

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

IDEAL INDUSTRIES LIGHTING LLC,
d/b/a/ CREE LIGHTING,
Petitioner,

v.

RAB LIGHTING INC.,
Patent Owner.

IPR2021-00646
Patent 8,985,816 B2

Before CHRISTOPHER L. CRUMBLEY, MICHELLE N. ANKENBRAND, and
BRIAN D. RANGE, *Administrative Patent Judges*.

ANKENBRAND, *Administrative Patent Judge*.

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

I. INTRODUCTION

IDEAL Industries Lighting LLC, d/b/a Cree Lighting (“Petitioner”) requests an *inter partes* review of claims 1–20 of U.S. Patent No. 8,985,816 B2 (“the ’816 patent,” Ex. 1001). Paper 1 (“Pet.”). RAB LIGHTING, INC. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

After the Petition was filed, Patent Owner disclaimed claims 1–19 of the ’816 patent. *See* Prelim. Resp. 3; Ex. 2001. Thus, this decision addresses only claim 20 of the challenged patent. 37 C.F.R. § 42.107(e) (“The patent owner may file a statutory disclaimer under 35 U.S.C. 253(a) . . . disclaiming one or more claims in the patent. No *inter partes* review will be instituted based on disclaimed claims.”).

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2019). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless the Director determines . . . 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 set forth below, upon considering the Petition, Preliminary Response, and evidence of record, we determine the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail with respect claim 20. Accordingly, we institute an *inter partes* review.

II. BACKGROUND

A. Related Matters

The parties identify the following litigation involving the '816 patent: *RAB Lighting Inc. v. Ideal Industries Lighting LLC, et al*, No. 1:20-cv-01574-RGA (D. Del.). Pet. 99; Paper 4, 2.

B. The '816 Patent (Ex. 1001)

The '816 patent, titled “Light Fixture with Central Lighting Housing and Peripheral Cooling Housing,” issued on March 24, 2015. Ex. 1001, [45], [54]. The '816 patent relates to a light fixture with a cylindrical light package housing surrounded peripherally by a cooling housing with airflow cooling channels. *Id.* at Abstract.

The written description explains that conventional light fixtures utilizing LEDs are sensitive to operating temperature, becoming less efficient in high temperatures. *Id.* at 1:25–40. According to the '816 patent, conventional LED fixtures dissipate heat by including a heatsink, “generally integral with or thermally coupled with the light housing, which often includes external cooling fins to further facilitate the dissipation of heat from the light fixture by convection and radiation.” *Id.* at 1:40–48. According to the '816 patent, known cooling fins extending from the outer rim to the central light housing and/or oriented vertically lack convective airflow and are visible. *Id.* at 1:49–2:3. Thus, the '816 patent explains that it is “desirable to provide a lighting fixture design that maximizes cooling by thermal convection . . . shields the cooling features and through the fixture view from as many viewing angles as practical, and redirects vertical airflow to a radially outwardly direction and across further cooling structure when mounted against a ceiling.” *Id.* at 2:4–10.

The '816 patent describes several embodiments of light fixtures. One embodiment of the light fixture is depicted below in Figure 4.

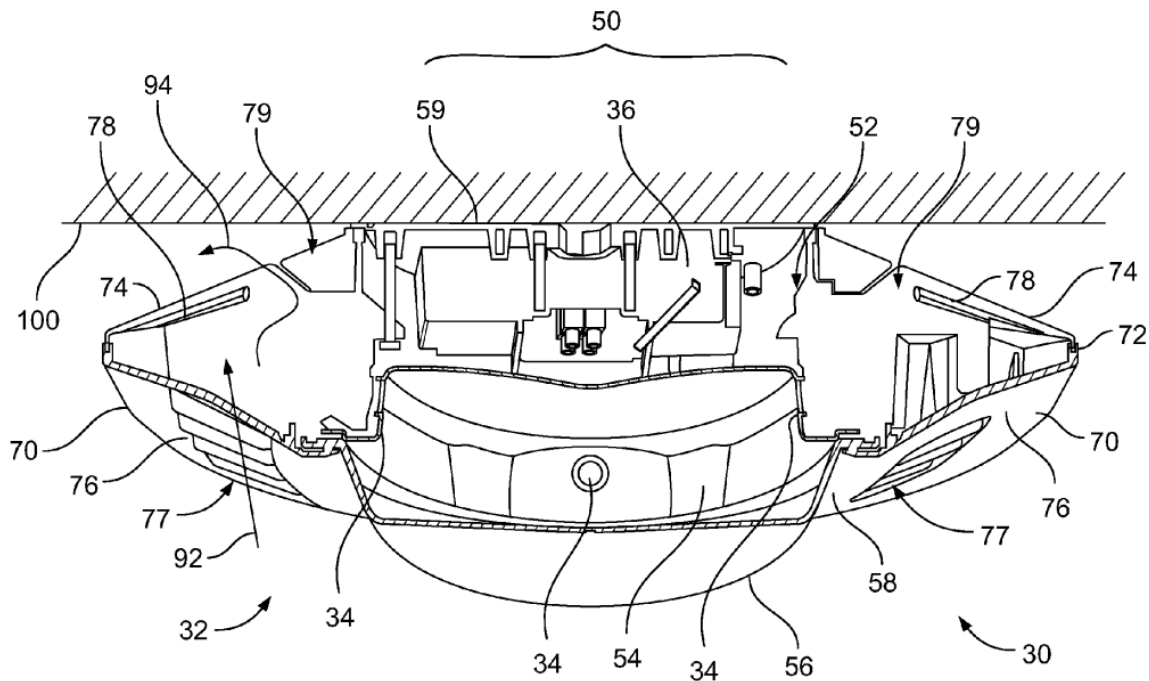


FIG. 4

Figure 4 illustrates a bottom side perspective section view of a light fixture. *Id.* at 3:62–64, 4:14–16. In this embodiment, light fixture 30 includes cooling housing 70 encircling outer circumference 52 of light package housing 50. *Id.* at 4:21–23.

Referring to the same embodiment, the '816 patent explains:

the cooling housing 70 defines a rim 72 around on [sic] outer circumference and a plurality of cooling fins 74 coupled between the outer circumference 52 of the light package housing 50 and the rim 72. The cooling housing 70 also defines a shroud 76 on the illumination side 58, and a radial ring fin support 78 nearer the top side 59. From the illumination side 58, the shroud 76 defines windows exposing openings 77 between adjacent cooling fins 74 and extending radially between the rim 72 and the outer circumference 52 of the light package housing 50 (FIGS. 3 and 4). From the top side 59, openings 79 are defined between adjacent cooling fins 74 and

extend radially between the radial ring fin support 78 and the outer circumference 52 of the light package housing 50 (FIGS. 2 and 4).

Id. at 4:49–62. The Figure 4 embodiment also has first airflow cooling channels 92 defined through openings 77 at bottom side 58 that extend “upwardly toward and along the bottom side of radial ring fin support 78 through openings 79 on the top side 79, and radially outward toward rim 72 and between fins 74 and along a top side of the radial ring fin support 78, as indicated by second airflow cooling channels 94.” *Id.* at 4:65–5:8.

According to the ’816 patent, “[a]dvantageously, radial ring fin support 78 provides support to the fins 74 and more surface area for convective and radiant heat transfer to the surrounding air than fins 74 and outer circumference 52 of the light package housing 50 alone provide.” *Id.* at 5:22–26. In addition, the features of “the rims 72, shroud 76, and radial ring fin support 78 also aesthetically conceal portions of the light fixture 30, and eliminate or substantially limit the vertical see through of the ceiling 100 from the illumination side 58.” *Id.* at 5:33–38.

C. Illustrative Claim

Petitioner challenges claims 1–20 of the ’816 patent. As set forth above, Patent Owner disclaimed claims 1–19 of the ’816 patent. Independent claim 20 is the only remaining claim and is reproduced below.

20. A light fixture, comprising:
an [sic] light package housing including emitters;
an illumination side of the light package housing, the emitters projecting light from the illumination side;
a top side of the light package housing, located opposite the illumination side;

a cooling housing extending peripherally around an outer circumference of the light package housing, the cooling housing including a plurality of cooling fins, a rim, and a radial ring fin support; and,

a plurality of vertical cooling channels defined between the rim, outer circumference of the light package housing, and adjacent ones of the plurality of cooling fins; and wherein:

the rim couples the cooling fins around an outer circumference of the cooling housing;

the plurality of cooling fins span radially between the outer circumference of the light package housing; and

the radial ring fin support forms an annulus extending from the rim and inwardly toward, but not touching, the outer circumference of the light package housing, and a bottom side of the radial ring fin support redirects radially inwardly, toward the light package housing, each of the plurality of vertical cooling channels.

Ex. 1001, 8:4–26.

D. Asserted Grounds of Unpatentability

The Petition asserts the following grounds of unpatentability:¹

Claim Challenged	35 U.S.C §²	Reference/Basis
20	102	Ter-Hovhannisyan ³
20	103	Ter-Hovhannisyan

Pet. 8. Petitioner relies on the Declaration of Eric Bretschneider, Ph.D. (Ex. 1003) to support its asserted grounds of unpatentability.

¹ We have removed the asserted grounds of unpatentability for disclaimed claims 1–19 from the summary of asserted grounds.

² Because the claims at issue have an effective filing date before March 16, 2013, the effective date of the applicable provisions of the Leahy Smith America Invents Act, Pub. L. No. 112–29, 125 Stat. 284 (2011) (“AIA”), we apply the pre-AIA versions of 35 U.S.C. §§ 102 and 103 in this decision.

³ U.S. Patent App. Pub. No. 2011/0309751, published Dec. 22, 2011 (Ex. 1005).

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner asserts that “[a] person of ordinary skill in the art of the ’816 patent would have [had] at least a bachelor’s degree in an engineering discipline and approximately three years of experience working on LED lighting technology and designs, including experience with thermal design and heat dissipation.” Pet. 7 (citing Ex. 1003 ¶ 53). Petitioner further asserts that “[r]elevant work experience could substitute for formal education and post-graduate education could substitute for work experience.” *Id.* (citing Ex. 1003 ¶ 53).

Patent Owner does not set forth a description of the level of ordinary skill in the art in its Preliminary Response. *See generally* Prelim. Resp.

In light of the record before us, for purposes of this decision, we adopt Petitioner’s proposed definition of the level of ordinary skill in the art, because that definition appears to be consistent with the disclosure of the ’816 patent and the prior art of record.

B. Claim Construction

In an *inter partes* review, we construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b). Under that standard, we construe claims “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.* Furthermore, we expressly construe the claims only to the extent necessary to determine whether to institute *inter partes* review. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary

to resolve the controversy.” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Neither Petitioner nor Patent Owner asserts that we need to construe any claim terms to resolve the parties’ dispute at this stage of the proceeding. We agree that, for purposes of this decision, it is not necessary for us to explicitly construe any claim term. *See Nidec*, 868 F.3d at 1017. We do, however, discuss the phrase “the radial ring support forms an annulus extending from the rim and inwardly toward, but not touching, the outer circumference of the light package housing” in analyzing Petitioner’s grounds.

C. Asserted Reference

Before turning to the parties’ arguments, we provide a brief summary of the asserted reference.

1. Ter-Hovhannisyan (Ex. 1005)

Ter-Hovhannisyan relates to an improved heat sink system for a light fixture. Ex. 1005 ¶¶ 1, 8. Ter-Hovhannisyan describes industrial light 10 that includes outer heat sink 12 and inner heat sink 22, with outer heat sink 12 split into upper heat sink 28 and lower heat sink 30. *Id.* ¶¶ 27, 29. Ter-Hovhannisyan’s industrial light is depicted in Figure 7, which we reproduce below.

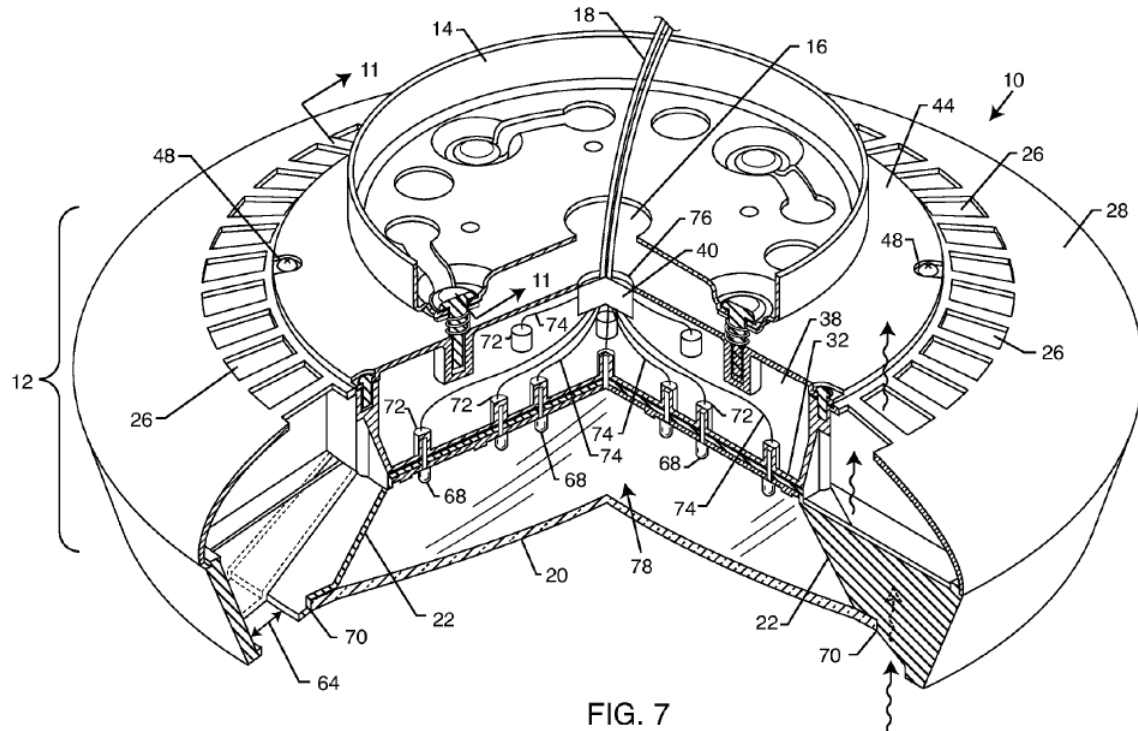


FIG. 7

Figure 7 is a partial cut-away perspective of the industrial light showing, *inter alia*, inner heat sink 22 and upper heat sink 28 of outer heat sink 12. *Id.* ¶ 20. One particular aspect of upper heat sink 28 and lower heat sink 30 that Ter-Hovhannisyan describes is that “each heat sink 28, 30 includes its own set of cooling fins 24 – i.e. the upper heat sink 28 includes a plurality of upper cooling fins 60 while the lower heat sink 30 includes its own set of lower cooling fins 34.” *Id.* ¶ 33. Ter-Hovhannisyan explains that the “plurality of cooling fins 24 extend[] between the inner heat sink 22 and the outer heat sink 12. Preferably, the outer heat sink 12 is offset from the inner heat sink 22 . . . to maximize the amount of surface area of the inner heat sink 22, the outer heat sink 12 and the cooling fins 24 subject to air convection technology.” *Id.* ¶ 28. To facilitate air flow through outer heat sink 12 and adjacent both inner heat sink 22 and cooling fins 24, outer heat sink 12 further includes a plurality of vents 26. *Id.*

Figure 4 is a bottom perspective view of the upper heat sink, showing how upper cooling fins attach to upper heat sink and showing plurality of vents 26. *Id.* ¶¶ 17, 33. We reproduce Figure 4 below.

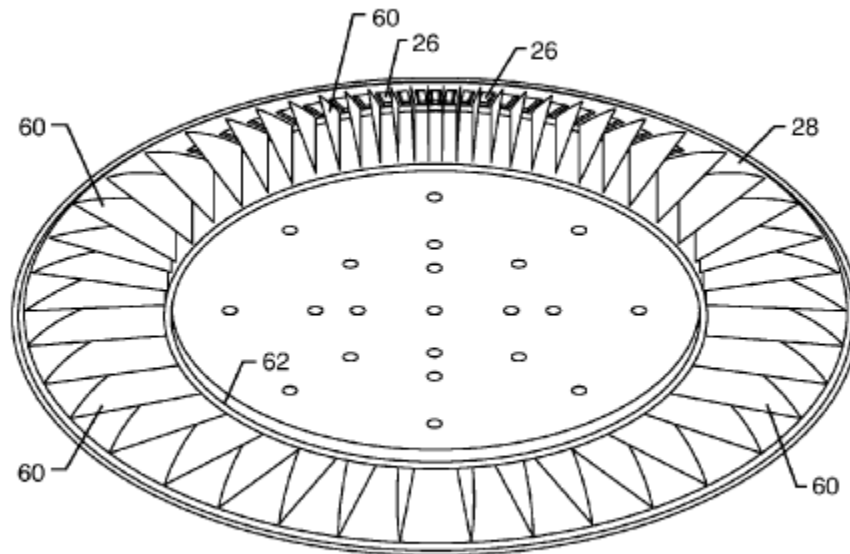


FIG. 4

Figure 4 depicts the industrial light's upper heat sink 28, with upper cooling fins 60 extending from inner vertical ring 62 of upper heat sink 28 to the exterior circumference of upper heat sink 28. *Id.* ¶ 33. Upper cooling fins 60 are positioned in this way to maximize surface area and the above-described features enhance the light's heat dissipation efficiency. *Id.* In addition, each upper cooling fin 60 is “preferably positioned intermediate to the vents 26 to ensure efficient air flow through the outer heat sink 12 and across the surface area of all the aforementioned cooling fans 24.” *Id.*

D. Alleged Anticipation by or Obviousness over Ter-Hovhannisyan

Petitioner contends that Ter-Hovhannisyan anticipates claim 20 and/or would have rendered claim 20 obvious. Pet. 43–47 (citing Pet. 12–35, 37–39). Petitioner relies on Dr. Bretschneider's testimony to support its arguments. *See id.* At this stage of the proceeding, Patent Owner argues

only that Petitioner fails to show sufficiently that Ter-Hovhannisyan discloses “the radial ring fin support forms an annulus extending from the rim and inwardly toward, but not touching, the outer circumference of the light package housing,” as claim 20 requires (the “annulus limitation”). Prelim. Resp. 3–10. We focus our discussion on the annulus limitation.

Petitioner asserts that Ter-Hovhannisyan discloses the annulus limitation because “[a] portion of [] upper heat sink 28 that defines the radial ring fin support . . . extends inwardly from the rim . . . and is spaced a radial distance from the outer circumference of the light package housing . . . by vents 26.” Pet. 45–46 (citing Ex. 1003 ¶ 210; Ex. 1005, Fig. 7). Petitioner further asserts that one of ordinary skill in the art would have understood that the asserted “radial ring fin support forms an annulus because it is a circular ring structure, like the embodiment of the ’816 patent.” *Id.* at 45 (citing Ex. 1003 ¶ 211).

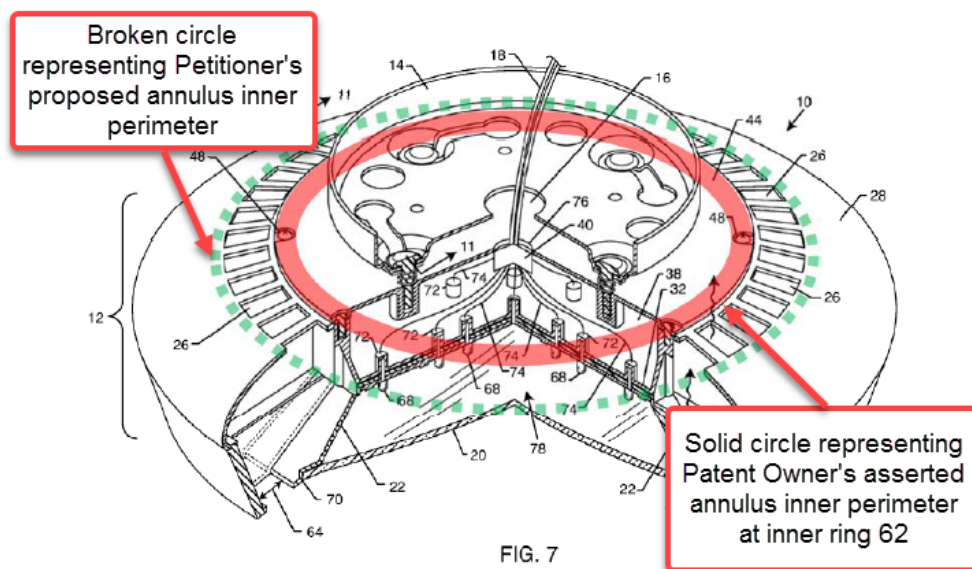
Patent Owner responds that Petitioner’s mapping “does not identify a radial ring support forming an annulus,” because one of ordinary skill in the art would not have recognized a portion of a component in the prior art as the claimed radial ring fin support. Prelim. Resp. 4–5; *see also* Pet. 45–46 (depicting Ter-Hovhannisyan’s Figure 7 annotated to show Petitioner’s mapping of an annulus formed by the radial ring fin support). Instead, Patent Owner asserts that one of ordinary skill in the art “viewing a structure providing utility would look to the entire, complete structural component [i.e., Ter-Hovhannisyan’s entire upper heat sink 28], not a portion of the component that is conveniently shaded to match a claimed shape.” Prelim. Resp. 5 (citing *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014–15 (Fed. Cir. 2006)). More specifically, Patent Owner asserts Petitioner’s asserted annulus inner perimeter: (1) “is arbitrarily

[identified] in the middle of upper heat sink 28, and (2) vents 26 form a row of perforations within the potential annulus, not an inner perimeter of the potential annulus.” *Id.* at 8–9.

Regarding the first point, Patent Owner further asserts that the annulus Ter-Hovhannisyan’s heat sink forms extends inwardly from its exterior perimeter all the way to the inside perimeter (i.e., an inner vertical ring). *Id.* at 7–8 (citing Ex. 1005, Figs. 4, 7). Patent Owner emphasizes Ter-Hovhannisyan’s Figure 4 description to support its understanding:

the upper heat sink 28 includes **an inner vertical ring 62 that, in part, forms the aforementioned chamber 38** between the conductive mount 32 and the generally arcuate outer surface of the upper heatsink 28. **The upper cooling fins 60 extend from this vertically extending inner ring 62 to the exterior circumference of the upper heat sink 28.**

Id. at 8 (citing Ex. 1005 ¶ 33). Thus, for any potential annulus formed by Ter-Hovhannisyan’s heat sink 28, Patent Owner contends “the inner perimeter [is] formed by vertical ring 62.” *Id.* Patent Owner illustrates this inner perimeter against Petitioner’s mapping with an annotated Figure 7 depicted below.



Prelim. Resp. 9. Patent Owner’s annotated Figure 7 includes a solid red circle indicating Patent Owner’s mapping of claim 20’s annulus to Ter-Hovhannisyan and a broken green circle indicating Petitioner’s mapping of claim 20’s annulus to Ter-Hovhannisyan.⁴ Patent Owner contends the annulus formed by Ter-Hovhannisyan’s heat sink 28 touches the outer circumference of the housing packaging and, thus, does not satisfy the annulus limitation because inner ring 62 of upper heat sink 28 is attached to the light package housing with screws 48. *Id.* at 9–10 (citing Ex. 1005 ¶ 36, Fig. 7).

Having considered the parties’ arguments and evidence, we determine at this stage of the proceeding that Petitioner sufficiently shows that Ter-Hovhannisyan discloses the annulus limitation and Patent Owner’s arguments to the contrary are not persuasive. First, we note claim 20 does not recite that the radial fin ring “is an annulus,” but rather, recites that the radial fin ring “forms an annulus.” Ex. 1001, 8:21–22. Thus, the term “forms” does not appear to limit the annulus to the entire structure of the radial ring fin support, i.e., the annulus can be a portion of the support. Nor does Patent Owner direct our attention to anything in the ’816 patent Specification that limits the term “forms” to an entire structure as Patent Owner’s argument implies. Instead, Patent Owner cites to *DePuy*, 469 F.3d at 1014–1015, for the proposition that “absent disclosure to exclude part of a structure, a referenced portion includes all parts of the structure.” Prelim. Resp. 5. In *DePuy*, the Federal Circuit was construing the phrase a screw “head *is* pressed against the hollow spherically-shaped portion.” 469 F.3d at

⁴ We add descriptions to Patent Owner’s annotated Figure 7 to explain what the solid red line and dotted read line refer to in Patent Owner’s annotation.

1014 (emphasis altered). Thus, *DePuy* is distinguishable because claim 20’s “forms an annulus” language is broader than the language in the claim at issue in *DePuy*.

Second, claim 20 recites “an annulus.” “As a general rule, the words ‘a’ or ‘an’ in a patent claim carry the meaning of ‘one or more.’” *01 Communique Lab., Inc. v. LogMeIn, Inc.*, 687 F.3d 1292, 1297 (Fed. Cir. 2012); *see also Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342–43 (Fed. Cir. 2008) (“That ‘a’ or ‘an’ can mean ‘one or more’ is best described as a rule, rather than merely as a presumption or even a convention.”). Based on this general rule, claim 20 is broad enough to encompass more than one annulus formed by the radial ring fin support, and we determine that an annulus can be a portion of the support structure. Further, claim 20 is a comprising claim, meaning it encompasses devices having additional components other than those recited in the claim, including a second annulus. We turn now to whether Ter-Hovhannisyan discloses the annulus limitation.

As Patent Owner’s annotated version of Ter-Hovhannisyan’s Figure 7 indicates, Ter-Hovhannisyan discloses a radial ring support that forms two annuli: (1) an annulus that extends inwardly from the exterior circumference of heat sink 28 toward the light package housing, and is separated from the light package housing by the rectangular structures between each vent in the intermediate ring of vents 26 (the broken green circle in Patent Owner’s annotated Figure 7), and (2) an annulus that extends inwardly from outer circumference of heat sink 28 all the way to inner vertical ring 62 (the red solid circle in Patent Owner’s annotated Figure 7). *See* Prelim. Resp. 9; Ex. 1005, Fig. 7. The first annulus noted above is “an annulus extending from the rim and inwardly toward, but not touching the outer circumference

of the light package housing,” as claim 20 recites. It is also the annulus that Petitioner maps to claim 20. *See* Pet. 45–46 (and evidence cited therein). Accordingly, we determine Petitioner sufficiently shows at this stage of the proceeding that Ter-Hovhannisyan discloses the annulus limitation. We invite the parties to further brief this issue (including our claim interpretation) during trial if they so desire.

Having determined that Petitioner sufficiently shows that Ter-Hovhannisyan discloses the annulus limitation, we consider claim 20’s remaining limitations. Petitioner asserts that Ter-Hovhannisyan discloses or would have rendered obvious claim 20’s remaining limitations. Pet. 43–44, 46 (citing Pet. 12, 20–28, 40–42 (Petitioner’s analysis for similar claim limitations recited in claim 1)). At this stage of the proceeding, Patent Owner does not separately address these limitations. We have reviewed Petitioner’s arguments (in the context of claim 20) and Dr. Bretschneider’s testimony and find that Petitioner shows sufficiently that Ter-Hovhannisyan anticipates or would have rendered obvious claim 20. Thus, Petitioner demonstrates a reasonable likelihood of prevailing in its challenge.

IV. CONCLUSION

For the foregoing reasons, Petitioner demonstrates a reasonable likelihood that claim 20 of the ’816 patent is unpatentable. Accordingly, we institute an *inter partes* review.

V. ORDER

It is hereby

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claim 20 of the ’816 patent is instituted commencing on the entry date of this Decision; and

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FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial.

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