

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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WALMART INC. and CURRENT LIGHTING SOLUTIONS, LLC,  
Petitioner,

v.

POWER CONCEPTS, LLC,  
Patent Owner.

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IPR2022-00569  
Patent 10,429,041 B2

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Before KEVIN F. TURNER, JEFFREY S. SMITH, and  
DANIEL J. GALLIGAN, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

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

## I. INTRODUCTION

### A. Background and Summary

Walmart Inc. and Current Lighting Solutions, LLC (collectively, “Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting *inter partes* review of claims 1–14 of U.S. Patent No. 10,429,041 B2 (Ex. 1001, “the ’041 patent”) pursuant to 35 U.S.C. § 311(a). Patent Owner Power Concepts, LLC filed a Preliminary Response to the Petition. Paper 8 (“Prelim. Resp.”).

Pursuant to 35 U.S.C. § 314(a), the Director may not authorize an *inter partes* review unless the information in the petition and preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons that follow, we determine that institution of *inter partes* review of claims 1–14 is warranted.

### B. Related Matters

The parties indicate that the ’041 patent is the subject of *Power Concepts, LLC v. Walmart Inc.*, No. 7:21-cv-00408-TMC (D. S.C.) *See* Pet. xii; Paper 4, 2. The ’041 patent is the parent of U.S. Patent No. 10,837,628 B2, which is the subject of IPR2022-00534.

### C. Challenged Patent

The ’041 patent relates to “a ceiling light LED retrofit kit” and discloses “a kit for installation of light emitting diode lighting mounted upon a previously-installed fluorescent lighting fixture.” Ex. 1001, 1:14–17.

Figure 1 of the ’041 patent is shown below:

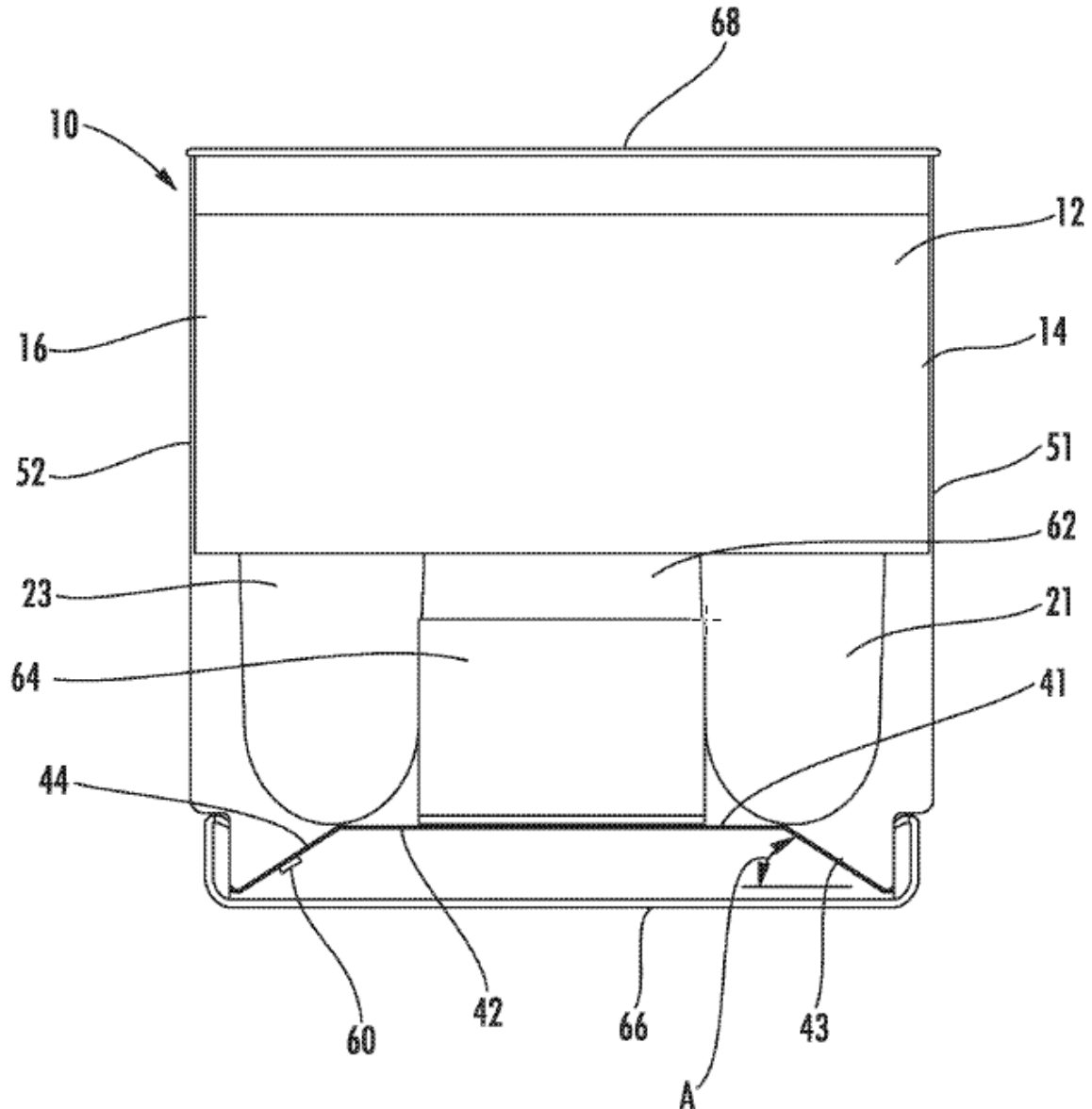


**FIG. 1**

Figure 1 above is an end elevation view of a ceiling light LED retrofit kit. Ex. 1001, 2:50–52. Fixture 10 includes pre-installed base 12, which has first and second longitudinal sides 14, 16, and is attached to ceiling 68 of a building. *Id.* at 3:24–27. Base 12 includes first electrical receptacle 21 (also known as a tombstone), second electrical receptacle 22 (opposite to

receptacle 21 and shown in Figure 4), and third electrical receptacle 23. *Id.* at 3:27–29, 5:46–48. First and second electrical receptacles 21 and 22 are configured to receive and energize a fluorescent light tube disposed between them. *Id.* at 3:30–33. A light panel includes first side 41 facing fixture 10 and opposed second side 42. *Id.* at 3:37–39. The light panel of Figure 1 includes angled wings 43 and 44. *Id.* at 3:39–42. One or more LEDs 60 are disposed on second side 42 of the light panel, such as on angled wing 44 as shown in Figure 1. *Id.* at 3:40–45. Power supply 64 energizes LED 60 and is located within raceway 62. *Id.* at 3:45–46.

Figure 3 of the '041 patent is shown below:

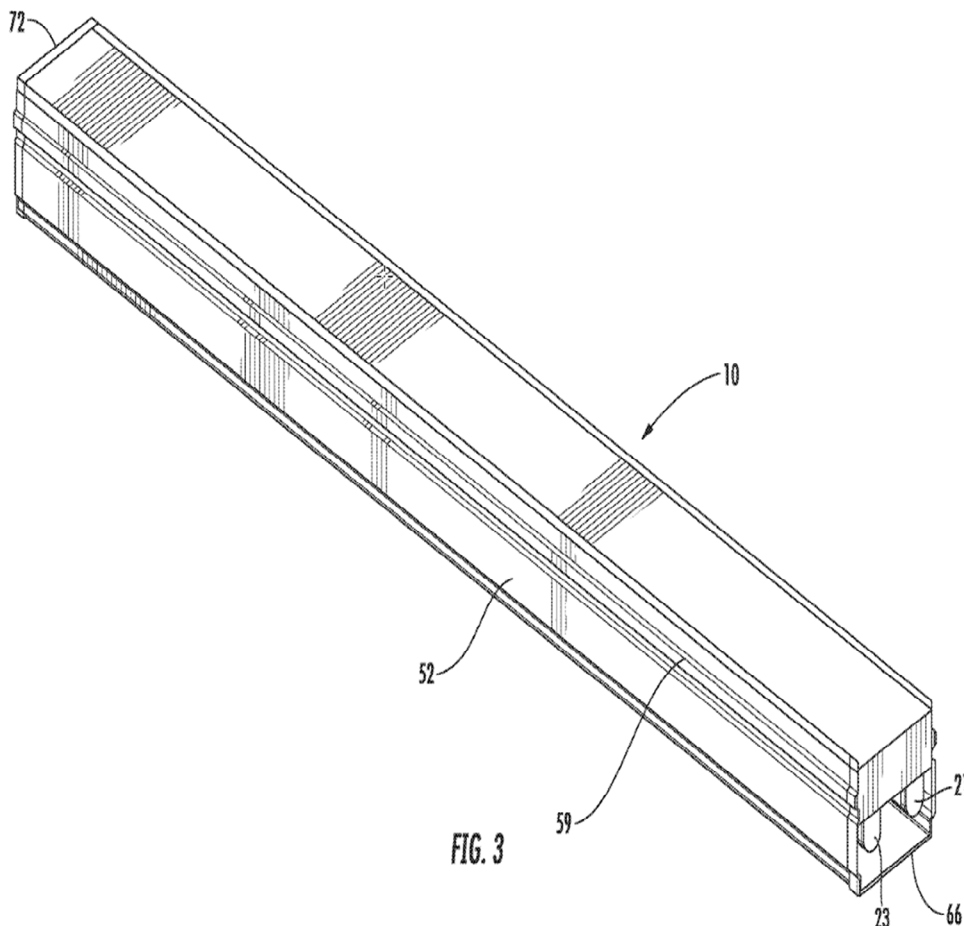


Figure 3 above shows an assembled LED retrofit kit. Ex. 1001, 4:48–49. First profile 51 (shown in Figure 1) and second profile 52 extend

longitudinally. *Id.* at 4:49–51. Lens 66 is attached to the first and second profiles by endcap 72. *Id.* at 4:52–54. The first and second profiles include one or more longitudinal ribs 59. *Id.* at 4:55–56.

#### *D. Illustrative Claim*

Challenged claim 1 of the '041 patent recites:

1. A combination for illuminating the interior of a building, comprising:

a fixture having a base attached to a building ceiling, the fixture having a first tombstone and a second tombstone, wherein the first and second tombstones are adapted to receive between them a linear fluorescent light tube, and wherein the base includes a first longitudinal side and an opposite second longitudinal side;

a retrofit kit connected to the base, the retrofit kit including a light panel, a first profile and a second profile, the light panel including a first side facing the fixture and an opposite second side, wherein the light panel, the first profile, and the second profile extend longitudinally from the first tombstone to the second tombstone and parallel one-to-another;

the fixture, including the first and second tombstones, residing above the light panel and residing between the first profile and the second profile;

a light emitting diode disposed on the second side of the light panel; and

wiring in electrical communication with the light emitting diode.

#### *E. Evidence*

Petitioner relies on the following prior art:

U.S. Patent Application Publication No. 2006/0221606 A1, published Oct. 5, 2006, (Ex. 1007, “Dowling”);

U.S. Patent Application Publication No. 2012/0113628 A1, published May 10, 2012, (Ex. 1008, “Burrow”);

“ILP Low Profile Webinar” video, published by Industrial

Lighting Products (“ILP”), Sanford, Florida, 2013,<sup>1</sup> (Ex. 1011).

Slides from the ILP Low Profile Webinar video, 2013 (Ex. 1009).

Screenshots from the ILP Low Profile Webinar video, 2013 (Ex. 1010) (Exs. 1009–1011 referred to collectively as “ILP Retrofit”).

U.S. Patent Number 7,438,441 B2, issued Oct. 21, 2008 (Ex. 1030, “Sun”).

U.S. Patent Number 7,476,004 B2, issued Jan. 13, 2009 (Ex. 1031, “Chan”).

Petitioner also relies on the testimony of Alfred Ducharme, Ph.D. (Ex. 1003).

#### *F. Asserted Grounds*

Petitioner asserts that claims 1–14 of the ’041 patent are unpatentable on the following grounds:

| Claim(s) Challenged | 35 U.S.C. § | References/Basis |
|---------------------|-------------|------------------|
| 1–10, 12–14         | 103         | Dowling, Burrow  |
| 1–5, 8, 9, 11, 12   | 103         | ILP Retrofit     |
| 1–14                | 103         | Plunk, Sun, Chan |

## II. ANALYSIS

### *A. Claim Construction*

In an *inter partes* review, a claim “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) (2019). Under that standard, we construe the claim “in accordance with the ordinary and

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<sup>1</sup> Daniel Kroencke, Vice President of Engineering for Industrial Lighting Products, Inc., testifies that the “ILP Low Profile Webinar” video and slides were publicly available in 2013. Ex. 1028.

Petitioner asserts that it applies the plain and ordinary meaning of the challenged claims to the asserted prior art references. Pet. 5–6. Patent Owner does not propose a construction of any claim. *See generally*, Prelim. Resp. To the extent necessary to address the parties’ unpatentability arguments, construction of claim terms is addressed below in the context of the unpatentability analysis. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (only terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy).

Petitioner contends that claims 1–10 and 12–14 would have been obvious over Dowling and Burrow. Pet. 26–48.

Dowling discloses an LED-based lighting retrofit apparatus for fluorescent lighting fixtures. Ex. 1007, at [54], [57]. Figure 3 of Dowling is shown below:

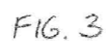


Figure 3 above shows modified conventional fluorescent lighting fixture 2000 retrofitted with an LED-based retrofit subassembly 1000. Ex. 1007 ¶ 106. Ballast 2410 and fluorescent bulb connectors 2408 are mounted on fluorescent fixture housing 2402. *Id.* ¶ 107. Retrofit subassembly 1000 is attachable to housing 2402. *Id.* Subassembly 1000 includes mechanical support 5602, to which one or more LEDs 104 are coupled. *Id.* ¶ 108. Mechanical support 5602 is configured as a U-shaped member having elevated portion 5608, and two flanking portions 5610 on opposing sides of the elevated portion. *Id.* ¶ 111. The mechanical support provides clearance between elements of the lighting apparatus included in subassembly 1000, such as controller 105, and original components of the fixture, such as ballast 2410. *Id.*

## 2. Burrow (Ex. 1008)

Burrow discloses a light emitting diode retrofit conversion kit for a fluorescent light fixture that includes a housing adapted to be secured to a troffer, a power supply carried by the housing, and a plurality of light emitting diodes carried by the housing. Ex. 1008, at [54], [57]. Figure 13 of Burrow is shown below:

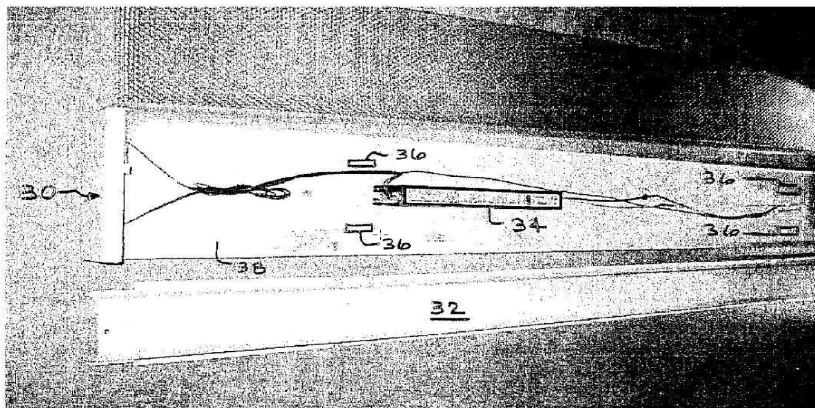


FIG. 13  
(PRIOR ART)

Figure 13 above shows an existing fluorescent fixture, including troffer 30, ballast cover 32, ballast 34, tube sockets (not shown), and snap tabs 36 located along mounting surface 38 of troffer 30. Ex. 1008 ¶ 37.

Figure 1 of Burrow is reproduced below:

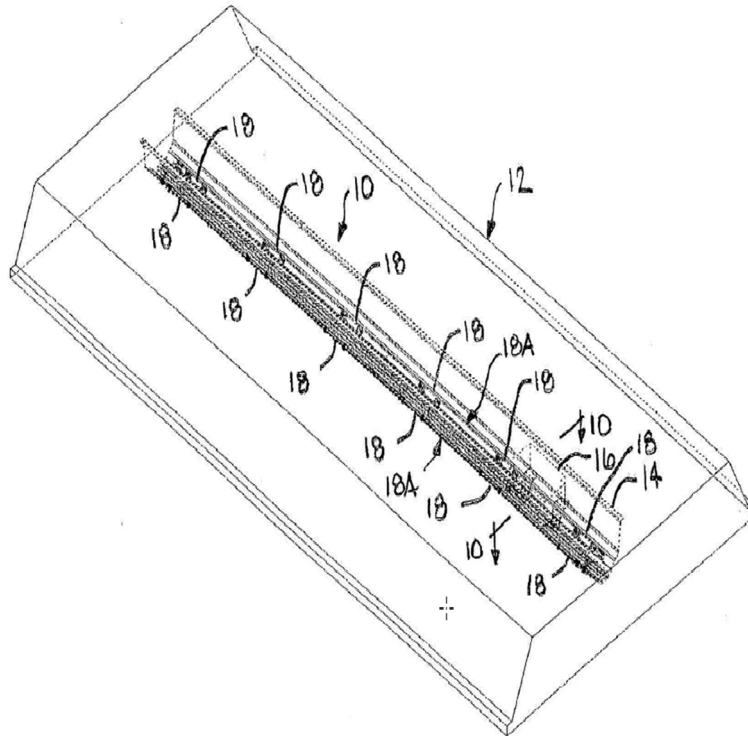
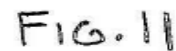


FIG. 1

Figure 1 above shows a perspective view of light emitting diode retrofit kit 10 adapted for use in fluorescent light fixture 12. Ex. 1008 ¶ 25. Kit 10 includes housing 14, power supply 16, and LEDs 18 coupled to the power supply by suitable means. *Id.* ¶ 26. Housing 14 is formed as an extrusion, and can be cut to any length. *Id.* ¶¶ 26, 38.

Figure 11 of Burrow is reproduced below:



### 3. Analysis of Ground I

*An LED disposed on the second side of the light panel*

10

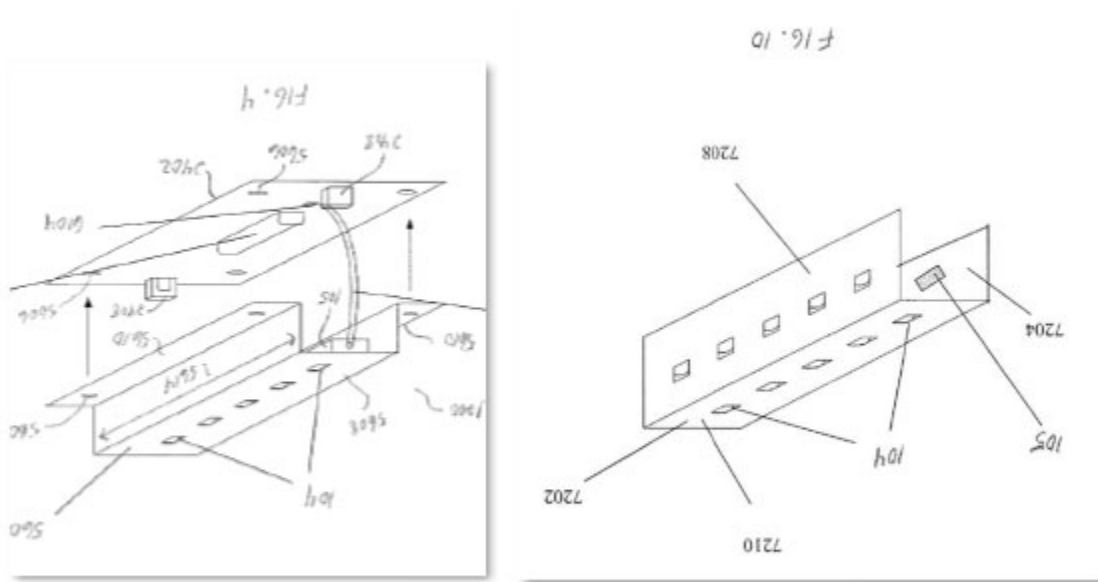
Patent Owner contends that Petitioner has alleged that Dowling teaches an LED residing on a light panel but has not alleged that Dowling teaches “a light emitting diode disposed on . . . the light panel” as recited in claim 1. Prelim. Resp. 8–9. Patent Owner contends that the claim term “disposed” is different than the word “residing.” *Id.* at 9. Patent Owner concludes that the Petition does not specify where an LED “disposed” on the light panel as claimed is found in the prior art. *Id.*

We disagree with Patent Owner. The Petition does incorrectly quote limitation 1.4 of claim 1 as “a light emitting diode residing on the second side of the light panel.” Pet. 32. However, Petitioner specifies that this section of the Petition (a) addresses limitation 1.4 of the claim, and (b) maps limitation 1.4 to LEDs 104, which are arranged in a linear array on the second side of the elevated portion, or “light panel,” shown in Figures 4 and 10 of Dowling. *Id.* (citing Ex. 1007, Figs. 4 and 10; Ex. 1003 ¶¶ 142–143); *see* Ex. 1003 ¶ 143 (citing Ex. 1007 ¶¶ 108, 113 (Figure 4 illustrates “a plurality of LEDs 104 . . . arranged in at least one essentially linear array along the elevated central portion 5608.”), 118, Figs. 4 and 10). The Petition and supporting evidence sufficiently shows that Dowling’s disclosure of LEDs arranged in a linear array along the elevated portion of the retrofit shown in Figures 4 and 10 teaches the claimed “light emitting diode disposed on the second side of the light panel.”

*The fixture attached to a ceiling and residing above the light panel*

Claim 1 recites “a fixture having a base attached to a building ceiling” and further recites “the fixture, including the first and second tombstones, residing above the light panel.” Petitioner contends that Dowling’s conventional lighting fixture shown in Figure 1 would be inverted when attached to a ceiling. Pet. 27–28. Petitioner contends that Dowling’s retrofit

kit shown in Figures 4 and 10 would also be inverted when attached to the ceiling fixture. Pet. 28–31. Inverted Figures 4 and 10 of Dowling as shown in the Petition are reproduced below:



**Dowling, Figs. 4 and 10 (inverted)**

Petitioner states that Figures 4 and 10 above show two U-shaped retrofit embodiments, inverted “to demonstrate how [they] would be attached to a ceiling fixture.” Pet. 19; *see id.* at 27–28 (citing Ex. 1003 ¶¶ 128–130). Petitioner contends that inverted Figures 4 and 10 of Dowling show the claimed “fixture, including the first and second tombstones, residing above the light panel.” Pet. 30–31 (citing Ex. 1007, Figs. 4 and 10; Ex. 1003 ¶¶ 138–139).

Patent Owner contends that Petitioner improperly inverted Figures 4 and 10 of Dowling. Prelim. Resp. 10–11. Patent Owner contends that Figures 4 and 10 as actually shown in Dowling show the light panel residing above the fixture but does not show “the fixture . . . residing above the light panel” as recited in claim 1. *Id.* Patent Owner contends that neither the Petition nor Dr. Ducharme’s testimony explains why a person of ordinary

skill in the art would invert the fixture and the retrofit kits shown in Figures 4 and 10 of Dowling. *Id.* at 11–12. According to Patent Owner, Dowling discloses that the light fixture of Dowling has “an outer shell or housing that *supports and/or protects the light source(s)*,” and therefore would not be inverted. *Id.* at 12 (citing Ex. 1007 ¶¶ 7–8). Patent Owner contends that inverting the fixture of Dowling would require substantial reconstruction and redesign of the elements of Dowling and would change a basic principle under which Dowling was intended to operate. *Id.* at 12–13.

We disagree with Patent Owner. Dr. Ducharme persuasively testifies that a skilled artisan would have understood that the base of the previously-installed fixture of Dowling would be attached to a ceiling. Ex. 1003 ¶ 130 (citing Ex. 1007 ¶¶ 9, 11–12, 107, Fig. 1) (Showing Figure 1 of Dowling as inverted such that the base of the fixture is attached to a ceiling). Dowling discloses that the lighting fixture could be recessed, such that the housing is concealed behind a ceiling. Ex. 1007 ¶ 9. We are sufficiently persuaded that when the modified conventional lighting fixture of Dowling is recessed as taught by Dowling, a person of ordinary skill would have inverted the fixture as contended by Petitioner, so that the housing is concealed behind a ceiling. We are also persuaded that a person of ordinary skill would have recognized that LEDs 104 of the retrofit kit would be more effective when facing the area that the LEDs are intended to illuminate, such as the area under a ceiling as shown in inverted Figures 4 and 10. The Petition and supporting evidence sufficiently show that Dowling, in view of the knowledge of a person of ordinary skill, teaches “the fixture, including the first and second tombstones, residing above the light panel” as recited in claim 1.

Disputed limitation of claim 12

Claim 12 recites “providing a ceiling light LED retrofit kit adapted to conceal the pre-installed base.” Petitioner contends that Dowling teaches this limitation. Pet. 43 (citing Ex. 1007, ¶¶ 9, 24, Figs. 4 and 10; Ex. 1003 ¶¶ 180–182). Dr. Ducharme testifies that the LED retrofit kits disclosed in Dowling conceal a pre-existing light fixture, as shown in inverted Figures 4 and 10. Ex. 1003 ¶ 180 (citing Ex. 1007, Figs. 4 and 10); *see id.* at ¶ 84.

Patent Owner contends that the retrofit kit of Dowling does not conceal the pre-installed base, because retrofit subassembly 1000 resides above fixture housing 2402 as shown in Figure 4. Prelim. Resp. 13–14. Patent Owner’s contention is based on the premise that the retrofit subassembly of Dowling would not be inverted when mounted to a ceiling fixture. We disagree with Petitioner’s contention for the reasons discussed in our analysis of claim 1 above. The Petition and supporting evidence sufficiently show that the combination of Dowling and Burrow teaches “providing a ceiling light LED retrofit kit adapted to conceal the pre-installed base” as recited in claim 12.

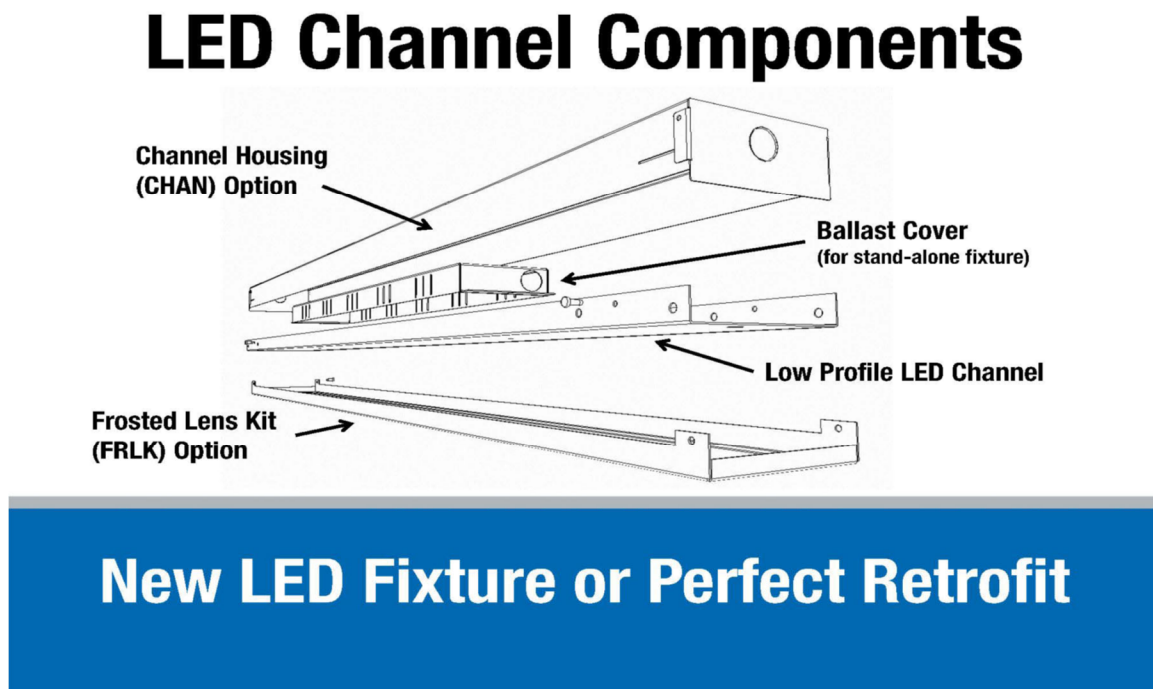
As to the remaining subject matter recited in claims 1 and 12, we have reviewed Petitioner’s contentions, which Patent Owner does not presently dispute, and we are sufficiently persuaded by them. *See* Pet. 26–33, 43–46. Based on this preliminary record, Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that the subject matter of claims 1 and 12 would have been obvious over the combination of Dowling and Burrow. Petitioner has set forth contentions regarding remaining challenged claims 2–10, 13, and 14. Pet. 33–48. We have analyzed Petitioner’s allegations as to these claims, and we find them sufficient at this stage.

*C. Asserted Obviousness over ILP Retrofit*

Petitioner contends that claims 1–5, 8, 9, 11, 12 would have been obvious over ILP Retrofit. Pet. 48–65.

*1. ILP Retrofit (Exs. 1009–1011)*

ILP Retrofit discloses an LED lighting product designed to retrofit a ceiling-mounted fluorescent lighting fixture. Slide 5 of Exhibit 1009 is reproduced below:



Slide 5 above shows components of the ILP Retrofit product, including a low profile LED channel that includes LEDs positioned on a side of a light panel opposite the previous light fixture and a lens. Ex. 1009, 5.

*2. Analysis of Ground 2*

Disputed limitations of claim 1

*An LED disposed on the second side of the light panel*

Patent Owner contends that Petitioner alleges that ILP Retrofit teaches “a light emitting diode residing on the second side of the light panel” but has

not alleged that ILP Retrofit teaches “a light emitting diode disposed on the second side of the light panel” as claimed. Prelim. Resp. 16–17. According to Patent Owner, the Petition does not specify where an LED “disposed on the second side of the light panel” is found in the prior art. *Id.* at 17.

We disagree with Patent Owner. The Petition does incorrectly quote limitation 1.4 of claim 1 as “a light emitting diode residing on the second side of the light panel.” Pet. 55. However, Petitioner specifies that this section of the Petition (a) addresses limitation 1.4 of the claim, and (b) maps limitation 1.4 to LEDs disposed on the second side of the light panel taught by ILP Retrofit. *Id.* at 55–56 (citing Ex. 1009, 4; Ex. 1010, 13; Ex. 1011, 2:16; Ex. 1003 ¶¶ 209–210). The Petition and supporting evidence sufficiently show that ILP Retrofit teaches the claimed “light emitting diode disposed on the second side of the light panel.”

*Profiles that extend from the first tombstone to the second tombstone*

Claim 1 recites a retrofit including a light panel, a first profile, and a second profile, where “the light panel, the first profile, and the second profile extend longitudinally from the first tombstone to the second tombstone.” Petitioner contends that ILP Retrofit discloses a retrofit connected to a base, the retrofit including a light panel with a first side facing the fixture and an opposite second side, and first and second profiles, wherein the light panel and profiles extend longitudinally and parallel to one another for the length of the base. Pet. 52 (citing Ex. 1009, 5; Ex. 1010, 19; Ex. 1011, 4:12).

Petitioner contends that ILP Retrofit does not teach that the retrofit extends from the first tombstone to the second tombstone because ILP Retrofit teaches removing the tombstones. Pet. 53. Petitioner contends that a person of ordinary skill would have left the tombstones in place for the

benefits of reducing labor costs, reducing installation time, and reducing costs of disposing hazardous materials. Pet. 12–14 (citing Ex. 1003 ¶ 73; Ex. 1005, 1:64–2:2, 2:6–17, Fig. 11); *see* Pet. 53 (citing Pet. 12–14).

Petitioner contends that a person of ordinary skill in the art would have modified the depth of the LED channel to accommodate the height of the tombstones by increasing the length of the profiles and would have done so using ordinary skill and common tools available at the time of invention. Pet. 53 (citing Ex. 1003 ¶¶ 205–207).

Patent Owner contends that ILP Retrofit is directed to a low profile LED channel and that modifying the depth of the LED channel would change the principle of operation of providing a low profile LED channel. Prelim. Resp. 21–22. We do not agree with Patent Owner that the principle of operation of ILP Retrofit is providing a low profile LED channel. On this record, we are persuaded that the principle of operation of ILP Retrofit is fitting an LED retrofit kit to a ceiling mounted fluorescent lighting fixture and illuminating an area below with LED light. *See* Pet. 25, 52–53; Ex. 1003 ¶¶ 122–124, 205–207; Ex. 1009, 3, 6–8, 10–12; Ex. 1032, 1:12–1:15, 9:57–12:02. We do not agree with Patent Owner that increasing the lengths of the profiles would change this principle of operation. The Petition and supporting evidence sufficiently show that increasing the lengths of the profiles still yields an LED retrofit kit that has a principle of operation of fitting the retrofit kit to a ceiling mounted fluorescent lighting fixture and illuminating the area below with LED light. Ex. 1003 ¶¶ 73–89; Ex. 1005, 1:51–2:17, Figs. 10 and 11; Ex. 1007 ¶¶ 18, 116, Fig. 4; Ex. 1014 ¶¶ 6–8; Ex. 1015, 2:2–5.

Patent Owner contends that claim 1 requires that the first and second tombstones remain in place but that ILP Retrofit teaches removing the

tombstones. Prelim. Resp. 18–19. Patent Owner contends that the benefits of leaving the tombstones in place, such as saving labor, reducing waste, and improving return on investment, existed at the time of the ILP Retrofit disclosure, yet ILP Retrofit still taught removing the tombstones. Prelim. Resp. 23.

However, Patent Owner’s contentions do not address Petitioner’s proposed modification. Petitioner contends that a person of ordinary skill, when deciding whether to remove the tombstones or to leave the tombstones in place, would consider factors such as the difficulty of removing the tombstones, as well as installation time, labor costs, and disposal costs. Pet. 12–14 (citing Ex. 1005, 1:64–2:2, 2:6–17, Fig. 11; Ex. 1003 ¶ 73); *see id.* at ¶ 55. Thus, Petitioner does not contend that a person of ordinary skill would always leave the tombstones in place. Rather, Petitioner, relying on the testimony of Dr. Ducharme, contends that when the costs of removing the tombstones are greater than the costs of leaving the tombstones in place, a person of ordinary skill would have left the tombstones in place, and would have done so using ordinary skill and common tools available at the time of invention. *Id.* at 12–14, 53 (citing Ex. 1003 ¶¶ 205–207). On this record, we agree with Petitioner and Dr. Ducharme.

Patent Owner contends that the Petition and Dr. Ducharme rely on conclusory statements rather than a meaningful, articulated explanation with rational underpinning to support the conclusion of obviousness. Prelim. Resp. 23. We disagree. Dr. Ducharme relies on the teachings of several prior art references to show that a person of ordinary skill, after determining that the costs of removing the tombstones are greater than the costs of leaving the tombstones in place, would have left the tombstones in place and would have increased the lengths of the profiles to accommodate the

tombstones in order to yield the predictable benefits of reducing labor costs, reducing installation time, and reducing disposal costs of hazardous materials. Ex. 1003 ¶¶ 73–89 (citing Ex. 1005, 1:64–2:2, 2:6–17, Figs. 10 and 11; Ex. 1007 ¶ 18, Fig. 4; Ex. 1012, 2:56–3:10; Ex. 1014 ¶¶ 6–7, Fig. 1; Ex. 1015, 2:2–5). Dr. Ducharme’s testimony is sufficiently supported by evidence. The Petition and supporting evidence provide an articulated reasoning with a rational underpinning to support the legal conclusion of obviousness. *See KSR Int’l.*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”)).

#### Disputed limitation of claim 12

Claim 12 recites “providing a ceiling light LED retrofit kit adapted to conceal the pre-installed base.” Petitioner, citing slide 5 of Exhibit 1009, contends that ILP Retrofit conceals the base. Pet. 63. Patent Owner contends that ILP Retrofit does not teach an “LED retrofit kit adapted to conceal the pre-installed base” as claimed. Prelim. Resp. 26. Patent Owner contends that the word “conceal” means to “prevent something from being seen or known about; to hide something.” *Id.* at 25 (citing Ex. 2002). Patent Owner contends that the low profile ILP Retrofit channel shown in screenshot 29 of Exhibit 1010 only extends partially over the first and second longitudinal sides of the pre-installed base of the fixture, such that portions of the longitudinal sides are not concealed. *Id.* at 26–27.

Patent Owner’s contention is implicitly based on construing the scope of “to conceal the pre-installed base” to exclude partially concealing the pre-installed base. We construe the scope of “to conceal the pre-installed base” to encompass partially concealing the pre-installed base. Our construction

of this term is not final, and we invite the parties to present arguments and evidence in support of or in opposition to our construction. On this record, the Petition and supporting evidence sufficiently show that ILP Retrofit's disclosure of a retrofit that prevents the bottom and portions of the sides of the pre-installed base from being seen teaches "to conceal the pre-installed base" as claimed. Ex. 1009, slide 5; Ex. 1010, screenshot 29.

Based on this preliminary record, Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that the subject matter of claims 1 and 12 would have been obvious over the teachings of ILP Retrofit. Petitioner has set forth contentions regarding the remaining claims 2–5, 8, 9, and 11. Pet. 57–65. We have analyzed Petitioner's allegations as to the remaining claims, and we find them sufficient at this stage.

*D. Asserted Obviousness over Plunk, Sun, and Chan*

Petitioner contends that claims 1–14 would have been obvious over Plunk, Sun, and Chan. Pet. 65–91.

*1. Plunk (Ex. 1005)*

Plunk discloses a retrofit unit for a fluorescent lighting fixture having a chamber with a ballast and a plurality of downwardly extending lamp holders for enclosing an existing fluorescent strip light fixture. Ex. 1005, at [57]. Plunk discloses that neither the ballast nor the lamp holders of the existing fluorescent lighting fixture need to be removed to receive the retrofit unit. *Id.* Figure 2 of Plunk is reproduced below:

FIG. 2

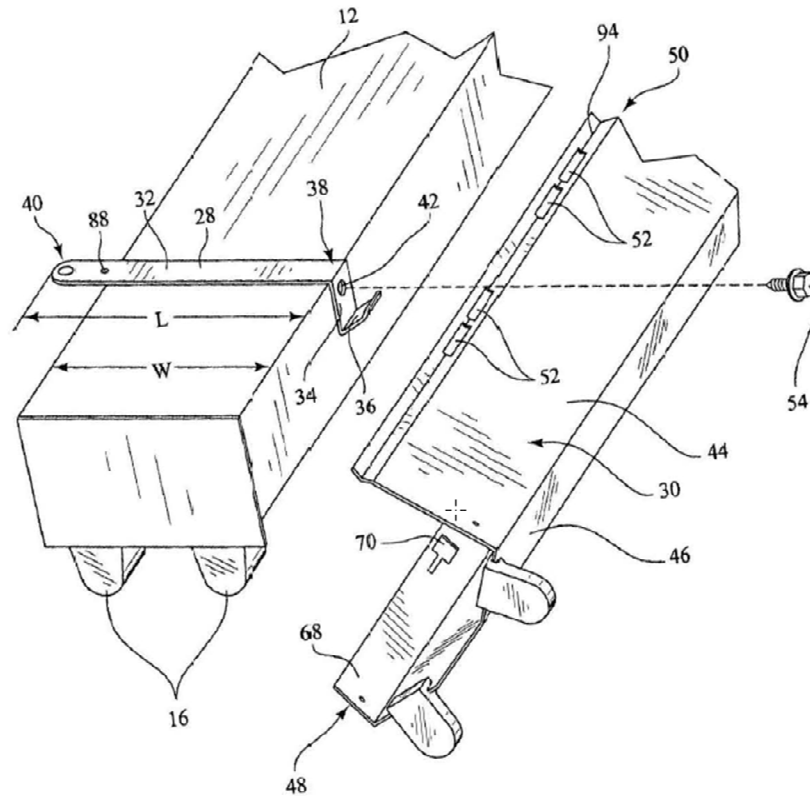


Figure 2 above shows a partial perspective view of an existing surface mount fluorescent strip light fixture and a retrofit kit. Ex. 1005, 2:39–43. The retrofit kit includes two mounting brackets 28 and retrofit channel 30. Brackets 28 attach to existing strip channel 12. Retrofit channel 30 hangs from brackets 28 and wraps around the remaining components of the existing fixture. *Id.* at 3:50–56. Figure 4 of Plunk is reproduced below:

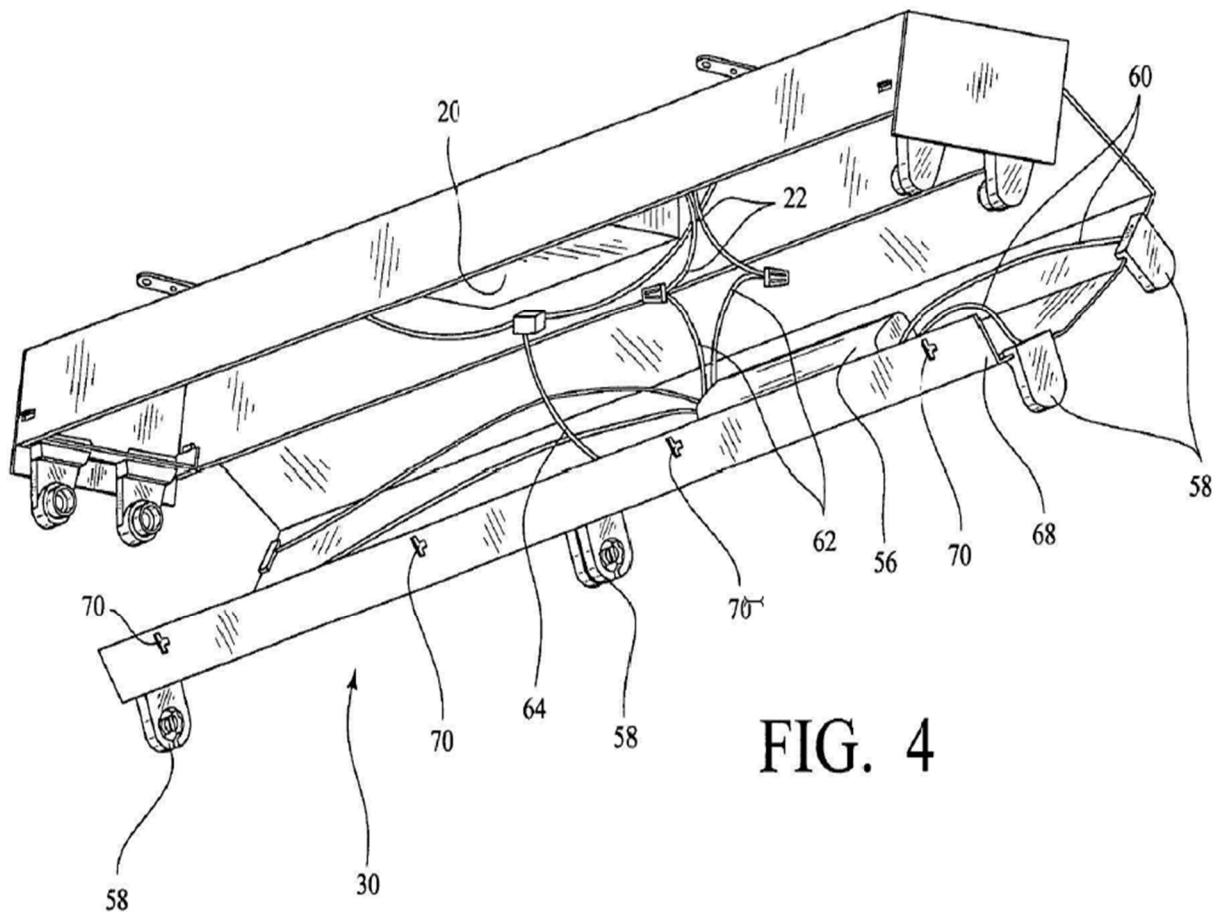


Figure 4 above shows retrofit ballast 56 and retrofit lamp holders 58 attached to retrofit channel 30 and connected by wiring 60. Ex. 1005, 4:46–48. Retrofit ballast 56 has power leads 62. *Id.* at 4:56–57. The retrofit kit has ground lead 64. *Id.* at 4:57.

## 2. Sun (Ex. 1030)

Sun discloses an LED light tube that can be directly inserted into two pairs of electrode insertion holes of a fluorescent light tube fixture to replace a fluorescent tube. Ex. 1030, at [57]. Figure 4 of Sun is reproduced below:

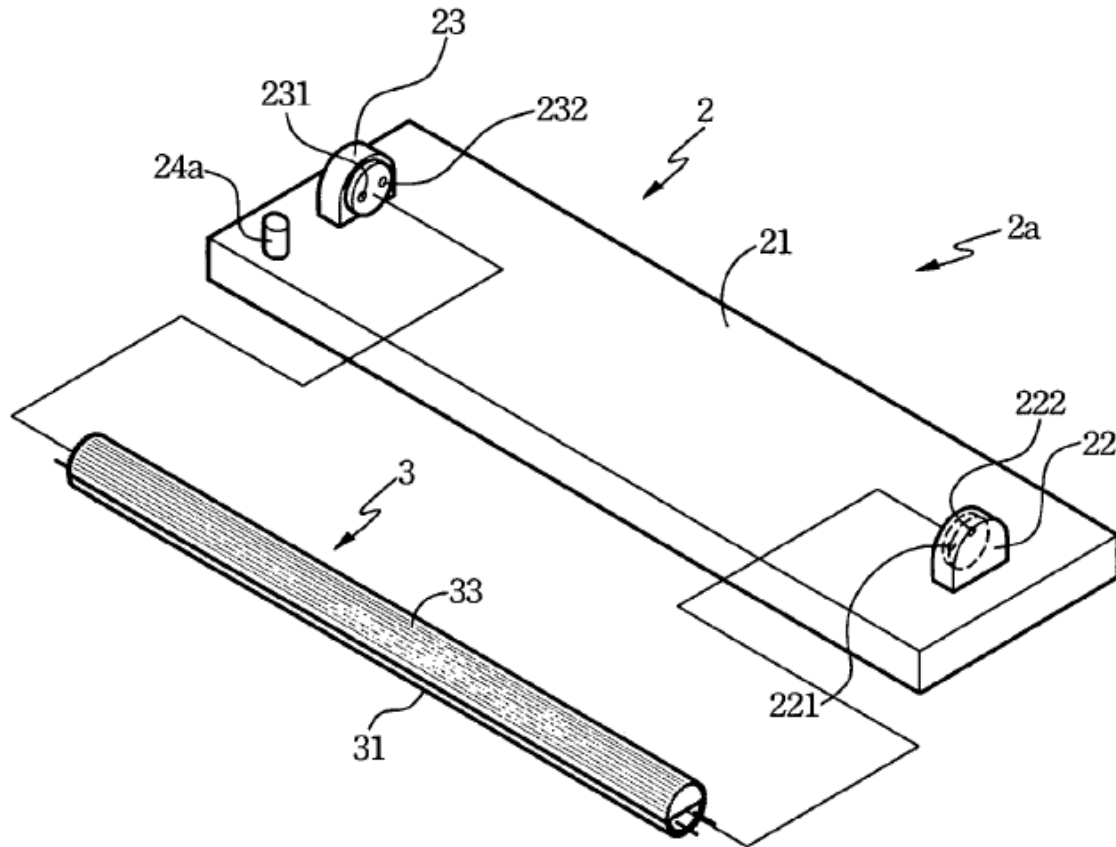


FIG. 4

Figure 4 above shows LED light tube 3 directly assembled to fluorescent light tube fixture 2a to project an illumination light beam for replacing a fluorescent light tube. Ex. 1030, 3:63–66. The elements of fluorescent light tube fixture 2a are the same as those of fluorescent light tube fixture 2 (shown in Figure 1), except for LED driver 24a. *Id.* at 3:66–4:4. LED driver 24a can also be directly installed in heat dissipating base 31 of LED light tube 3 (as shown in Figure 5) so that it is unnecessary to assemble the LED driver to the fluorescent light tube fixture. *Id.* at 5:15–24.

### 3. *Chan (Ex. 1031)*

Chan discloses a lamp tube which uses LEDs as its lighting source and which can replace generic fluorescent lamp tubes. Ex. 1031, 1:14–17.

Figure 1 of Chan is reproduced below:

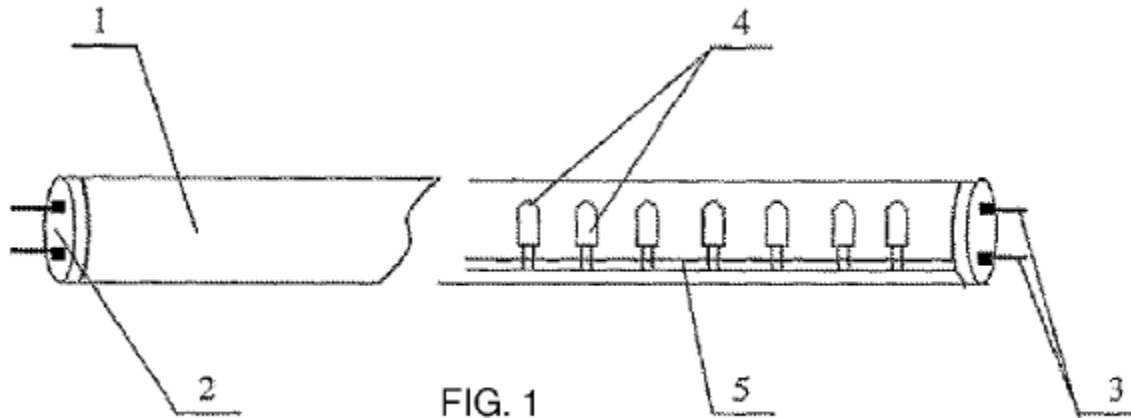


Figure 1 above shows an LED lighting lamp tube including transparent tube body 1, lamp caps 2, electrode pins 3, LEDs 4, and printed circuit board (PCB) 5. Ex. 1031, 2:66–3:5.

### 4. *Proposed Combination of Plunk, Sun, and Chan*

#### Asserted Reason to combine

Petitioner contends that Plunk discloses a fixture that receives fluorescent light tubes but does not disclose “a light emitting diode disposed on the second side of the light panel” as claimed. Pet. 67, 70. Petitioner contends that Sun teaches an LED light tube that can replace a fluorescent light tube without any further modifications to the fluorescent lighting system. Pet. 71 (citing Ex. 1030, 1:6–9, 5:15–24; Ex. 1003 ¶¶ 267–268). Petitioner contends that Chan teaches that replacing a fluorescent light tube with an LED light tube yields the benefits of longer life, higher lighting output, and lower power consumption. Pet. 71 (citing Ex. 1031, 1:19–34;

Ex. 1003 ¶¶ 269, 273). Petitioner contends that a person of ordinary skill would have replaced the fluorescent light tubes of Plunk with the LED light tubes of Sun or Chan to yield the predictable benefits longer life, higher lighting output, and lower power consumption as taught by Sun and Chan. *Id.* at 71–72 (citing Ex. 1003 ¶¶ 271–275).

Patent Owner contends that a person of ordinary skill, seeking to modify an existing fluorescent light fixture with an LED light fixture, would recognize that Plunk’s retrofit kit is extraneous and unnecessary. Prelim. Resp. 29. In particular, Patent Owner contends that a person of ordinary skill would not install Plunk’s retrofit kit, then further modify the kit to add LED lighting. *Id.* at 29–30. According to Patent Owner, a person of ordinary skill looking to modify a fluorescent lighting fixture to carry an LED light would simply plug the LED light tubes of Sun or Chan directly into the existing tombstones. *Id.* at 31.

Patent Owner’s contention does not address Petitioner’s proposed modification. Petitioner does not propose modifying any existing fluorescent light fixture with the retrofit kit of Plunk, then further modifying the retrofit kit of Plunk to include an LED light fixture. Petitioner proposes starting with a fixture that has already been modified to include Plunk’s retrofit kit, and modifying the fixture including Plunk’s retrofit kit with an LED light tube. Pet. 72; *see* Ex. 1003 ¶¶ 64, 82, 271 (“It would have been obvious to a skilled artisan to use an LED tube light (like Sun or Chan) within Plunk’s ‘sockets 258’ in place of a fluorescent light tube.”), 276 (“A skilled artisan would have therefore understood Plunk’s retrofit kit could be used with LED tubes installed within ‘lamp holders 258.’”), 277 (“Once installed in Plunk’s ‘lamp holders’ (labeled ‘58’ in Figure 4 and [‘]258’ in Figs. 8, 11) the LED tubes would be disposed on the second side of the light

panel when attached to sockets 258.”). The Petition and supporting evidence sufficiently show that a person of ordinary skill in the art would have used an LED tube light in place of a fluorescent tube light as taught by Sun and Chan within Plunk’s tombstones to yield the predictable benefits of lower electric power consumption, longer working life, and lower lighting temperature as taught by Sun and Chan. Ex. 1030, 2:36–43; Ex. 1031, 1:39–44.

We disagree with Patent Owner’s contention that Plunk is extraneous because it does not provide a benefit beyond those provided by Sun and Chan. *See* Prelim. Resp. 29–31. Dr. Ducharme testifies that one example of an LED retrofit for fluorescent lighting is an LED tube that is compatible with an existing ballast, and that such an LED tube fits into existing tombstones, is powered by the existing ballast, and uses its own drive electronics to convert AC power from the existing ballast into DC power. Ex. 1003 ¶ 66. Dr. Ducharme testifies that Plunk’s retrofit kit incorporates an electronic ballast that has higher efficiency and lower operational costs than older magnetic ballasts. Ex. 1003 ¶ 64; *see* Ex. 1005, 1:51–64. The Petition and supporting evidence sufficiently show that Plunk’s retrofit kit provides a benefit to an LED tube powered by an existing ballast of a fluorescent light fixture, namely a higher efficiency ballast with reduced operational costs, and that this benefit is not provided by Sun and Chan. We are persuaded that a person of ordinary skill in the art, when considering an LED retrofit to fluorescent light fixture that has been improved by the higher efficiency ballast of Plunk’s retrofit kit, would have inserted the LED tubes of Sun or Chan into the tombstones of Plunk’s retrofit kit to preserve the benefit of Plunk’s higher efficiency ballast, and to yield the additional benefits of lower electric power consumption, longer working life, and lower

lighting temperature as taught by Sun and Chan. Ex. 1003 ¶ 64; Ex. 1005, 1:51–64; Ex. 1030, 2:36–43; Ex. 1031, 1:39–44.

We disagree with Patent Owner’s contention that a person of ordinary skill would have known that it would be quicker and more efficient to simply plug the LED tubes of Sun or Chan directly into existing tombstones and avoid using Plunk’s retrofit kit entirely. *See* Prelim. Resp. 33. Rather, the Petition and supporting evidence sufficiently show that when the retrofit kit of Plunk has already been installed on an existing fluorescent light fixture, a person of ordinary skill would have found it quicker and more efficient to simply plug the LED tubes of Sun or Chan directly into the tombstones of Plunk’s retrofit kit in order to avoid the time and cost of removing and disposing of Plunk’s retrofit kit as well as to preserve Plunk’s benefit of providing a higher efficiency ballast.

Patent Owner contends that the Petition and Dr. Ducharme rely on conclusory statements rather than a meaningful, articulated explanation with rational underpinning to support the conclusion of obviousness. Prelim. Resp. 31–34. We disagree with Patent Owner. Dr. Ducharme has sufficiently supported his testimony with evidence, and the Petition and supporting evidence provide an articulated reasoning with a rational underpinning to support the legal conclusion of obviousness for the reasons given above. *See* Pet. 70–72 (citing Ex. 1003 ¶¶ 265–278; Ex. 1005, 1:61–2:8; Ex. 1030, Fig. 1, 1:6–9, 1:57–59, 2:16–23, 5:15–24; Ex. 1031, 1:19–34, 1:39–44; Ex. 1006 ¶¶ 3–4, 6, 22); Ex. 1003 ¶¶ 265 (citing Ex. 1005, 1:61–2:8), 266–268 (citing Ex. 1030, Fig. 5, 1:6–9, 5:15–24), 269 (citing Ex. 1031, Fig. 1, 1:14–17), 270 (citing Ex. 1005, Fig. 1), 271–277 (citing Ex. 1030, 1:57–59, 2:16–23; Ex. 1031, 1:21–35; Ex. 1006 ¶¶ 3–4, 6; Ex. 1005, Figs. 4, 8, and 11).

Patent Owner contends that Petitioner improperly relies on additional references that are part of the background knowledge in the art and that the background knowledge cannot supply elements missing from the prior art in the grounds. Prelim. Resp. 34–35. We do not agree with Patent Owner’s contention that the combination of Plunk, Sun, and Chan is missing a claim limitation, and Patent Owner does not identify a claim limitation missing from the combination. *See id.* On this record, the Petition and supporting evidence sufficiently show that the combination of Plunk, Sun, and Chan teaches all limitations of claim 1. Pet. 66–73.

Further, even if we were to agree with Patent Owner, that the combination of Plunk, Sun, and Chan is missing a claim limitation, we would find that Petitioner’s reliance on background knowledge is appropriate. The Supreme Court has criticized a rigid approach to determining obviousness based on the disclosures of individual prior art references, with little recourse to the knowledge that an ordinarily skilled artisan would have brought to bear when considering combinations or modifications. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 415–22 (2007). “Rejecting a blinkered focus on individual documents, the Court required an analysis that reads the prior art in context, taking account of . . . ‘the background knowledge possessed by a person having ordinary skill in the art’ . . . .” *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (quoting *KSR*, 550 U.S. at 418). Thus, the obviousness “analysis *requires* an assessment of . . . ‘the background knowledge possessed by a person having ordinary skill in the art.’” *Dow Jones & Co. v. Abblaise Ltd.*, 606 F.3d 1338, 1349 (Fed. Cir. 2010) (emphasis added) (quoting *KSR*, 550 U.S. at 401) (concluding that the district court did not err in relying on general knowledge to supply a missing claim limitation). “[T]he inquiry into

whether any ‘differences’ between the invention and the prior art would have rendered the invention obvious to a skilled artisan necessarily depends on such artisan’s knowledge.” *Koninklijke Philips v. Google*, 948 F.3d 1330, 1337 (Fed. Cir. 2020) (concluding that the Board did not err in relying on general knowledge to supply a missing claim limitation). Thus, we disagree with Patent Owner’s contention that Petitioner cannot rely on background knowledge to supply a missing limitation. *See id.*

Based on this preliminary record, Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that the subject matter of claim 1 would have been obvious over Plunk, Sun, and Chan. Petitioner has set forth contentions regarding the remaining challenged claims 2–14. Pet. 74–91. We have analyzed Petitioner’s allegations as to these claims, and we find them sufficient at this stage.

### III. ORDER

It is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–14 of the ’041 patent is instituted with respect to all grounds set forth in the Petition;

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the ’041 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of a trial.

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