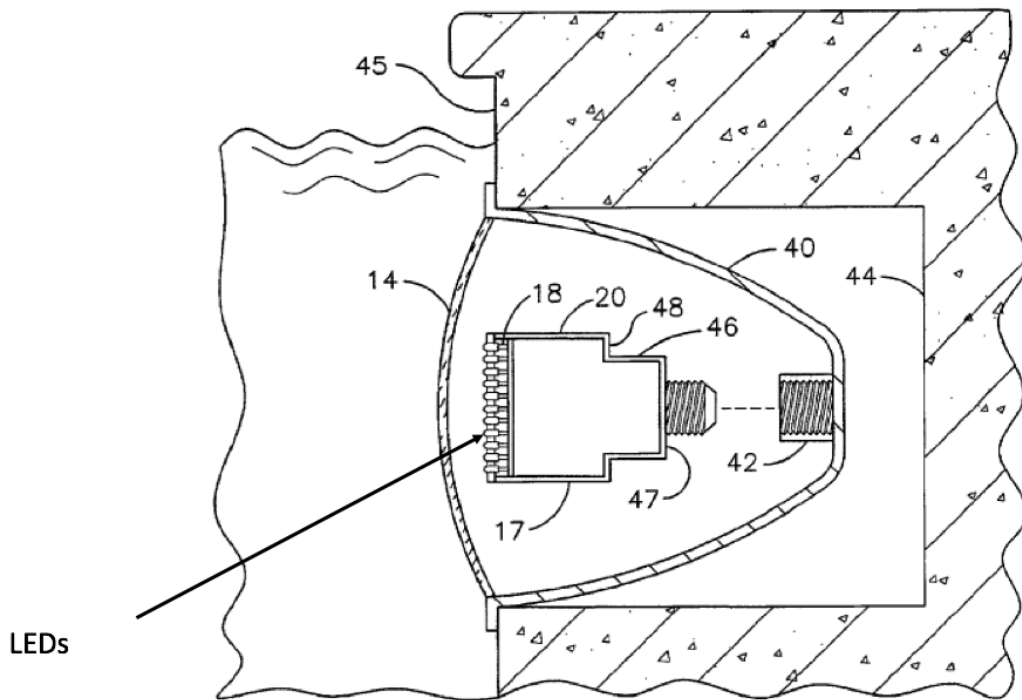
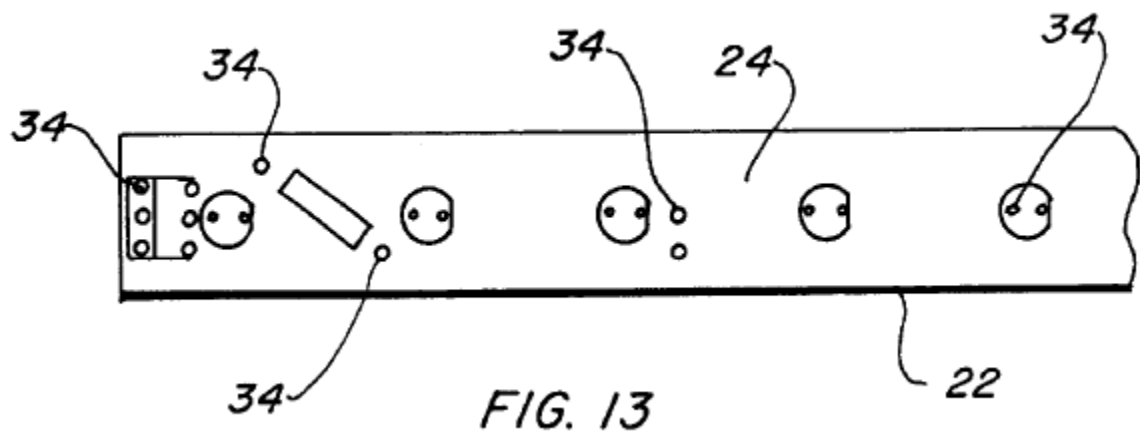
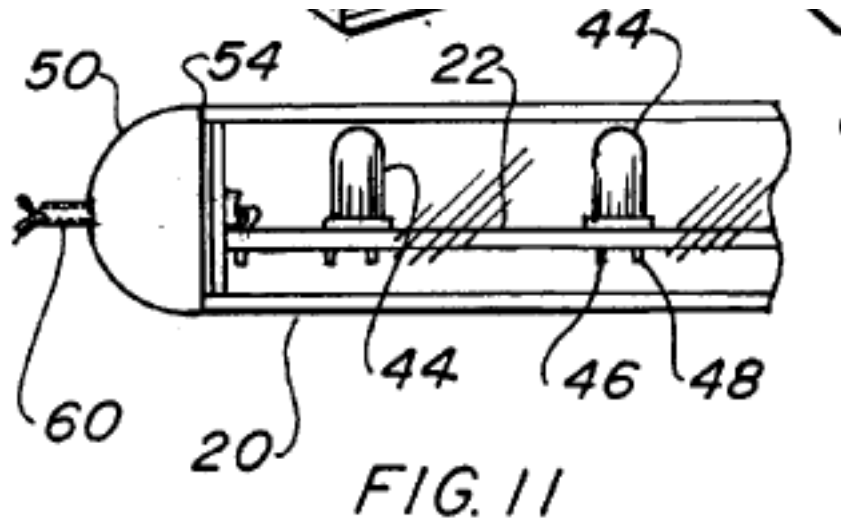


FIG. 2

Ex. 1006.

Finally, the LEDs disclosed in Hunter are larger than the holes through which they allegedly protrude, which are only large enough for the anode and cathode of the LEDs to pass through. *See, e.g.*, Ex. 1007 at 4:64-5:3 (“A plurality of light emitting diodes 44 are disposed at the center of the top 24 of the printed circuit board 22 in linear alignment with each other.... Each diode 44 includes a[n] anode 46 and cathode 48 projecting therefrom, **with both of these projections penetrating holes 34** in the circuit board 22 engaging the pads 36 and traces 32 underneath on the bottom 26.”). This can be seen in Figure 11 of Hunter, which shows the LEDs in their mounted configuration, together with Figure 13, which

shows the holes (34) through which the LEDs allegedly protrude, but which are only large enough for the anode and cathode to pass through:



Ex. 1007. In the District Court Case, counsel for Petitioner was unequivocal that LEDs in such a configuration did not “protrude through” because they cannot pass “from beneath” the surface, through the hole, and to the other side of the surface through which they allegedly protrude. Ex. 1011 at 49 (“[T]he LEDs must be small enough to pass from beneath the illumination surface to the other side of that

surface....”); Ex. 2001 (Transcript of December 9, 2016 Claim Construction Hearing) at 62:19-23 (“[B]ecause we have a patent that requires positioning, and it says the word ‘through the illumination surface,’ which means from one side to the other...[the LED] has to be smaller [than the hole through which it protrudes]”).

Accordingly, the construction of “protrude through” is of critical importance in determining the scope of the challenged claims because the construction has significant effects on how the alleged prior art relied on by Petitioner relates to the challenged claims. By failing to propose a construction for this term, Petitioner has failed to meet its “burden to explain how the challenged claims are to be construed and how they read on the prior art,” *Jiawei Tech. (HK) Ltd. v. Richmond*, IPR2014-00937, Paper 22 at 7-9 (P.T.A.B. Dec. 16, 2014), and institution should be denied in its entirety on this basis.

B. Response to Petitioner’s Claim Constructions

Because the ’747 patent has not expired, the Board interprets claims using the broadest reasonable interpretation as understood by one of ordinary skill in the art and consistent with the disclosure. *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016). “Under a broadest reasonable interpretation, words of the claim must be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history.” *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016). Petitioner’s proposed constructions for the preambles

to the Challenged Claims and “ballast cover” are not consistent with the broadest reasonable interpretation of those terms.

1. “An energy-efficient lighting apparatus” and “An energy-efficient lighting apparatus for retrofit with an existing light fixture having a ballast cover”

Petitioner contends that the preambles to the Challenged Claims are not limiting because they “merely stat[e] the intended use of the claimed lighting apparatus.” Pet. 12. However, under applicable law, both preambles are, in fact, limiting.

“The effect preamble language should be given can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.” *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989). “No litmus test defines when a preamble limits claim scope,” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002), however, a preamble can limit claim scope “[w]hen limitations in the body of the claim rely upon and derive antecedent basis from the preamble,” *Pacing Techs., LLC v. Garmin Intern., Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015) (quoting *Eaton Corp. v. Rockwell Intern. Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003)), or if it is “necessary to give life, meaning, and vitality” to the claim, *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999). Here, the preambles are limiting

because, with respect to both claims, limitations in the body of the claim rely on and derive antecedent basis from the preamble. In addition, with respect to claim 12, the preamble is “necessary to give life, meaning, and vitality” to the claim and recites structure important to the claim. All parties to the District Court Case, including the party represented by Petitioner’s counsel, stipulated and agreed that the preamble to claim 12 was limiting, Ex. 1011 at 8, and the district court construed the preamble of claim 12 to be limiting, Ex. 1012 at 2.⁵

The term “an energy-efficient lighting apparatus” in the preambles of the Challenged Claims provide antecedent basis for the term “lighting apparatus” in the body of the claims. The body of claim 1 recites “wherein *the lighting apparatus* is coupled to a wall switch and wherein the illumination of the light-emitting diodes is controllable based upon the position of the wall switch.” Ex. 1001 at 10:46-49. Similarly, the body of claim 12 recites “a fastening mechanism for securing the attachment surface of *the lighting apparatus* to the illumination surface, wherein *the lighting apparatus* is coupled to a wall switch...” Ex. 1001 at 11:37-40. Thus, “the lighting apparatus” as recited in the body of each claim depends on “an energy-efficient lighting apparatus” in the preambles as an antecedent basis. *See, e.g., Pacing Techs.*, 778 F.3d at 1024 (preamble reciting “[a]

⁵ Claim 1 was not asserted in the District Court Case.

repetitive motion pacing system for pacing a user...” provided antecedent basis for claim term “the user” in body of claim and was therefore limiting). Accordingly, the preambles should be construed as limiting.

In addition to providing antecedent basis for the term “lighting apparatus,” the preamble of claim 12 also is “necessary to give, life, meaning and vitality” to the claim. *Pitney Bowes*, 182 F.3d at 1305. The patent makes clear that the claimed lighting apparatus is not merely a lighting apparatus for general use, but rather a lighting apparatus specifically for retrofitting a particular type of lighting fixture, a fluorescent lighting fixture, with more energy efficient lighting. *Corning Glass*, 868 F.2d at 1247 (“[T]he...specification makes clear that the inventors were working on the particular problem of an effective optical communication system not on general improvements in conventional optical fibers. To read the claim in light of the specification indiscriminately to cover all types of optical fibers would be divorced from reality.”). That the claimed lighting apparatus is for retrofit is the essence of the invention. *Poly-Am., LP v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (construing preamble as limiting where it disclosed a “fundamental characteristic of the claimed invention”). This is reflected in the specification.

In the Background section, the specification describes the light fixtures into which the claimed retrofit apparatus is to be used with. Ex. 1001 at 1:25-49. Then,

in discussing an embodiment of the invention of claim 12, the specification notes that it “may easily and inexpensively be secured to existing light fixtures.” *Id.* at 9:2-4. The specification explains that “[t]hus, existing light fixtures may be retrofit with the lighting apparatus in order to achieve the energy savings described above without incurring significant expense.” Ex. 1001 at 9:5-7. Further, the specification stresses that “[a]dvantageously, the embodiments of the low-voltage lighting apparatus described...may easily and inexpensively be secured to existing light fixtures.” *Id.* at 9:60-64; *see also id.* at 10:1-3 (“Accordingly, existing light fixtures may be easily and inexpensively retrofit with the lighting apparatus.”). Indeed, even Petitioner characterizes claim 12 as being “directed at a...**retrofit** of a lighting apparatus....” Pet. 4; *see also id.* at 5 (“[C]laim 12 is directed toward an embodiment that describes a housing for retrofit with a light fixture having a ballast cover”). Accordingly, the preamble should be construed as limiting on this independent basis. *Aceto Agricultural Chemicals Corp. v. Gowan Company, LLC*, IPR 2016-00076, Paper 51 at 9 (P.T.A.B. Apr. 28, 2017) (preamble reciting “for providing herbicidal efficacy against *Heteranthera limosa* present in rice crops” limiting because “it provides specific context as to the crop to which composition must be applied, and it provides antecedent basis for the term ‘effective’” in the body of the claim).

Finally, the preamble to claim 12 is limiting for the additional reason that it

recites “additional structure...underscored as important by the specification...”

Catalina Mktg., 289 F.3d at 808. A skilled artisan would understand that to be “**for retrofit** with an existing light fixture having a ballast cover” a lighting apparatus recites important structural characteristics for the claimed invention, in particular that the device must work with such light fixtures. Notably, Dr. Bretschneider fails to address, in any way, the structural characteristics of a retrofit lighting apparatus.

Petitioner raises two primary arguments in support of its position that the preambles of the Challenged Claims are not limiting. Both are unavailing. First, Petitioner conclusorily states that the preambles “do not provide antecedent basis for any claim limitation.” Pet. 13. However, as shown above, this is wrong because the preambles provide antecedent basis for term “the lighting apparatus” in the body of the claims. Second, with respect to claim 12, Petitioner contends that the preamble merely “suggest[s] benefits or features of the claimed invention without relying on these benefits as patentably significant.” Pet. 12. However, the ’747 patent does not merely suggest that use of the claimed lighting apparatus as a retrofit would be beneficial. Rather, the entire point of the invention is that it retrofits fluorescent lighting fixtures.

To the extent the preamble is found to be limiting, it should be construed as “an LED lighting apparatus for installation in an existing light fixture having a ballast cover,” which is the construction entered by the district court. Ex. 1012 at

2. This construction reflects the fact that the “energy efficient” lighting disclosed in the ’747 patent is exclusively LED-based lighting, *see, e.g.*, Ex. 1001 at abstract, and that the claim is directed to an apparatus comprising “light-emitting diodes,” Ex. 1001 at 11:32-33. This construction also clarifies that “for retrofit with” means that the claimed apparatus is “for installation in” the existing lighting fixture meeting the requirements of the claim.

2. “Ballast Cover”

Petitioner contends that the term “ballast cover” of claim 1 should be given its plain and ordinary meaning as a “cover for a ballast or, to the extent additional construction is required, that it should be construed as a “structure that encloses wiring.” Pet. 15. Blackbird agrees that “cover for a ballast” is an appropriate construction under the broadest reasonable interpretation standard and that the Board should apply this construction. Petitioner’s alternative construction—“structure that encloses wiring”—is inconsistent with the broadest reasonable construction of “ballast cover” and effectively removes the term “ballast” from the claims.

As a threshold matter, the Petition is deficient with regard to Petitioner’s proposed alternative construction of “ballast cover” because it fails to present its argument for that construction “with particularity,” as required by 35 U.S.C. § 312(a)(3). The substance of Petitioner’s argument on this issue amounts to two

sentences: one quoting the specification's statement that "[t]he ballast cover 100 covers the primary wiring to the fixture 101, including the ballast," Ex. 1001 at 5:2-4, and another that paraphrases this sentence, Pet. 15 ("The '747 patent thus describes a 'ballast cover' as the covering for the ballast, or in other words the 'ballast cover' should be construed as 'structure that encloses wiring.'"). The Petition thus falls far short of the requirements of 35 U.S.C. § 312(a)(3).

Regardless, neither the claim language nor the specification supports broadening the construction of "ballast cover" to include structures that merely enclose any wiring. Petitioner's alternative proposed construction of "ballast cover" reads "ballast" out of the term, which specifies that the component is not merely a cover, but a cover for a specific part of a fluorescent light fixture: the ballast. The '747 patent explains that, rather than being coupled directly to the AC voltage source, fluorescent lights are coupled to "ballast," which "maintains a desired current through the fluorescent lights...." Ex. 1001 at 5:12-13. This ballast is generally located within the light fixture. By labelling this component the "**ballast** cover," rather than merely a "cover," the inventors made clear that the cover to which they were referring was for the covering of a ballast, rather than any wiring that might be contained in any lighting fixture, whether it contained a ballast or not. No skilled artisan would refer to a structure that enclosed wiring in a non-ballasted fixture as a "ballast cover."

To be sure, the term does not necessarily require that there be a ballast behind the cover. For example, if a fixture had a “ballast cover,” and the ballast were removed from the fixture, the “ballast cover” would still be a “ballast cover.” However, the claim term requires that relevant “cover” has at least been for the purpose of covering a ballast, rather than generic wiring, which Petitioner’s “plain and ordinary meaning” construction recognizes: “cover *for* a ballast.”

The specification also does not support Petitioner’s proposed construction. The sentence relied on by Petitioner is part of a longer discussion regarding “an embodiment of a lighting apparatus 100 installed in a light fixture housing 101.” Ex. 1001 at 4:35-37. The specification notes that, in this embodiment, the “ballast cover,” covers the primary wiring to the fixture, in addition to the ballast. However, that description of what the “ballast cover” covers in this particular embodiment does not broaden the plain meaning of “ballast cover,” such that it merely refers to a “cover.” Accordingly, the term should be construed as “cover for a ballast.”

V. THE BOARD SHOULD DENY INSTITUTION ON GROUND 1

Petitioner alleges that claims 1 and 12 are obvious over Ruskouski in view of Teich. Pet. 28-40. However, the Petition fails to establish that Ruskouski discloses all the limitations of the Challenged Claims.

A. Claim 1

1. The Petition Fails To Show That Ruskouski Discloses A “Ballast Cover”

Petitioner effectively concedes that Ruskouski does not disclose “a ballast cover” under Petitioner’s proposed plain meaning construction of “ballast cover” (“cover for a ballast”). Petitioner argues only that this limitation is disclosed under Petitioner’s alternative construction (“structure that encloses wiring”) and makes no attempt to suggest that Ruskouski discloses a “ballast cover” under the plain meaning of that term. Pet. 29. Petitioner’s concession was required because Ruskouski, which is directed to an un-ballasted LED lighting apparatus, does not disclose a ballast at all and, therefore, does not disclose a “ballast cover.” Because, as shown above, “ballast cover” should be construed as a “cover for a ballast,” Ruskouski does not disclose this limitation.

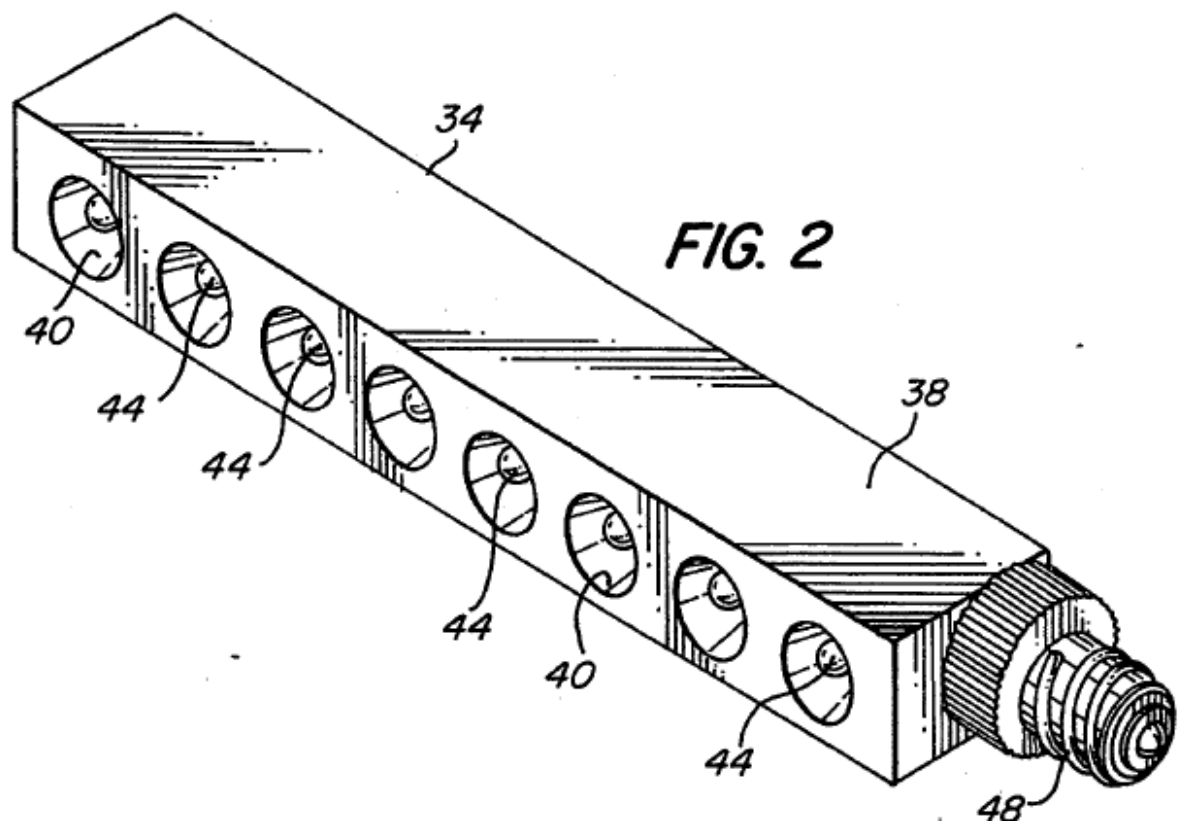
2. The Petition Fails To Show That Ruskouski Discloses LEDs That “Protrude Through”

Ruskouski fails to disclose this limitation as well because it does not disclose LEDs that “*protrude through* the plurality of ballast cover holes in the ballast cover.” Petitioner makes only a conclusory assertion that the LEDs disclosed in Ruskouski “protrude through the frustoconical apertures,” *i.e.*, the alleged “ballast cover holes.” Pet. 31. Instead, Petitioner primarily relies on the fact that, during prosecution, the Examiner determined that Ruskouski disclosed this limitation. Pet. 31 (“The Examiner stated, and the Petitioners agree, that the

claimed ‘circuit board is positioned adjacent the ballast cover so that the plurality of [LEDs] protrude through the plurality of ballast cover holes in the ballast cover’ is disclosed by Figure 10 of Ruskouski.” (citing Ex. 1002 (April 27, 2005 Office Action) at 2)). Thus, “Petitioner effectively invites the Board to rely on an examiner’s previous rejection” of the claim, which is improper. *See Bomtech Elecs., Co. Ltd. Petr.*, IPR2014-00138, 2014 WL 1651259, at *19 (Patent Tr. & App. Bd. Apr. 22, 2014) (“The Board declines [Petitioner’s] invitation [to rely on the examiner’s previous rejection].” (citing 37 C.F.R. § 42.104(b)(4)(“The *petition* must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”)))).

Due to Petitioner’s terse argument on this point and its failure, discussed above, to propose a construction for “protrude through,” it is difficult to discern how Petitioner asserts that Ruskouski discloses this limitation. In fact, under no proper construction of “protrude through” could the LEDs disclosed in Ruskouski “protrude through the plurality of ballast cover holes in the ballast cover.” For example, under the construction of “protrude through” adopted by the district court, the LEDs would need to jut out above the holes in the surface to “protrude through” the holes. Ex. 1012 at 2 (construing “protrude through” to mean “are at least partially beneath the surface of and jut out of”). However, the LEDs disclosed in Ruskouski are “recessed in” the holes, as Ruskouski explicitly states.

Ex. 1004 at abstract. That the LEDs disclosed in Ruskouski do not “jut out of” the surface is also reflected in Figure 2 of Ruskouski, which shows the LEDs recessed in the frustoconical apertures:



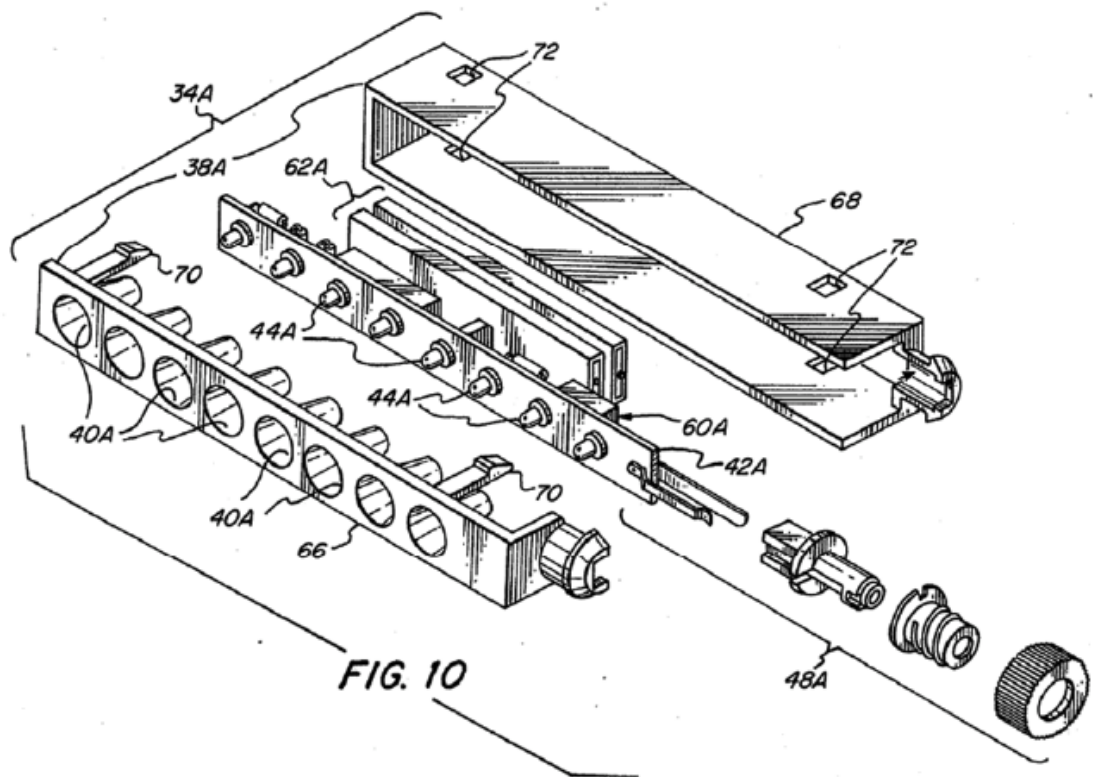
Ex. 1004. As the Figure shows, the LEDs are recessed below the surface of the “rectangular plastic housing (element 38), *id.* at 3:52-56, and, consequently, cannot “protrude through” the holes in the surface.

The LEDs similarly do not “protrude through” under the construction advanced by counsel for Petitioner in the District Court Case, *i.e.*, “passing from beneath a surface to the other side of that surface.” Ex. 1011 at 44. The LEDs

disclosed in Ruskouski do not pass from beneath the surface 38 “to the other side of” that surface. As Ruskouski shows, the LEDs remain below the surface of the housing and never pass “to the other side” of it. Ex. 1004 at Fig. 2.

Without any explanation of why they support its position, Petitioner points to Figure 10 of Ruskouski and three passages in its specification in connection with its assertion that the LEDs disclosed in Ruskouski “protrude through.” They are of no help to Petitioner (or to the Board).

Figure 10 merely reflects an exploded view of the embodiment depicted in Figure 2. Ex. 1004 at 3:6-7 (“FIG. 10 is an exploded perspective view of a second embodiment of the light emitting diode device of the present invention.”).



Ex. 1004. Thus, Figure 10 does nothing to alter what is shown in Figure 2: LEDs that are recessed in holes, not protruding through those holes.

The passages from the Ruskouski specification on which Petitioner relies are similarly unavailing. The first merely repeats that the LEDs are “recessed,” rather than protruding. *See Id.* at 1:67-2:6 (“The lighting device...has a plurality of light directing apertures in one side [of the housing] with a least one [LED] recessed in each of the plurality of lighting directing apertures....”). The second establishes that the LEDs extend *into* the “frustoconical apertures,” 3:60-62 (“One [LED] is positioned to extend into each of the frustoconical apertures.”), but that is not enough because extending “into” a hole is not the same as “protruding through” it. Finally, the third discusses the components depicted in Figure 10 and notes the presence of the “frustoconical apertures” but says nothing about how the LEDs are positioned relative to those apertures. *Id.* at 5:66-6:8.

Accordingly, Petitioner fails to establish that Ruskouski discloses this limitation.

B. Claim 12

1. The Petition Fails To Show That Ruskouski Discloses “An Energy-Efficient Lighting Apparatus For Retrofit With An Existing Light Fixture Having A Ballast Cover”

Petitioner contends that, even if the preamble of claim 12 is found to be

limiting, it is disclosed by Ruskouski. Pet. 34. Although Petitioner's terse argument on this issue—amounting to a single sentence—makes it difficult to discern Petitioner's position, Petitioner's argument appears to rely on its erroneous alternative construction of “ballast cover,” *i.e.*, that Ruskouski discloses a lighting apparatus that is for retrofit with a fixture having a cover for wires, even if not a cover for a ballast. Pet. 34 (“Ruskouski discloses an energy-efficient lighting apparatus for retrofit with an existing light fixture having a ballast cover.”). In support of its contention, Petitioner points, without elucidation, to six passages from Ruskouski. Pet. 34 (citing Ruskouski at 1:26-43, 1:44-46, 3:41-51, 3:49-51, 4:24-31, 6:3-26). However, none of these passages disclose “an energy-efficient apparatus for retrofit with an existing light fixture having a ballast cover,” to the extent “ballast cover” is construed as a “cover for a ballast.”

To the extent these passages relate to the lighting fixture at all, rather than the lighting apparatus that is secured into that fixture, they show that the lighting apparatus of Ruskouski was for use with incandescent, rather than fluorescent, fixtures. Ex. 1004 at 1:26-43 (“While these traditional exit sign lighting arrangements perform adequately, they do have a few drawbacks. A major drawback is that the *incandescent* bulbs use large amounts of electric power thus requiring a relatively large emergency battery power supply for use during emergency lighting situations.”). As the '747 patent teaches, ballasts are used in

fluorescent fixtures. *Id.* at 5:1-14. They are not used in incandescent fixtures. Accordingly, incandescent fixtures cannot have ballast covers and Petitioner has not shown that Ruskouski discloses a lighting apparatus “for retrofit with an existing light fixture having a ballast cover.”

2. The Petition Fails To Show That Ruskouski Discloses LEDs That “Protrude Through”

For the same reasons set forth above in Section V.A.2 with respect to claim 1, Ruskouski does not disclose LEDs that “*protrude through* the plurality of illumination surface holes in the illumination surface.” Like claim 1, claim 12 recites LEDs that “protrude through” holes in a surface, here, “illumination surface holes in the illumination surface.” Ex. 1001 at 11:34-36. As with claim 1, Petitioner makes only a conclusory assertion that this limitation is disclosed by Ruskouski and instead improperly relies on the fact that the Examiner rejected claim 12 in part on the grounds that Ruskouski disclosed this limitation. Pet. 37 (“The Examiner stated, and the Petitioners agree, that [this limitation] is disclosed by Figure 10 of Ruskouski.”). Such conclusory reliance on the Examiner’s previous rejection is improper. *See Bomtech Elecs., Co. Ltd. Petr.*, IPR2014-00138, 2014 WL 1651259, at *19 (Patent Tr. & App. Bd. Apr. 22, 2014).

Moreover, under any proper construction of “protrude through,” Ruskouski does not disclose LEDs that “protrude through” holes in the alleged illumination surface. To the extent “protrude through” is construed to require the LEDs to be

“at least partially beneath the [illumination] surface of and jut out of” the holes in that surface, Ex. 1012 at 2, the LEDs disclosed by Ruskouski do not disclose this limitation because they are recessed below the alleged “illumination surface.” Ex. 1004 at abstract (“The [LED] device has a plurality of [LEDs] *recessed in apertures* for directing light into a desired illumination pattern.”), Fig. 2.

Similarly, the LEDs disclosed in Ruskouski do not “protrude through” under the construction advanced by counsel for Petitioner in the District Court Case, *i.e.*, “passing from beneath a surface to the other side of that surface.” Ex. 1011 at 44. The LEDs disclosed in Ruskouski do not pass from beneath the surface “to the other side of” the surface. As Ruskouski shows, the LEDs remain below the surface of the ballast cover and never pass “to the other side” of it. Ex. 1004 at Fig. 2. Notably, in the District Court Case, no party argued that an LED that was entirely below a surface could “protrude through” a hole in that surface.

Accordingly, Ruskouski does not disclose this limitation.

VI. THE BOARD SHOULD DENY INSTITUTION ON GROUND 2

Petitioner alleges that claims 1 and 12 are anticipated by Archer. However, to anticipate a claim, the reference must not only disclose all elements of the claim, but must also disclose those elements ‘*arranged as in the claim.*’” *Lindemann Maschinenfabrik GMBH v. Am. Hoist and Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed.

Cir. 1983)). The Petition fails to establish, with respect to either claim 1 or claim 12, that Archer discloses every limitation of the claim, arranged as in the Challenged Claims.

A. Claim 1

1. The Petition Fails To Show That Archer Discloses A “Ballast Cover.”

Petitioner concedes that Archer does not disclose “a ballast cover” under Petitioner’s proposed plain meaning construction of “ballast cover” (“cover for a ballast”), contending only that this limitation is disclosed under Petitioner’s alternative construction (“structure that encloses wiring”). Pet. 41-42. Petitioner’s concession was required because Archer, which is directed to an un-ballasted LED lighting apparatus, does not disclose a ballast at all and, therefore, does not disclose a “ballast cover.” Because, as shown above, “ballast cover” should be construed as a “cover for a ballast,” Archer does not disclose this limitation.

2. The Petition Fails To Show That Archer Discloses A Circuit Board “Positioned Adjacent” The Ballast Cover “So That” The LEDs “Protrude Through”

Claim 1 recites a specific structural arrangement in which LEDs are mounted on a circuit board, which is positioned adjacent a ballast cover such that the LEDs “protrude through” holes in the ballast cover. Archer does not disclose this limitation because it does not disclose a circuit board “positioned adjacent” a ballast cover so that the plurality of LEDs protrude through a plurality of ballast

cover holes in a ballast cover and, in addition, it does not disclose LEDs that “protrude through” under the construction of that term previously advanced by Petitioner’s counsel.

**a) The Petition Fails To Show That Archer
Discloses A “Circuit Board Positioned Adjacent
The Ballast Cover”**

Petitioner identifies element 20 of Figure 2, shown below, as the “circuit board [that] is positioned adjacent to the plate 12 (the ‘ballast cover’) such that the LEDs 10 (the ‘plurality of light-emitting diodes’) protrude through the perforations in the plate 12....” Pet. 43. However, Petitioner fails to establish that a skilled artisan would understand element 20 of Figure 2 to be “*positioned adjacent* the ballast cover *so that the plurality of [LEDs] protrude through* the plurality of ballast cover holes in the ballast cover.” Figure 2 is shown below, with the alleged circuit board (element 20) in red. Plate 12, which is not labelled in Figure 2, is also identified.

Alleged circuit board

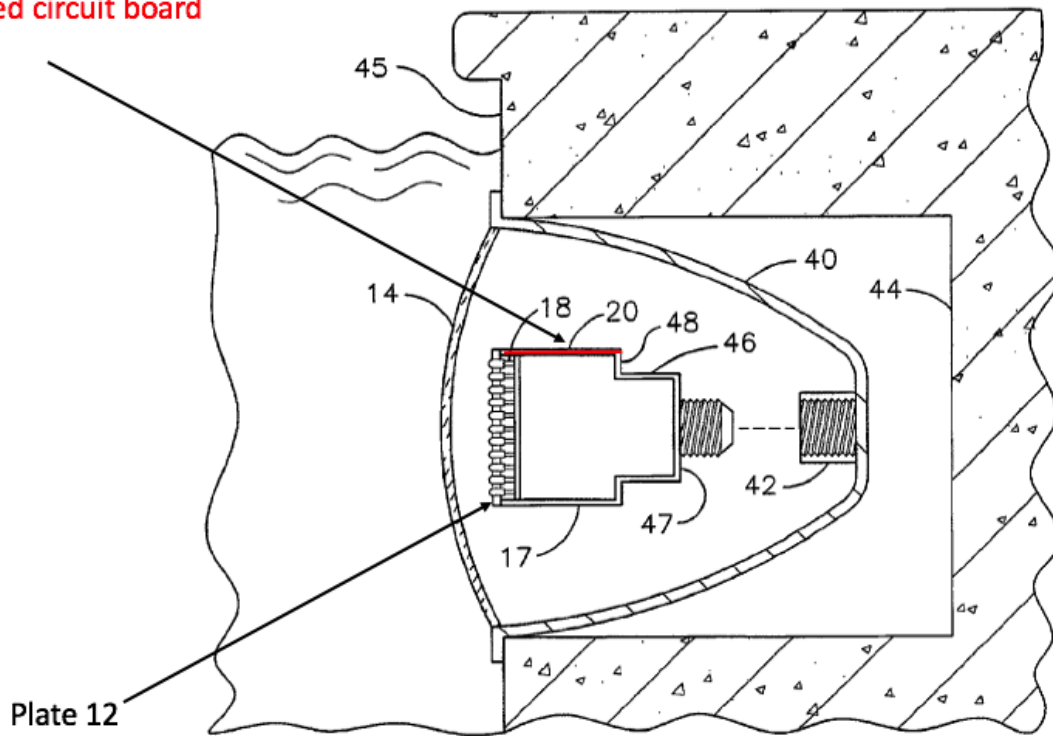


FIG. 2

Ex. 1006.

As an initial matter, the disclosure of Archer is ambiguous with respect to element 20. Although the specification, at times, refers to element 20 as a “printed circuit board assembly,” *see, e.g.*, Ex. 1006 at 5:7-9, it more commonly refers to element 20 as a “control circuit” or, more generically, a “circuit.” *Id.* at 3:30-34 (“The white reflective plate...provides support for the leads 18 connecting the LED bulbs 10 to a **control circuit 20**”); 3:50-53 (“The lack of a lens...provides for better heat dissipation so that the heat generated by the LED bulbs 10 does not affect the **circuit 20**....”); 4:51-53 (“The light source for the fiber optic cable 35

may be provided by a remote source or be incorporated in **circuit 20** that is part of the light fixture 5.”); 5:4-6 (“Such a configuration provides a level and secure surface 47, 48 to locate the **circuit 20** discussed below.”); 5:7-9 (“[t]he circuit 20”). Archer is directed to a LED assembly that includes a “control circuit selectively operable to produce a plurality of colored lights through the plurality of LEDs.” *Id.* at abstract. This suggests that element 20 may not be a printed circuit board, as claimed by Petitioner. Tellingly, neither Petitioner nor its expert, Dr. Bretschneider, make any attempt to reconcile the discrepancies in the disclosure of Archer regarding element 20.

Regardless, claim 1 requires that the circuit board be positioned close or near enough to the ballast cover so that the LEDs mounted on the board “protrude through” the holes in that cover. Ex. 1001 at 10:39-45. Specifically, the claim requires that the circuit board be “adjacent” the relevant surface “so that” the LEDs protrude through. *Id.* Counsel for Petitioner has previously emphasized, with respect to the parallel limitation of claim 12, the importance of positioning the circuit board close enough to the relevant surface to allow the LEDs mounted on the board to “protrude through” the surface. Ex. 2001 at 23:3-10 (“You’re positioning [the circuit board] adjacent to [the] housing, next to the housing to allow the LEDs to protrude through. That describes the concept of a circuit board being moved or positioned adjacent the cover or the housing, to allow the LEDs to

protrude through.”).

The alleged circuit board of Archer is not positioned adjacent the relevant surface, *i.e.*, “plate 12,” such that the LEDs mounted on it “protrude through” the surface. Rather, Figure 2 shows that it is positioned perpendicular to the surface and the LEDs are attached to the board via “leads” (18).

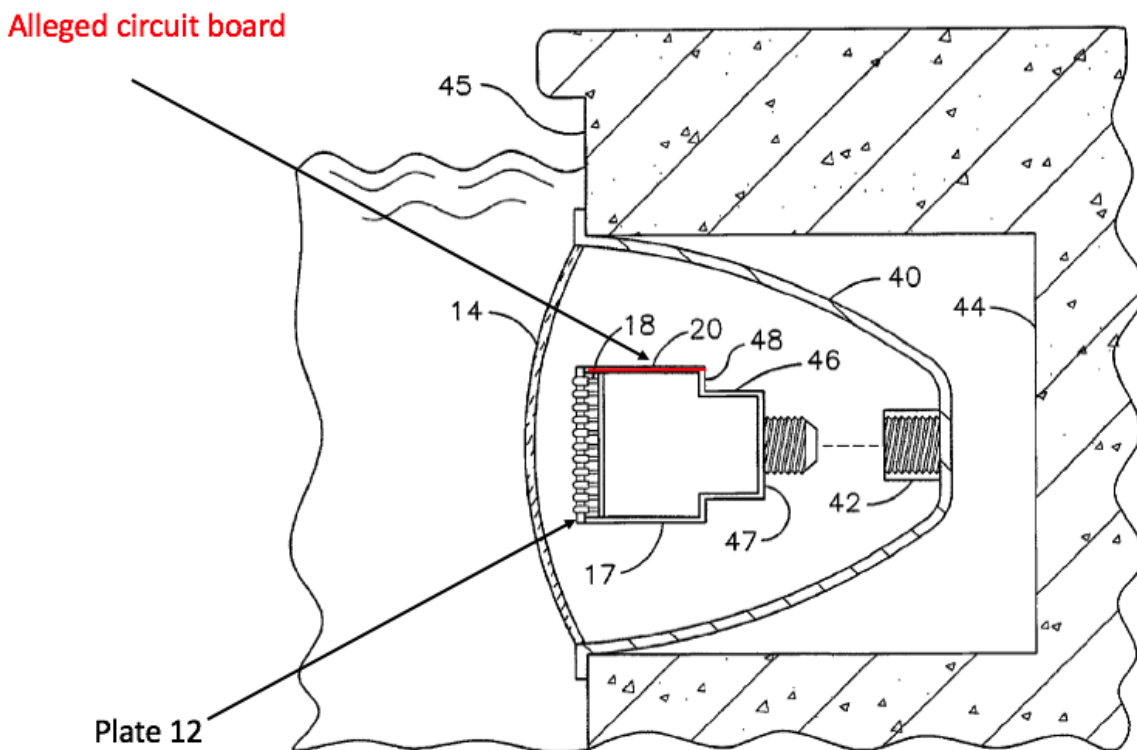


FIG. 2

Ex. 1006. Moreover, because the LEDs are connected to “leads,” which are, in turn, connected to the “circuit board,” where the circuit board is positioned, in the structure of Archer, is irrelevant. In fact, Archer makes clear that, rather than positioning the circuit board adjacent the surface through which the LEDs

allegedly protrude, it is preferable to position the circuit board *away* from that surface. The patent teaches that it is preferable to have “long” leads connecting the LEDs to the circuit board, to increase “heat dissipation,” *id.* at 3:56-59 (“In a preferred embodiment, the leads 18 connecting the LED bulbs 10 to the electronics 20 are long and/or thick leads, thus providing for additional heat dissipation.”), even to the point where the alleged circuit board may be positioned at “a remote location, outside of the pool,” *id.* at 5:10-13. Accordingly, Petitioner fails to establish that Archer discloses a circuit board “positioned adjacent the ballast cover so that the plurality of light-emitting diodes protrude through the plurality of ballast cover holes in the ballast cover.” *Lindemann*, 730 F.2d at 1458 (anticipatory reference must disclose all elements “arranged as in the claim”).

**b) The Petition Fails To Show That Archer
Discloses LEDs That “Protrude Through”**

As discussed above in Section IV.A, because Petitioner has failed to propose a construction for “protrude through” it is not possible to determine how the alleged prior art relied on by Petitioner relates to the challenged claims. Although Archer may disclose LEDs that “protrude through” under the construction adopted by the district court—which is not a construction that Petitioner has requested the Board to apply—Archer does not disclose LEDs that “pass[] from beneath a surface to the other side of that surface.” *See, e.g.*, Ex. 1011 at 44. Petitioner does not contend that Archer discloses whether the LEDs disclosed therein pass from

beneath the alleged “ballast cover” to the outward-facing side of the “ballast cover.” Nor could Petitioner so contend, because there is no such disclosure in Archer, which does not specify which side the LEDs are mounted from or whether they are smaller than the hole through which they allegedly protrude. Accordingly, the Petition fails to establish that Archer discloses this limitation.

B. Claim 12

1. The Petition Fails To Show That Archer Discloses “An Energy-Efficient Lighting Apparatus For Retrofit With An Existing Light Fixture Having A Ballast Cover”

Petitioner contends that, even if the preamble is found to be limiting, it is disclosed by Archer. Pet. 43-44. Not so. Archer does disclose a lighting apparatus that is for retrofit with a light fixture, but it does not disclose retrofit with “an existing light fixture having a ballast cover,” to the extent “ballast cover” is construed to mean a “cover for a ballast.” The light fixture disclosed in Archer is an incandescent, rather than fluorescent, fixture. *See, e.g.*, Ex. 1006 at 2:15-18 (“In another preferred embodiment the LED light assembly is operable to replace an *incandescent light* in an existing niche pool lighting fixture.”). As the ’747 patent teaches, ballasts are used in fluorescent fixtures. Ex. 1001 at 5:1-14. They are not used in incandescent fixtures. Accordingly, Petitioner has not shown that Archer discloses a lighting apparatus “for retrofit with an existing light fixture having a ballast cover.”

2. The Petition Fails To Disclose “Wherein The Circuit Board Is Positioned Adjacent The Housing So That The Plurality Of Light-Emitting Diodes Protrude Through The Plurality Of Illumination Surface Holes In The Illumination Surface”

As set forth above with respect to claim 1, Section VI.A.2.a, Archer does not disclose this limitation because it does not disclose a “circuit board is *positioned adjacent* the housing *so that* the plurality of light-emitting diodes protrude through the plurality of illumination surface holes in the illumination surface” because, to the extent Archer discloses a circuit board, it is positioned perpendicular to the alleged illumination surface, not adjacent the surface “so that” the LEDs “*protrude through* the plurality of illumination surface holes in the illumination surface.” In addition, as set forth above with respect to claim 1, Section VI.A.2.b, Archer does not disclose LEDs that “protrude through the plurality of illumination surface holes in the illumination surface” under counsel for Petitioner’s previously proposed construction. Accordingly, institution should be denied with respect to claim 12.

VII. THE BOARD SHOULD DENY INSTITUTION ON GROUND 3

With respect to Ground 3, Petitioner contends that claim 12 is obvious for the same reasons as set forth in Ground 2, with the exception of the “fastening mechanism” limitation, for which Petitioner relies on Ruthenberg. Pet. 48 (“To the extent the Board determines that Archer does not inherently teach a ‘fastening mechanism,’ it would have been obvious to a person of ordinary skill...to combine

the teachings of Archer with the teachings of the ‘fastening mechanism’ described in Ruthenberg....”). Ruthenberg does not address the other deficiencies in the disclosure of Archer identified above, *i.e.*, that it fails to disclose “an energy-efficient lighting apparatus for retrofit with an existing light fixture having a ballast cover” and “wherein the circuit board is positioned adjacent the housing so that the plurality of light-emitting diodes protrude through the plurality of illumination surface holes in the illumination surface.” For those same reasons, institution should be denied with respect to Ground 3.

VIII. THE BOARD SHOULD DENY INSTITUTION ON GROUND 4

For Ground 4, Petitioner contends that, to the extent the preamble of claim 12 is limiting, claim 12 is obvious over Hunter in view of Kanarek and Timmermans. Pet. 53-54. To the extent the preamble of claim 12 is determined to not be limiting, Petitioner contends that claim 12 is obvious over only Hunter in view of Kanarek. Pet. 54.

“Obviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim....” *Unigene Laboratories, Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011) (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)). Rather, the petitioner must demonstrate that “a person of ordinary skill in the art would have been motivated to combine those teachings to derive the claimed subject matter with a reasonable

expectation of success.” *Bayer Healthcare Pharm., Inc. v. Watson Pharm., Inc.*, 713 F.3d 1369, 1375 (Fed. Cir. 2013). “[M]ere conclusory statements” are not sufficient; “instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

With respect to this Ground, Petitioner fails to show that, to the extent the preamble of claim 12 is limiting, a skilled artisan would have been motivated to combine the references on which Petitioner relies. Moreover, Petitioner fails to show that Hunter discloses LEDs that “protrude through,” as required by claim 12. Finally, Petitioner fails to show that a skilled artisan would have been motivated to combine Hunter with Kanarek to produce an apparatus that satisfies the “wall switch” limitation of claim 12.

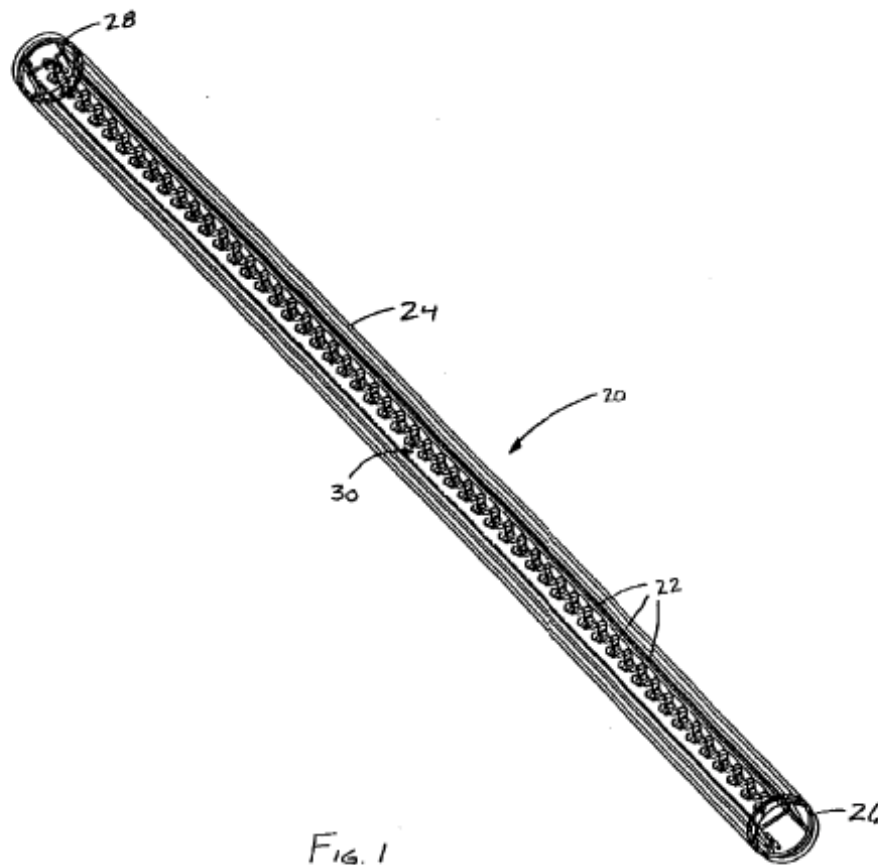
A. The Petition Fails To Show That The Preamble Of Claim 12 Would Have Been Obvious In Light Of Hunter In Combination With Timmermans And Kanarek

To the extent the preamble to claim 12 is found to be limiting, Petitioner relies on three references for this Ground: Hunter, Timmermans, and Kanarek. Pet. 55. However, the Petition fails to show a motivation to combine the three references to derive the claimed invention.

of its transparent or translucent enclosing tube.” *Id.* at 2:19-22. The specification also notes that using LEDs advantageously “reduces power consumption,” allows for cooler operation, “which makes the light ideal for applications such as lighting candy displays in stores and markets,” and extended bulb life, relative to fluorescent lamps. *Id.* at 2:41-61.

b) Timmermans

Timmermans discloses a “light tube” comprising “[a] plurality of light emitting diodes [that] are disposed inside the bulb portion” of the tube. Ex. 1009 at abstract. These “light tubes” are capable of being “mount[ed] within a conventional fluorescent light tube socket” within a fluorescent light fixture, replacing the fluorescent light. *Id.* at 1:36-37. Figure 1 shows the basic structure of the lighting apparatus disclosed in Timmermans:

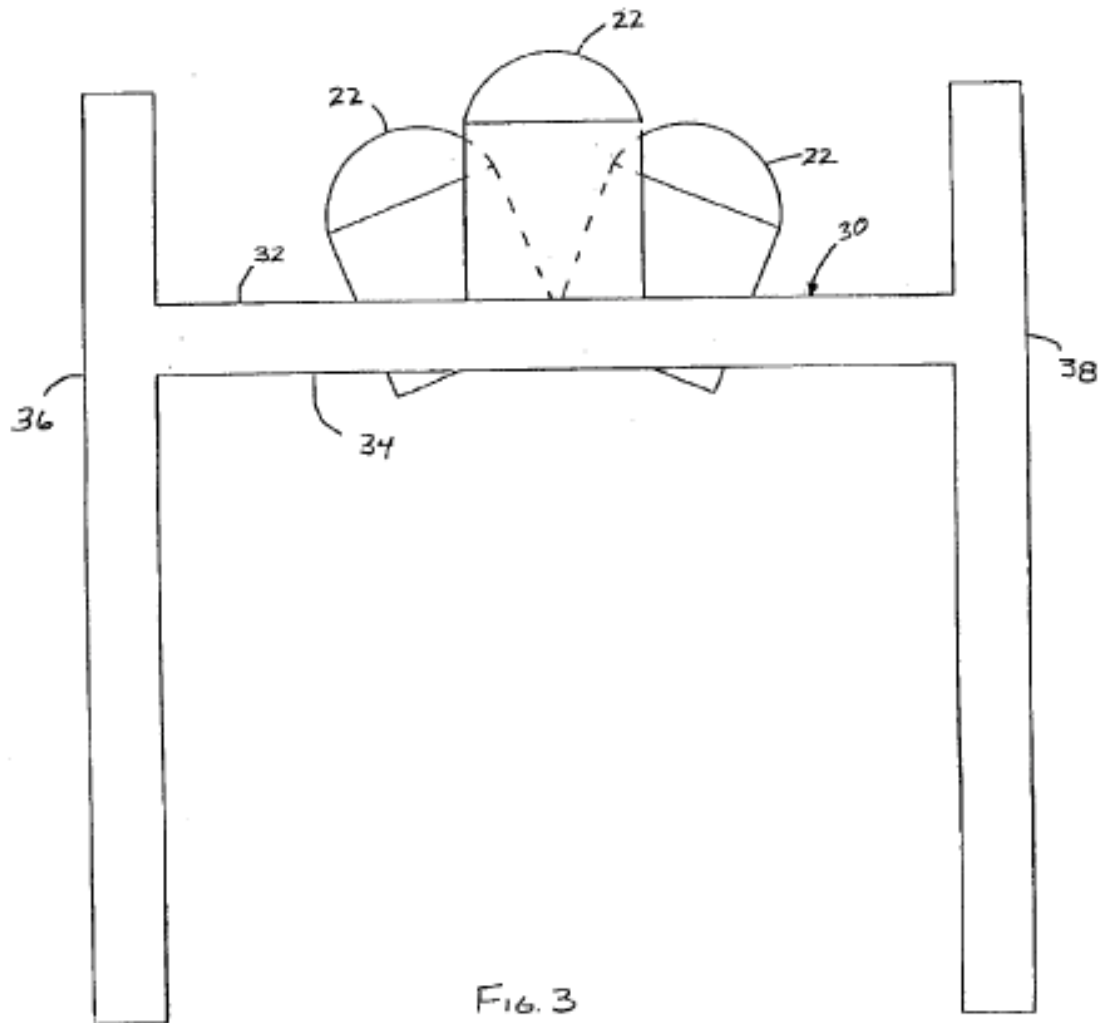


Ex. 1009.

Timmermans is directed to “overcome[ing] the shortcomings of conventional fluorescent lighting systems,” through the use of an LED-based “light tube and power supply circuit,” which would have a comparatively longer life expectancy, lower power usage, and greater “resistance to vibration failure.” *Id.* at 1:29-37. Timmermans notes that “[i]t would also be desirable for such a light tube to mount within a conventional fluorescent light tube socket.” *Id.* at 36-37.

Timmermans also recites the use of LEDs in a specific array configuration,

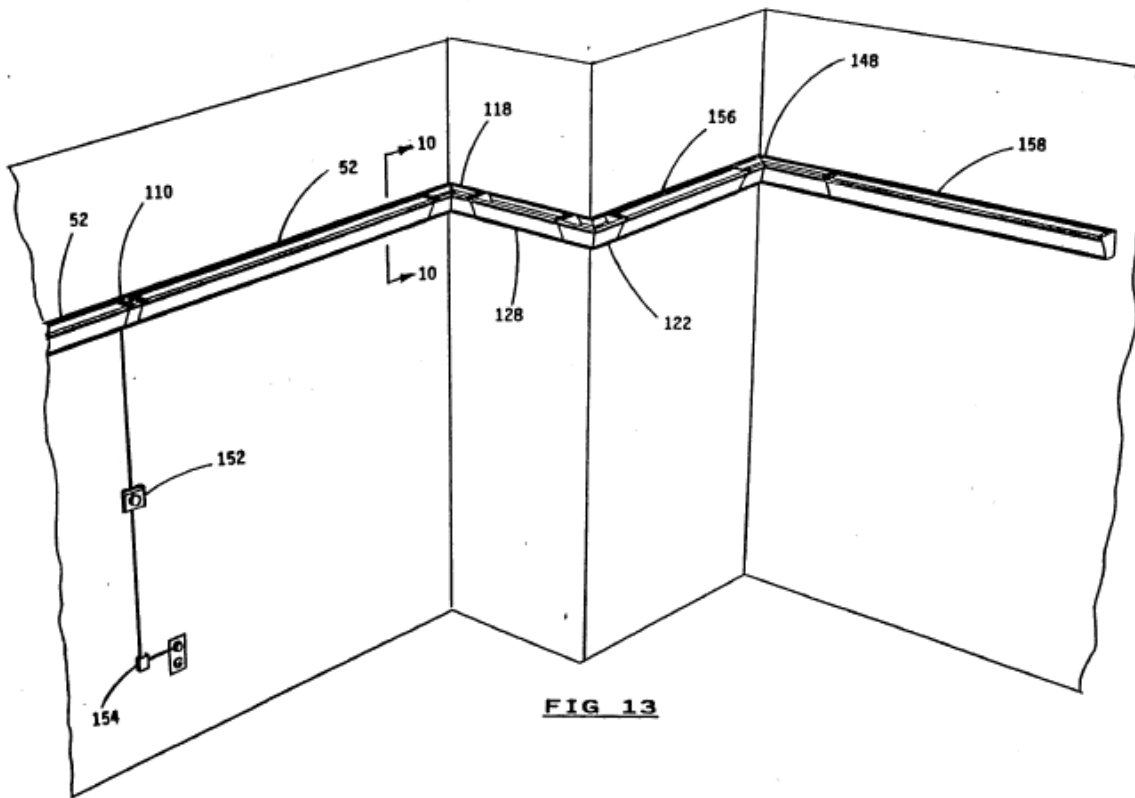
shown below:



Ex. 1009. This configuration is designed to achieve a “predetermined radiation pattern or dispersion of light from the light tube....” *Id.* at 2:57-59; *see also id.* at 2:60-63 (“The total radiation pattern of light from the light tube 20 is effected by (1) the mounting angle of the LEDs 22 and (2) the radiation pattern of light from each LED.”).

c) Kanarek

Kanarek discloses a wall-mountable “modular, fluorescent, indirect lighting system.” Ex. 1008 at abstract. The plurality of modules are “powered by a neat line cord plugged into a standard wall outlet.” *Id.* An installed embodiment of these modules is disclosed in Figure 13:



Ex. 1008.

Kanarek states that, in the prior art systems, “fluorescent lighting was limited to three types: integral installations built into the building, [] separate large lighting fixtures designed to be hung from...the ceiling, or small fixtures to be mounted to a wall or the underside of a kitchen cabinet.” *Id.* at 1:15-19. Thus,

“[n]o means was previously available to the user to install an attractive lighting system that could just plug into any existing wall outlet and be extended around the room....” *Id.* at 1:43-46. The invention of Kanarek sought to provide this flexibility through wall-mountable “fluorescent modules,” which could be plugged into an existing wall outlet. *Id.* at 2:28-34.

2. The Petition Fails To Establish Motivation To Combine

To the extent the preamble to claim 12 is limiting, Petitioner argues that a skilled artisan would have “combined the energy efficient LED light tube disclosed by Hunter with the ability to retrofit a light tube into an existing light fixture disclosed by Timmermans, and retrofit the resultant light tube into a light fixture with a ballast cover as disclosed in Kanarek.” Pet. 56. However, the Petition fails to show that a skilled artisan would have been motivated to combine these references in the manner alleged in the Petition.

Petitioner argues that a skilled artisan “*could* have combined the energy efficient LED light tube disclosed by Hunter with the ability to retrofit a light tube into an existing light fixture disclosed by Timmermans,” and that the artisan would have been motivated to do so because Hunter and Timmermans are in the “same field...that deal with the same problem...in the same manner...” Pet. 56-57. In addition, Petitioner contends that a skilled artisan would have been motivated to improve the tube light disclosed in Timmermans with the structure of Hunter

because Hunter allegedly disclosed “a known improvement,” *i.e.*, the use of “a reflective surface on the upper face of the circuit board to result in more light being directed in a desired direction.” Pet. 57. None of this sufficiently establishes a motivation to combine; it is simply hindsight reconstruction. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001) (“To prevent hindsight invalidation of patent claims, the law requires some teaching, suggestion or reason to combine cited references. When the art in question is relatively simple, as is the case here, the opportunity to judge by hindsight is particularly tempting. Consequently, the tests of whether to combine references need to be applied rigorously.”) (internal quotations omitted).

Petitioner’s contention that a skilled artisan “could” have combined these references, Pet. 56-57, is insufficient to establish a motivation to combine them. In *Personal Web Technologies v. Apple*, the Federal Circuit flatly rejected this approach:

[Petitioner] conten[ds] that a person of ordinary skill in the art reading Woodhill and Stefik would have understood that the combination of Woodhill and Stefik **would have allowed for** the selective access features of Stefik to be used with Woodhill’s content-dependent identifiers feature. But that reasoning seems to say no

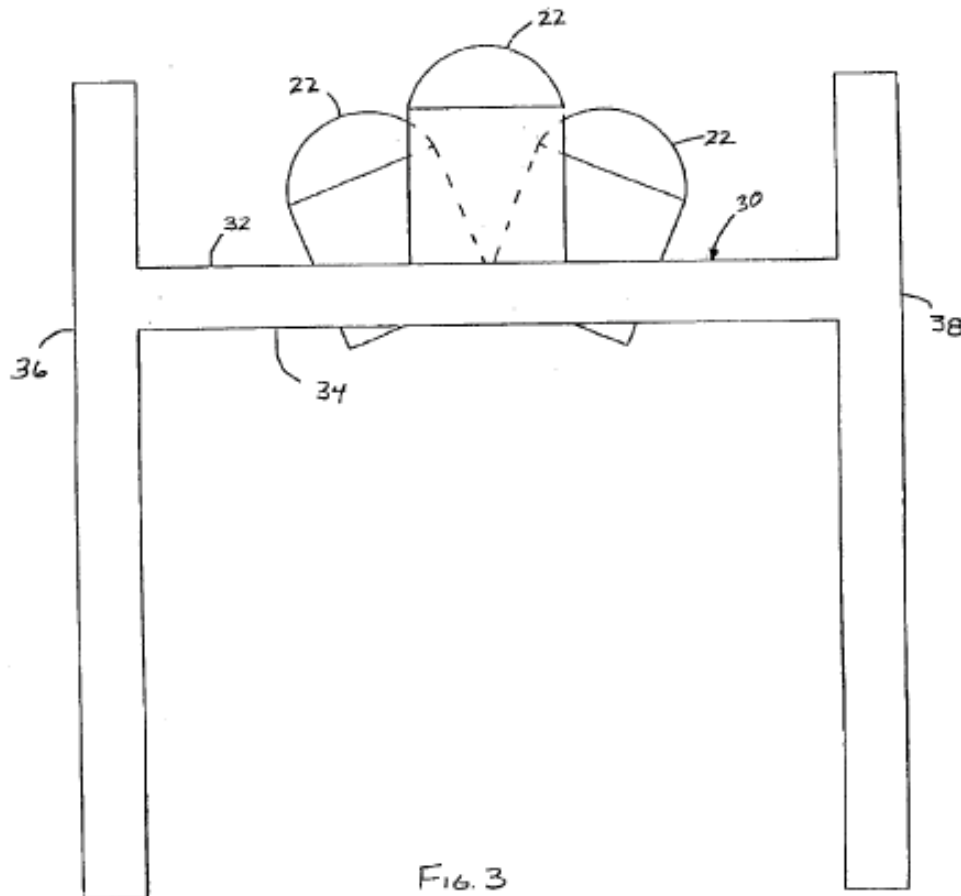
more than that a skilled artisan, once presented with the two references, would have understood that they *could be* combined. And that is not enough: it does not imply a motivation to pick out those two references and combine them to arrive at the claimed invention.

848 F.3d 987, 993-94 (Fed. Cir. 2017) (quotations omitted, emphasis in original). Rather, Petitioner must explain *why* a skilled artisan would have combined these references, and Petitioner did not adequately do so.

Contrary to Petitioner’s contention, Hunter and Timmermans do not address “the same problem” “in the same manner.” Hunter sought to improve upon stand-alone fluorescent light strips, which *are not* installed in fixtures, by developing LED-based strips. *See, e.g.*, Ex. 1007 at abstract. In contrast, Timmermans sought to improve on fluorescent light tubes, which *are* installed in fixtures, with LED-based light tubes. Ex. 1009 at abstract. These are two different problems, with two different solutions.

Nor would it have made sense to combine the “reflective surface” of Hunter with Timmermans. Petitioner contends that the structure disclosed in Hunter would have improved on that disclosed in Timmermans because the “reflective surface” that is disclosed “on the upper face of the circuit board” in Hunter would, when used in the Timmermans apparatus, have allegedly resulted “in more light

being directed in a desired direction.” Pet. 37. But Timmermans uses a fundamentally different mechanism of light distribution that is designed “[t]o produce a predetermined radiation pattern or dispersion of light from the light tube....” Ex. 1009 at 2:57-59. As described above, Timmermans discloses a specific arrangement of LEDs in an array, with each “mounted at an angle relative to adjacent LEDs and/or the mounting surface.” *Id.* at 2:57-61. This pattern can be seen in Figure 3:



Ex. 1009. “The total radiation pattern of light from the light tube 20 is effected by

(1) the mounting angle of the LEDs 22 and (2) the radiation pattern of light from each LED.” *Id.* at 2:60-63.

Thus, while applying the reflective surface of Hunter to the upper face of the circuit board (element 32 in Figure 3, above) could allow for more light to be dispersed, the object of Timmermans was to disperse light in a specific pattern dictated by the angles of the LEDs, not to provide more light dispersion. Ex. 1009 at 2:57-59. Moreover, adding a reflective surface would change that desired pattern. Petitioner does nothing to explain why a skilled artisan would have been motivated to combine the reflective surface of Hunter with the predetermined radiation pattern of light of Timmermans, which, particularly because those structures operate in a fundamentally different way, with different goals, is fatal to Petitioner’s argument.

In addition, the Petition is similarly deficient with respect to the motivation to combine Kanarek with Timmermans and Hunter. To support its assertion that a skilled artisan would have been motivated to combine these references, Petitioner, again, merely notes that the artisan “would have understood that Kanarek *could* implement the improvement of Timmermans...by replacing the fluorescent light tube described in Kanarek with the LED light tube of Timmermans.” Pet. 58. However, the mere fact that a skilled artisan would have understood that a combination “could” have been made is inadequate. *Personal Web Technologies,*

848 F.3d at 993-94. Petitioner asserts that the use of the LED light tube of Timmermans would have yielded a “more energy efficient device” than that disclosed in Kanarek, but the mere fact that LED-based lighting is more efficient does establish that a skilled artisan would combine the two references. Indeed, if that were the case there would be motivation to combine any reference directed to LED lighting with any reference directed to fluorescent lighting. That is not the law. *Id.*

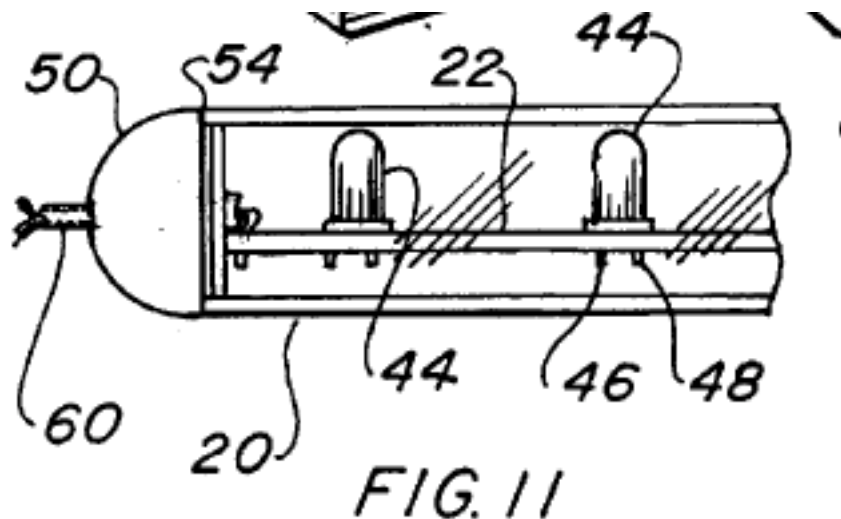
B. The Petition Fails To Show That Hunter Discloses LEDs That “Protrude Through” The Illumination Surface Holes In The Illumination Surface

Due to Petitioner’s failure to propose a construction for “protrude through” it is not clear how the disclosure of Hunter relates to this limitation of claim 12. In particular, at least under the construction of “protrude through” proposed by Petitioner’s counsel, Hunter does not teach this limitation.

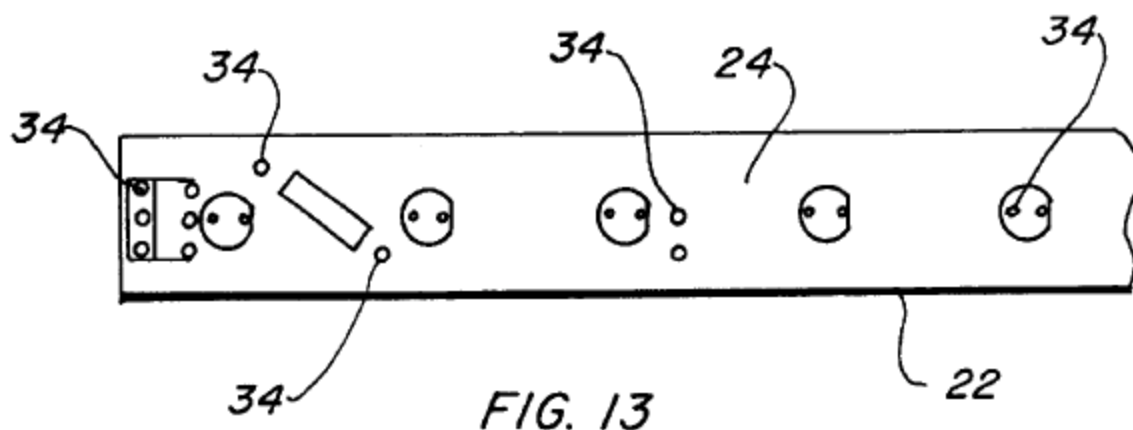
Claim 12 recites “a circuit board comprising a plurality of [LEDs], wherein the circuit board is positioned adjacent the housing so that the plurality of [LEDs] ***protrude through*** the plurality of illumination surface holes in the illumination surface.” Ex. 1001 at 11:33-36. Counsel for Petitioner previously proposed that “protrude through” be construed as “passing from beneath a surface to the other side of that surface.” *See, e.g.*, Ex. 1011 at 44. According to counsel for Petitioner, such a proposed construction of “protrude through” would require that the LEDs

“physically pass from one side of the illumination surface to the other.” Ex. 2001 at 49; *see also* Section IV.A, *supra*.

Hunter does not teach LEDs that “protrude through” in the manner described by Petitioner’s counsel. The LEDs disclosed in Hunter are mounted on the surface of a circuit board:



Ex. 1007. Significantly, the holes in what is alleged to be the “illumination surface” of Hunter are much smaller than the body of the LED. In fact, the holes (element 34 in Figure 13, below) are only large enough to allow the LED’s anode and cathode to pass through:



Ex. 1007. “Each diode 44 includes a[n] anode 46 and cathode 48 projecting therefore, with both of these projections penetrating holes 34 in the circuit board 22 engaging the pads 36 and traces 32 underneath on the bottom 26.” *Id.* at 4:64-5:3. Accordingly, the Petition fails to explain how Hunter discloses this limitation.

C. The Petition Fails To Show That The “Wall Switch” Limitation Would Have Been Obvious In Light of Hunter In Combination With Kanarek

Claim 12 recites “wherein the lighting apparatus is coupled to a wall switch and wherein the illumination of the light emitting diodes is controllable based upon the position of the wall switch.” Ex. 1001 at 11:39-42. Petitioner alleges that, to the extent the preamble to claim 12 is not limiting, this limitation would have been obvious in light of a combination of Hunter, which discloses a stand-alone LED strip light, and Kanarek, which discloses a fluorescent lighting fixture that is

coupled to a wall switch.⁶ Pet. 63-64. Specifically, Petitioner alleges that a skilled artisan “would have understood that the use of a wall switch coupled to an electric socket and a lighting apparatus plugged into the electric socket would have yielded the predictable result that the lighting apparatus would be coupled to the wall switch in a way that [it could be controlled by the wall switch].” Pet. 64-65.

However, Petitioner fails to adequately establish a motivation to combine

⁶ Petitioner also alleges that, to the extent the preamble is found to be limiting, this limitation would have been obvious in light of “a combination of Hunter with Kanarek and Timmermans.” Pet. 63. However, Petitioner does not appear to allege that Timmermans is relevant to this limitation. Pet. 66 (“This combination [Timmermans and Kanarek] is unrelated to the power cord descriptions in Kanarek.”). In any event, the Petition offers no independent argument with respect to Timmermans for this limitation. *Id.* (“[O]ne of ordinary skill in the art would have been motivated to combine Hunter with Kanarek as improved by Timmermans for all the same reasons that one of ordinary skill would have been motivated to combine Hunter with Kanarek.”). Accordingly, even if Petitioner intended for Timmermans to be relevant for this limitation, Petitioner’s failure to offer any argument specific to Timmermans regarding motivation to combine would be fatal to Petitioner’s argument for this combination.

these references. Petitioner’s argument simply amounts to the assertion that the references could be combined to create a lighting apparatus controlled by a wall switch. But allegations that references **could** be combined to achieve a particular configuration is not enough to establish that a skilled artisan would have been motivated to combine the references in this way. *Personal Web Technologies*, 848 F.3d at 993-94 (that a skilled artisan “would have understood that [references] **could** be combined...is not enough: it does not imply a motivation to pick out those two references and combine them to arrive at the claimed invention.”) (emphasis in original). Accordingly, the Petition fails to show that Hunter in combination with Kanarek discloses this limitation.

IX. CONCLUSION

For the foregoing reasons, the Petition fails to establish a reasonable likelihood that the Challenged Claims are unpatentable. Consequently, the Board should not institute trial in this proceeding.

Dated: June 15, 2017

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing PATENT OWNER'S PRELIMINARY RESPONSE complies with the type-volume limitation in 37 C.F.R. § 42.24(b)(1). According to the word processing system's word count, the brief contains 11,014 words, excluding the parts of the response exempted by 37 C.F.R. § 42.24(a).

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CERTIFICATE OF SERVICE

I hereby certify that on June 15, 2017, a true and correct copy of the foregoing PATENT OWNER'S PRELIMINARY RESPONSE is being served electronically to the Petitioners as authorized in the Petition at the correspondence email addresses of record as follows:

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