

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WANGS ALLIANCE CORPORATION D/B/A WAC LIGHTING CO.,
Petitioner,

v.

KONINKLIJKE PHILIPS N.V.,
Patent Owner.

Case IPR2015-01291
Patent 6,561,690 B2

Before GLENN J. PERRY, TREVOR M. JEFFERSON, and
MIRIAM L. QUINN, *Administrative Patent Judges*.

PERRY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

This is a Final Written Decision entered in an *inter partes* review instituted pursuant to 35 U.S.C. § 314. For reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 of U.S. Patent No. 6,561,690 B2 (Ex. 1001, “the ’690 patent”) is unpatentable.

A. Procedural History

Wangs Alliance Corporation d/b/a Wac Lighting Co. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) to institute an *inter partes* review of claims 1, 5, and 6 (the “challenged claims”) of the ’690 patent. 35 U.S.C. § 311. Koninklijke Philips N.V. (“Patent Owner”) timely filed a Preliminary Response (Paper 6, “Prelim. Resp.”) contending that the petition should be denied as to all challenged claims.

On November 25, we instituted *inter partes* review of claim 1. Paper 8, “Decision on Institution” or “Dec.”). Patent Owner filed a Patent Owner Response (Paper 17, “PO Resp.”), and Petitioner filed a Reply (Paper 24, “Reply”). Patent Owner filed a Motion to Exclude Evidence (Paper 38, “PO Mot. Exclude”). Petitioner opposed (Paper 46, “Opp. PO Mot. Exclude”). Petitioner filed a Motion to Exclude Evidence (Paper 40, “Pet. Mot. Exclude”). Patent Owner opposed (Paper 45, “Opp. Pet. Mot. Exclude”). A transcript of oral argument held on August 23, 2016 is included in the record (Paper 55, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This final written decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

B. Related Matters

Petitioner and Patent Owner report the following pending litigation matter related to the '690 Patent: *Koninklijke Philips N.V. et al. v. Wangs Alliance Corporation*, Case No. 14-cv-12298-DJC (D. Mass.). Pet. 1; Paper 5, 2. Patent Owner also identifies *Koninklijke Philips N.V. v. Troy-CSL Lighting, Inc.*, Case No. 1:15-cv-11053-WGY (D. Mass.), which has settled. Paper 22, 2.

Petitioner reports that Patent Owner is suing the Petitioner and/or other parties under one or more of U.S. Patent Nos. 6,013,988; 6,147,458; 6,586,890; 6,250,774; 6,788,011; 7,038,399; 7,352,138; 6,094,014; and 7,262,559, all of which generally relate to light emitting diodes ("LEDs"). Petitioner further reports that on the same week as the filing of this petition, the Petitioner is also filing additional petitions for *inter partes* review for six other patents asserted by the Patent Owner against the Petitioner: U.S. Patent Nos. 6,013,988; 6,147,458; 6,586,890; 6,250,774; 7,038,399; and 7,352,138. Pet. 1.

C. The '690 Patent (Ex. 1001)

1. Described Invention

The '690 patent describes a light-emitting diode (LED) luminaire that is structured to be rugged to transport. Ex. 1001, 1:25–41. Patent Owner provides (PO Resp. 3) the following annotated version of Figure 1 of the '690 patent which is a cross-sectional view of an example of a luminaire.

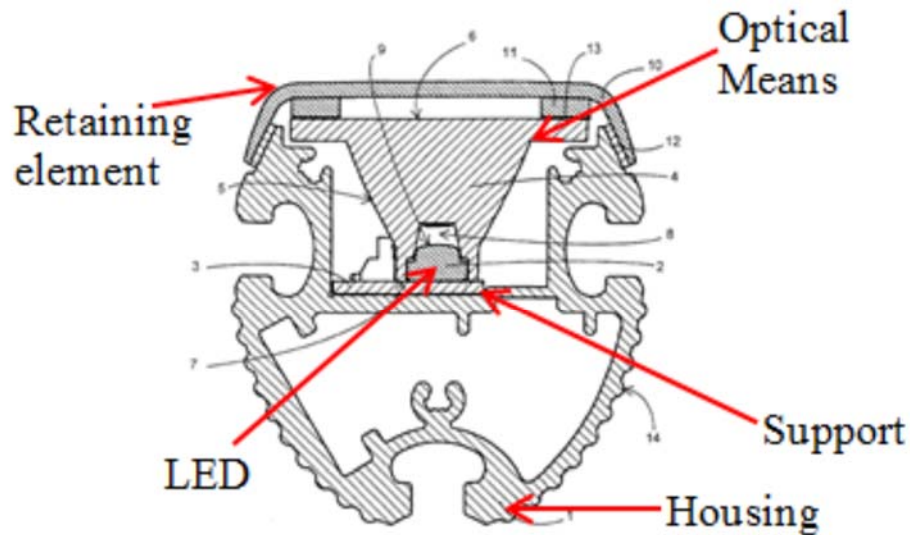


FIG. 1

Figure 1 is a cross-sectional view of an example of a luminaire.

A housing defines an internal space containing at least one LED. In use, an “optical means for guiding” guides light from the LED to the exterior of the housing. The LED is mounted to a support connected to the housing; and is held between a retaining element (claimed “elastic retention means”), connected to the housing, and the support. Ex. 1001, 1:48–51, Figure 1. The retaining element applies pressure to hold the optical means against the support. Ex. 1001, 2:5–14.

2. Claim at Issue

Claim 1 of the '690 patent is the only claim at issue and is reproduced below with parenthetical letter annotations identifying its various limitations for ease of reference:

1. (a) A luminaire comprising
(b) a housing which defines an internal space containing
(c) at least one light source formed by a light-emitting diode (LED) and (d) optical means for

- guiding the light emitted by the LED towards outside of the housing,
- (e) characterized in that the LED is mounted to a support connected to the housing, and
- (f) the optical means is held between a retaining element connected to the housing and the support for the LED by pressure exerted by the retaining element and the support for the LED,
- (g) wherein the optical means has first and second ends, the first end being proximate the support connected to the housing and the second end being proximate the retaining element.

D. Ground of Unpatentability

We instituted trial regarding patentability of claim 1 of the '690 patent based on anticipation by Sharrah.¹ Petitioner relies on declaration testimony of Eric Bretschneider, Ph.D. Ex. 1007.

II. DISCUSSION

A. Claim Interpretation

The Board interprets claims using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard as the claim interpretation standard to be applied in *inter partes* reviews). Under this standard, we interpret claim

¹ U.S. Patent 5,871,272, issued February 16, 1999 (Ex. 1004, “Sharrah”).

terms using “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

We presume that claim terms have their ordinary and customary meaning. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 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.”); *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning is the meaning that the term would have to a person of ordinary skill in the art in question.” (internal quotation marks omitted)). A patentee, however, may rebut this presumption by acting as his or her own lexicographer, providing a definition of the term in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. “*optical means for guiding the light emitted by the LED towards outside [of] the housing.*”

a. Preliminary Construction

In the preliminary stage, the parties agreed that “optical means for guiding the light emitted by the LED towards outside [of] the housing,” should be construed as a means-plus-function clause (Pet. 4–5, Prelim. Resp. 11–15), and we did so. Dec. 7. The parties also agree that the Specification-described structure associated with the function performed by this claim term is collimator 4 shown in Figure 1, reproduced with Patent Owner

annotations from page 10 of Patent Owner's Response.

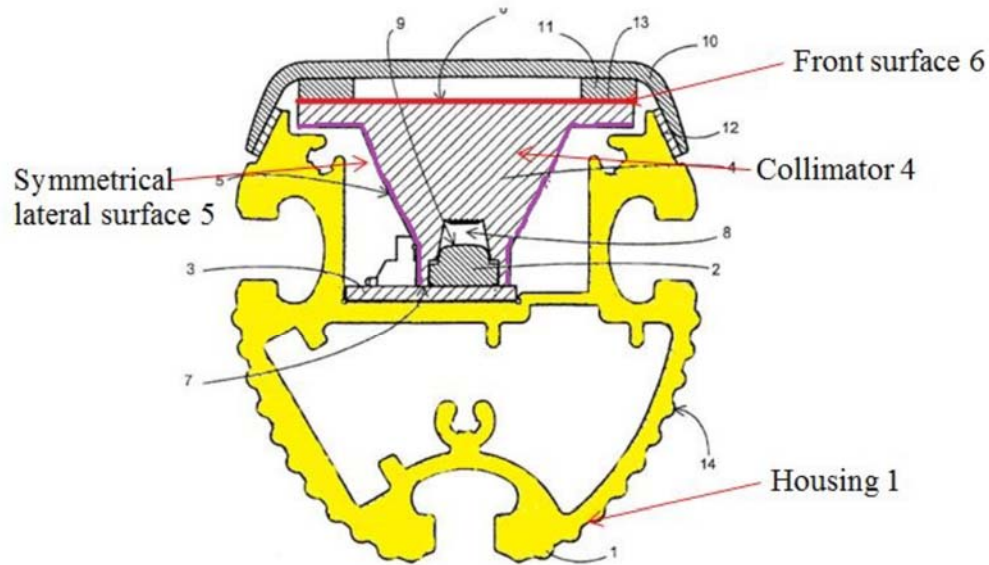


FIG. 1

Patent Owner annotated Figure 1 of the '690 patent.

Petitioner requested that we construe the “optical means...” as “a collimator,” not requiring any particular shape. Pet. 4. Patent Owner contended that our construction should be “a collimator having a symmetrical lateral surface.” Prelim. Resp. 4, 12.

For purposes of our Decision on Institution, we did not construe “optical means...” as narrowly as Patent Owner suggested and adopted the construction “a collimator” as our broadest reasonable construction. Dec. 7.

b. Patent Owner's Contentions

Patent Owner continues to argue, in its Response, for a more narrow construction requiring the collimator to have a symmetrical lateral surface. In support of its argument, Patent Owner notes the following description of collimator 4 in the Specification:

The optical means here comprise a collimator 4 formed by a solid mass of a material which transmits light and is temperature-resistant, for example polymethylmethacrylate (PMMA). The optical means are formed by a “full-body” collimator 4 here, but they may alternatively be formed by, for example, a conical concave reflector. The collimator 4 has a *symmetrical lateral surface* 5 based on a parabolic or conical body of revolution, a planar front surface 6 here, and a base surface 7 geometrically opposed to the front surface 6. The base 7 is planar here, but this characteristic does not exclude other geometries. The lateral surface 5 of the collimator 4 causes the light emitted by the LED 2 to be concentrated into a beam. The beam obtained here is a directional light beam consisting of parallel rays. This light beam leaves the collimator 4 by the front surface 6 and the direction of said beam is perpendicular to the plane defined by this front surface 6. The emission characteristic of the system comprising the LED 2 and the collimator 4 thus has a maximum emission direction which in this example is perpendicular to the plane defined by the front surface 6 of the collimator 4.

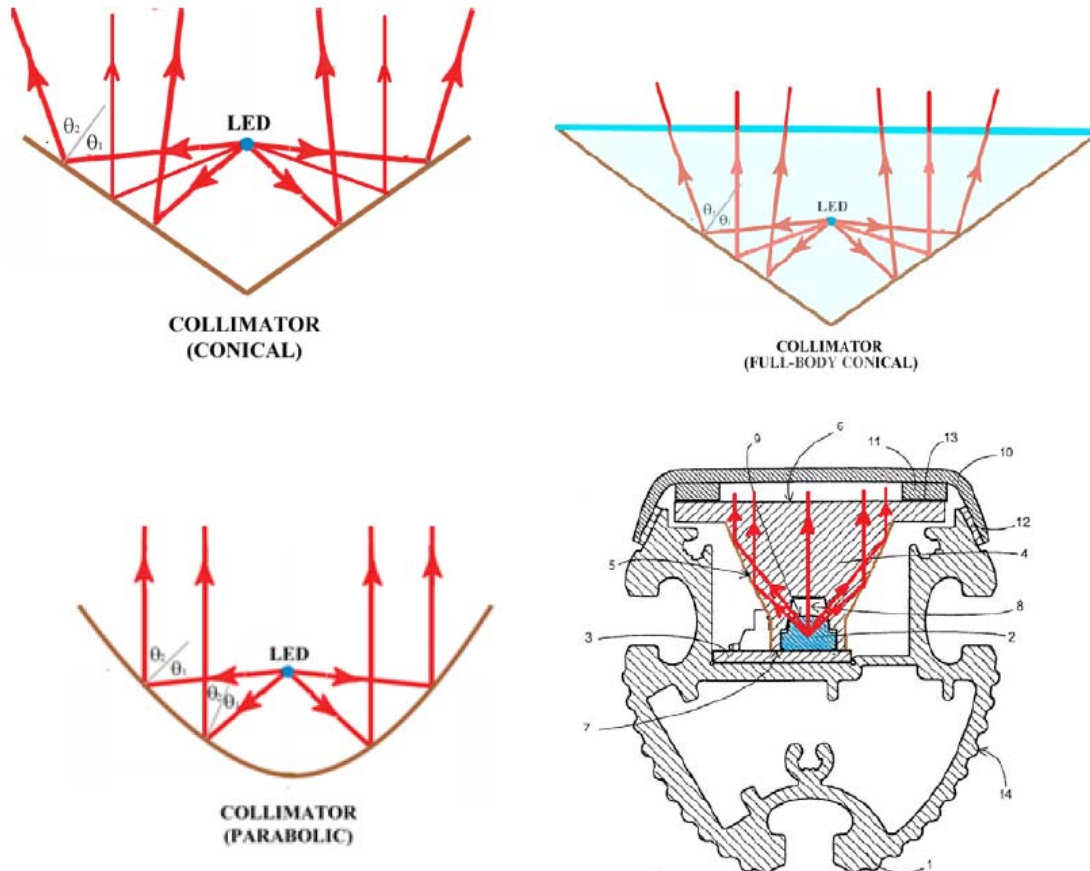
Ex. 1001, 3:24–44 (emphasis added).

According to Patent Owner, the specification expressly links the symmetrical lateral surface of the collimator to the recited function, and, therefore, the symmetrical lateral surface should be required by our construction, relying upon *Epcon Gas Sys., Inc. v. Bauer Compressors, Inc.*, 279 F.3d 1022, 1033 (Fed. Cir. 2002) for the proposition that the corresponding structure of a means-plus-function term must include “at least that structure necessary to perform each of the functions recited.” Patent Owner also relies upon *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997) stating that “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history

clearly links or associates that structure to the function recited in the claim.”

Patent Owner argues that the language of the ’690 patent used to describe other aspects of the collimator confirms that, while several of its features are optional, it must have a symmetrical lateral surface. PO Resp. 9–11. In particular, the paragraph describing the collimator repeatedly uses permissive language when a feature is optional. PO Resp. 11 (citing Ex. 1001, 3:24–44 (noting material of collimator is “for example polymethylmethacrylate”; optical means has “a ‘full-body’ collimator 4 here, but . . . may alternatively be . . . for example, a conical concave reflector”; “The base 7 is planar here, but this characteristic does not exclude other geometries”)). But it does not use permissive language when describing the symmetrical lateral surface; instead, it states unambiguously that “the collimator 4 has a symmetrical lateral surface,” and then goes on to link this structural feature to the recited function. *Id.* at 3:24–40.

Patent Owner argues that each of the differently shaped collimators disclosed in the ’690 patent includes a symmetrical lateral surface. PO Resp. 11 (citing Ex. 2007 ¶¶ 40–41). The ’690 patent lists the following shapes for collimators: “full-body” collimator” (Ex. 1001 at 3:27–28), a “conical concave reflector” (*id.* at 3:29), a “planar front surface” (*id.* at 3:31), and “other geometries” (*id.* at 3:34). Patent Owner created drawings (not in the patent itself) to depict its interpretation of the Specification-listed collimator geometries, reproduced below from page 12 of Patent Owner’s Response. In the Patent Owner-fashioned drawings, the symmetrical lateral surfaces are shown in brown, the LEDs are shown in blue, and exemplary light rays are shown in red.



The above diagrams, drawn by Patent Owner, show light ray diagrams corresponding to Specification listed collimators.

PO Resp. 12 (citing Ex. 2007 ¶¶ 31–33). According to Patent Owner, all of the differently shaped collimators listed in the '690 patent rely on symmetrical lateral surfaces to guide the light emitted by the LED towards outside of the housing. PO Resp. 12 (citing Ex. 1001, 3:29–40; Ex. 2007 ¶ 41).

Patent Owner argues that absent a symmetrical lateral surface, these collimators would not effectively guide the light towards outside of the housing, a primary purpose of the invention of the '690 patent. PO Resp. 12 (citing Ex. 1001 at 3:40–44 (“The emission characteristic of the system

comprising the LED 2 and the collimator 4 thus has a maximum emission direction which in this example is perpendicular to the plane defined by the front surface 6 of the collimator 4.”); Ex. 2007 ¶ 30). Patent Owner concludes that in the face of the express teachings of the ’690 patent, the specific corresponding structure disclosed by the ’690 patent is a collimator with a symmetrical lateral surface, rather than a generic collimator. PO Resp. 13. Patent Owner refers us to *Mettler-Toledo, Inc. v. B-Tek Scales, LLC*, 671 F.3d 1291, 1296 (Fed. Cir. 2012) (specialized A/D converter was corresponding structure where disclosure of a “generic A/D converter” was “not linked to any claimed function as required by [Federal Circuit] precedent”); *Bennett Marine, Inc. v. Lenco Marine, Inc.*, 549 F. App’x 947, 954 (Fed. Cir. 2013) (corresponding structure was the specific circuit of a particular figure rather than the “generic circuit shown in [F]igure 1” because only the specific circuit could “perform part of the function required by the [means] limitation”); *accord Northrop Grumman Corp. v. Intel Corp.*, 325 F.3d 1346, 1354 (Fed. Cir. 2003) (finding “the district court defined the structure corresponding to the recited function too broadly” where the specification linked only a particular element of a larger component to the recited function).

c. Petitioner’s Contentions

Petitioner argues that Patent Owner’s attempt to narrow the construction of “optical means for guiding the light emitted by the LED towards outside of the housing” is an inappropriate attempt to limit its construction to cover only a subset of the optical means described in the ’690 patent. Pet. Reply 1 (citing PO Resp. 8–9).

d. Our Construction

This claim construction dispute is significant to the outcome of this case. The dispute centers on whether the Specification-corresponding structure requires that our claim construction require a “symmetrical lateral surface,” not on whether the particular shape of the collimator is disclosed by the ’690 patent.

The Specification paragraph, above, pointed to by Patent Owner is the one that mentions a “symmetrical” lateral surface. All other mentions of the collimator refer to a “lateral surface” without the use of the adjective “symmetrical.”

Independent claim 13 (not at issue) is the only other claim that is at all illuminating with respect to the structure of the collimator. Claim 13 requires “optical means comprising a *light conductor* having a cavity near said first end for accommodating the LED.” (emphasis added).

The Specification does not describe any advantages of one structural form of collimator over another. Collimator 4, drawn in Figure 1, is conical. Collimator 23, drawn in Figure 2, has a rectangular shape at its output. The Specification mentions a few alternative collimator geometries, as Patent Owner has illustrated above, without requiring a specific symmetry. Ex. 1001, 3:24–35. Although Patent Owner has fashioned diagrams that demonstrate that various alternative embodiments can be configured to have a “symmetrical” lateral surface, we see no reason to incorporate this requirement into the claim itself. The “collimator” is the optical means that carries the function of collimating light (“the lateral surface 5 of the collimator 4 causes the light emitted by the LED 2 to be concentrated into a

beam”). Ex. 1001, 3:27–28 (“optical means are formed by a ‘full-body’ collimator 4); 3:34–36. Neither the claims nor the specification informs us that the recited function of “guiding the light . . . toward outside of the housing” can only be accomplished with symmetrical lateral surfaces. The only evidence of record on this issue is that the only illustrated embodiment of a collimator has a symmetrical lateral surface. There is no other evidence on point.

We conclude that the broadest reasonable construction of the “optical means . . .” clause is “a collimator” which is consistent with the Specification. A “collimator” carries out the function required by the “optical means,” namely to guide light from the LED out of the luminaire. We find that it would be unreasonable to limit the construction of “optical means” to having “symmetrical” lateral surfaces when the function of guiding light is ascribed to collimators, regardless of the degree of symmetry of their lateral surfaces.

2. “Retaining Element”

We did not preliminarily construe “retaining element” in our Decision To Institute. The parties agree that a “retaining element” is “a structure that fixes the position of another element.” Pet. 5, Pet. Reply 3, PO Resp. 15. However, the parties disagree with respect to what “fixes the position of another element” means.

a. Patent Owner Contentions

Patent Owner contends that focusing ring 290 in Sharrah cannot be a retaining element because it can be manipulated to cause movement of the

reflector relative to the LED. PO Resp. 15–16.

According to Patent Owner, the '690 patent makes clear that the retaining element keeps the position of the optical means *fixed* relative to the LED. Ex. 1001, 1:48–51 (“The mounting thus realized involves a placement of the optical means on the support of the LED and the use of the retaining element connected to the housing for keeping it fixed.”); PO Resp. 15 (citing Ex. 2007 ¶¶ 44–47, 49).

According to Patent Owner, the fixed position provided by the retaining element permits the optical means to “occupy an accurate and constant position with respect to the emission characteristic of the LED.” PO Resp. 15 (citing Ex. 1001 at 1:16–20 and 1:66–2:4 (“The shapes of the optical means and those of the support of the LED are advantageously adapted such that, under pressure, the contact between the optical means and the support of the LED will serve to guarantee a precise and constant position which causes the assembly to provide an optimum performance.”), 4:1–4 (“The placement of the collimator 4 on the support 3 of the LED 2 renders it possible to ensure an initial positioning which will be maintained by the retaining element connected to the housing 1.”)).

Patent Owner argues that its position accords with a plain meaning of “retaining.” PO Resp. 16 (citing Ex. 2009 at 1054 (defining “retain” as “[t]o keep or hold in a particular place, condition, or position”); Ex. 2010 at 996 (defining “retain” as “to hold secure or intact”); Ex. 2007 ¶ 48).

Further, according to Patent Owner, the agreed definition accords with the understanding of one of ordinary skill. PO Resp. 16 (citing Ex. 2007 ¶ 44–45 (expressing the opinion that “retaining element” is a structure that

fixes the position of another element); *Straight Path IP Grp., Inc. v. Sipnet EU S.R.O.*, 806 F.3d 1356, 1361 (Fed. Cir. 2015) (“[T]he court’s focus remains on understanding how a person of ordinary skill in the art would understand the claim terms.” (citing *Phillips*, 415 F.3d at 1323, 1324)); *Universal Remote Control, Inc. v. Universal Elecs., Inc.*, IPR2014-01146, Paper 36 at 8 (PTAB Dec. 10, 2015) (evaluating specification for understanding of claim term and noting that “terms generally are given their ordinary and customary meaning, as understood by a person of ordinary skill in the art, in the context of the entire patent disclosure”)).

b. Petitioner Contentions

Petitioner argues that Patent Owner has not pointed to any disclosure in the ’690 patent that would limit the definition of a retaining element to a structure that can never be manipulated to adjust the relative position of the optical means. Pet. Reply 4. Rather, according to Petitioner, as multiple disclosures in the ’690 patent explain, the retaining element fixes the position of the optical means to prevent “rotary movements” and “play” (e.g., Ex. 1001 4:39–59). Thus, Petitioner argues, Patent Owner’s improper definition of “retaining element,” which attempts to prohibit a user’s ability to cause any manipulation or adjustment of the optical means, is contrary to the disclosure of the ’690 patent and should not be adopted.

c. Our Construction

We agree with both parties that a “retaining element” is “a structure that fixes the position of another element.” We are not persuaded by Patent Owner’s argument that our construction should incorporate language that prevents *all* manipulation of the retaining element. First, the claim language

addresses the position of the retaining element in connection with the housing, optical means, and LED support and addresses the manner in which the retaining element functions, i.e., by exerting pressure. Neither the plain meaning of “retaining” nor the surrounding language in the claim suggests that the recited retention avoids all or some adjustment of the optical means. Second, we agree with Petitioner that the Specification describes the role of the retaining element to prevent rotation of the collimator during operation. However, none of the cited passages from the Specification inform us that the retention is permanent or of any particular duration. In our view, just because a retaining element can allow manipulation of an optical means from one retaining position to another, does not mean that it is not retaining, especially in between such manipulations.

We need look no further than the focus ring of a manual focus camera for an apt analogy. When a photographer focuses a multiple-lens lens system on an object to be photographed, the lenses are retained in certain relative positions with respect to one another until the photograph is taken. When the photographer prepares to take a photograph that requires a different focal length, the camera’s focus ring is manipulated such that the lenses change relative position to bring the photographic object into focus. The lenses are held in place at their new alignment until the photograph is taken. The fact that the lenses can be manipulated to a new focal length does not prevent them from being retained at fixed relative positions at a different focal length when they are not being manipulated. The lenses are manipulated from one fixed relative position to another fixed relative position. They remain in a fixed relative position until they are further

manipulated to a new fixed relative position.

The same is true in Sharrah. The focus ring may permit the spring to expand or cause it to compress to a new position. Once that position is chosen, reflector 300 is retained at a fixed position relative to the LED. The Sharrah focus ring is not prevented from acting as a “retaining element” by virtue of it being able to be manipulated from one fixed position to another. We therefore conclude that the “retaining element” limitation can be met by structures that can be manipulated from one retaining position to another.

B. Prior Art Challenge Based on Sharrah

Petitioner contends that claim 1 is anticipated by Sharrah under 35 U.S.C. § 102, relying on the supporting testimony of Dr. Bretschneider (Ex. 1007). Pet. 20–27.

1. Overview of Sharrah

Sharrah describes a flashlight having a rotatable lamp head. Ex. 1004, Abstract. Sharrah Figure 1 is reproduced below, with Patent Owner’s annotation (PO Resp. 20) demonstrating focusing ring 290.

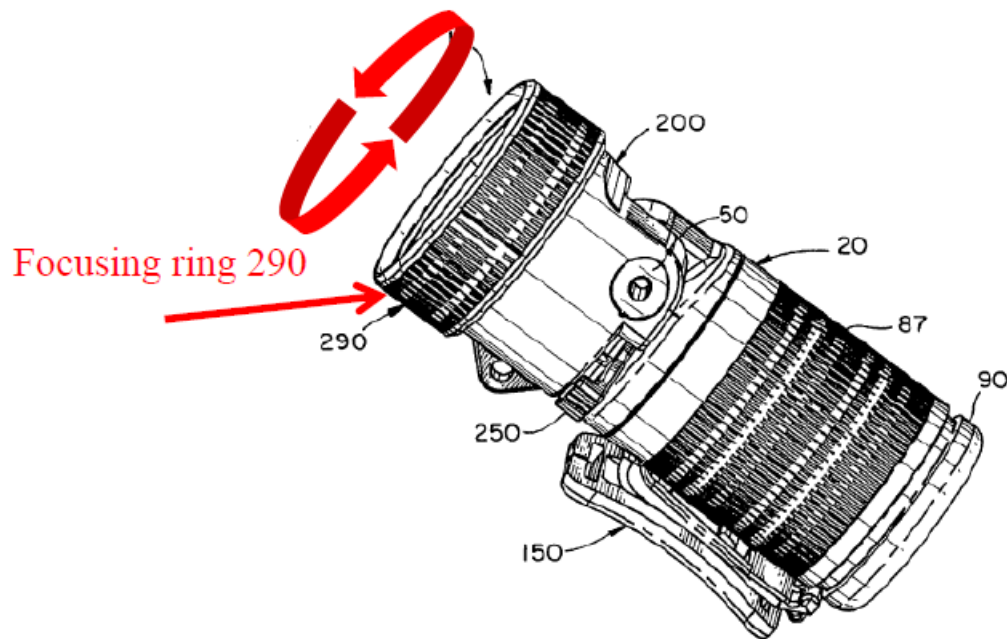
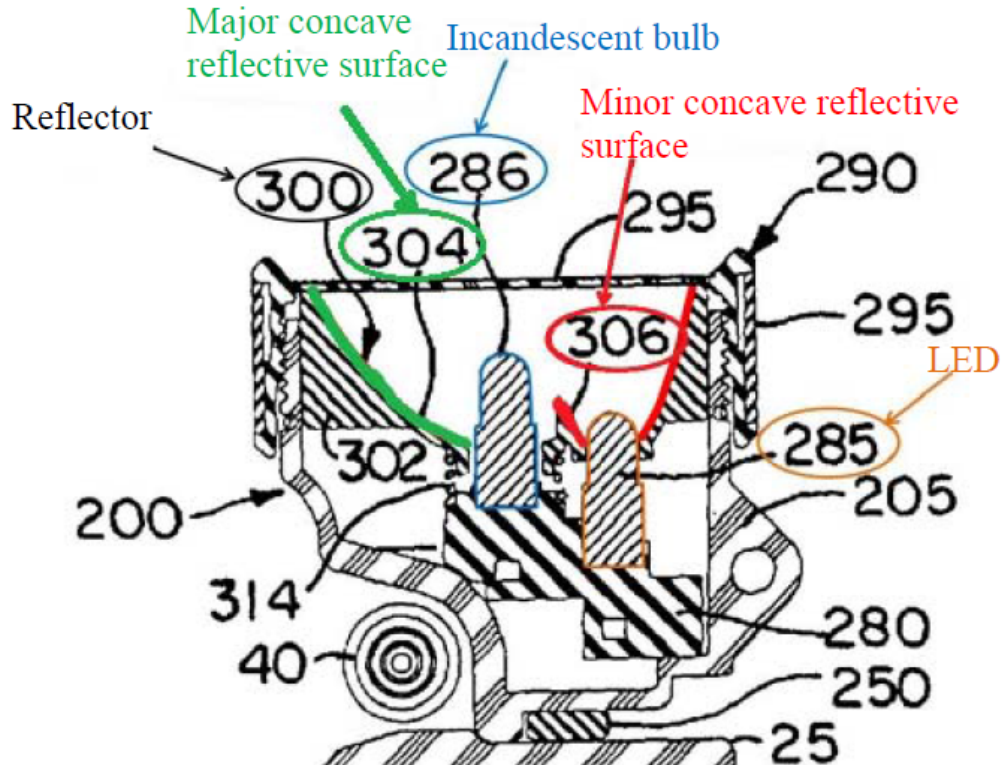


FIG. 1

Figure 1 is a perspective view showing the external structures of the flashlight. Focusing ring 290 engages with threading on the end of the lamp head housing. It allows a user to adjust the position of reflector 300 relative to incandescent bulb 286 and LED 285. Ex. 1004, 3:6–17. Sharrah explains that “[a] coil spring 314 [(see Figure 11, below)] disposed between the lamp socket 280 and reflector 300 in coaxial relationship with the incandescent lamp element 286 biases the reflector away from the lamp socket so that the reflector is urged into contact with the focusing ring 290.” *Id.* at 3:9–13. To function properly, the Sharrah device requires reflector 300 to be movable—“rotation of the focusing ring 290 displaces the reflector 300 relative to the lamp elements 285, 286.” *Id.* at 3:13–15. The base of reflector 300 rests against spring 314. As focusing ring 290 is adjusted, reflector 300 moves closer or further from socket 280, displacing reflector 300 relative to lamps

285 and 286.

Patent Owner provides (PO Resp. 18) the following annotated version of the upper portion of Sharrah Figure 11.



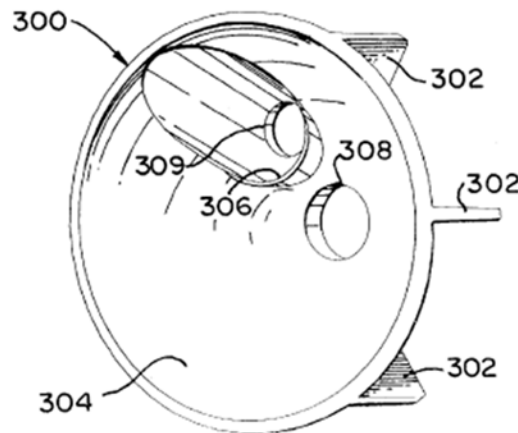


FIG. 13

Figure 13 is a perspective view of the flashlight portion shown in Figure 11.

Sharrah’s flashlight includes focusing ring 290, which changes the focusing of the light emitted by incandescent bulb 286 and LED 285. *Id.* at 3:6–17. Focusing ring 290 engages with threading “on the end of the lamp head housing” and rotates to adjust the position of reflector 300 relative to incandescent bulb 286 and LED 285. *Id.*; see also Ex. 2007, ¶ 54. Focusing ring 290 can be seen in Sharrah’s Figure 1, above.

2. Petitioner Contentions

Petitioner provides a detailed account of its contention that Sharrah anticipates claim 1, at Petition pages 20–27. Petitioner’s argument is supported by declaration testimony of Eric Bretschneider, Ph.D. (Ex. 1007, Ex. 1014).

a. *Element (a)*

According to Petitioner, Sharrah discloses a luminaire. Pet. 20. Petitioner cites a Websters Unabridged Dictionary definition and argues that a luminaire, by its plain and ordinary meaning, is “a lighting unit consisting

of one or more electric lamps with all of the necessary parts and wiring.” *Id.* (citing Ex. 1009; Ex. 1007 ¶ 72). According to Petitioner, this limitation is met by Sharrah’s LED-containing flashlight. *Id.* (citing Ex. 1004, 1:5–9, Figure 1); Ex. 1007 ¶ 72).

b. Element (b)

According to Petitioner, the Sharrah flashlight includes a lamp housing (or “lamp head”). Pet. 21 (citing Ex. 1004, 2:50–52, 5:40–45; Ex. 1007 ¶ 73). Housing 205 (Figures 2, 11, and 12) defines an internal space (Figure 11 space enclosing at least components 280, 285, 286, and 306):

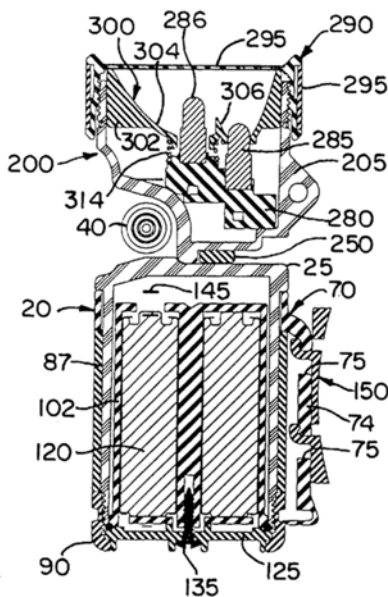


FIG. 11

Sharrah Figure 11.

Pet. 21–22.

c. Element (c)

Petitioner argues that Sharrah discloses that a lamp socket is mounted “within the lamp head housing for receiving two lamp elements.” Pet. 22 (citing Ex. 1004, 2:50–51; Ex. 1007 ¶ 74). Sharrah states that “preferably ... lamp element 285 is a light-emitting diode (LED).” *Id.* (citing Ex. 1004, 2:53–54; Ex. 1007 ¶ 74).

Petitioner argues that the claimed “optical means” is met by Sharrah’s “conical concave reflector.” Pet. 22 (citing Ex. 1001, 3:24–29; Ex. 1007 ¶ 75). Petitioner notes that the Sharrah LED is inserted through an opening in the first reflector, and an incandescent light is inserted through an opening in the second reflector. *Id.* (citing Ex. 1004, 3:1–5; Ex. 1007 ¶ 75). The reflector is described as incorporating a smaller reflective surface 306 nested within a larger reflective surface 304. *Id.* (citing Ex. 1004, 7:11–13; Ex. 1007 ¶ 75). The larger reflective surface 304 provides a reflective surface for the central lamp element 286 and the smaller reflective surface 306 provides a reflective surface for LED 285. Pet. 23 (citing Ex. 1004, 7:13–16; Ex. 1007 ¶ 75). Sharrah explains that this configuration prevents the minor reflective surface 306 from interfering with the reflection of the light from lamp element 286 (the incandescent light) off of major reflective surface 304. *Id.* (citing Ex. 1004, 7:17–20; Ex. 1007 ¶ 75). Reflectors are able to control the direction of both light sources, directing them out of the flashlight without interfering with one another. *Id.* (citing Ex. 1007 ¶ 75).

d. Element (d)

Petitioner argues that Sharrah discloses that the LED is “mounted in the lamp socket.” Pet. 23 (citing Ex. 1004, 6:34–35; Ex. 1007 ¶ 76). The

lamp socket, in turn, is mounted onto a mounting post connected with the lamp housing. *Id.* (citing Ex. 1007 ¶ 76). Petitioner quotes the following:

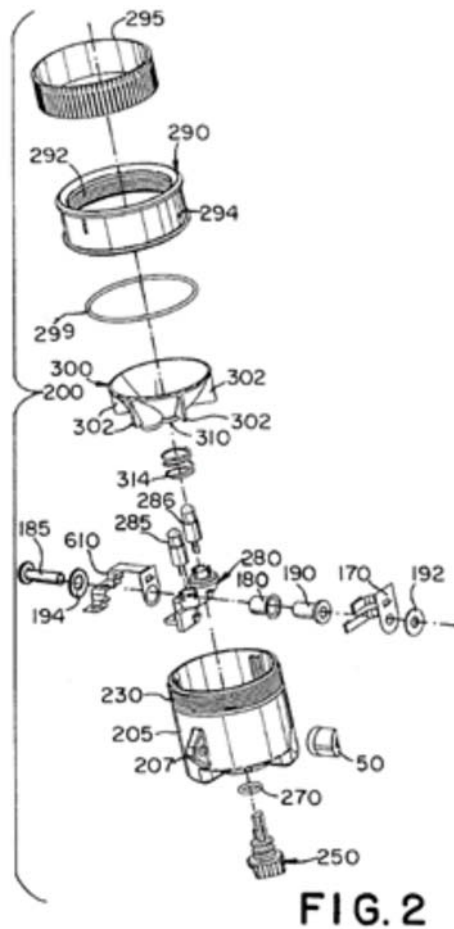
The Lamp Housing

Referring now to FIGS. 2, 8 and 9, the details of the lamp head 200 are seen more clearly. The lamp head includes a housing 205 that is pivotally connected to the mounting stem 30 of the flashlight body 20. The housing 205 includes a pair of mounting posts 210 onto which the lamp socket 280 and the lamp contact 160 are mounted. The posts 210 project through holes formed in the lamp socket and the lamp contact respectively. The posts are flared by applying heat and pressure to the ends thereof to retain the lamp socket 280 and the lamp contact 160 in place. The lamp housing 205 further includes an aperture 242 through which the switch 250 projects. Arcuately [sic] spaced pairs of parallel ribs 235 are disposed around the inner circumference of lamp housing 205 to serve as guides for mounting the reflector 300 and positioning relative to the lamp elements 285 and 286.

Pet. 24 (citing Ex. 1004, 5:40–56; Ex. 1007 ¶ 76). Thus, according to Petitioner, the LED disclosed in Sharrah is mounted to a support—the lamp socket—which is connected to the housing. *Id.* (citing Ex. 1007 ¶ 77).

e. Element (e)

Petitioner argues that Sharrah discloses that the reflector is held between a focusing ring and the LED socket within the lamp housing. Figure 2 illustrates the relative positioning of the parts described in the passage above, where 290 denotes the focusing ring, number 300 denotes the reflector, number 280 denotes the lamp socket, and number 230 denotes the lamp housing. Pet. 24 (citing Ex. 1007 ¶ 78).



Sharrah Figure 2.

Pet. 24–25.

Petitioner notes that Sharrah states that a coil spring is placed between the lamp socket – which is the support onto which the LED is mounted – and the reflector “so that the reflector is urged into contact with the focusing ring.” Pet. 25 (citing Ex. 1004, 3:12–13; Ex. 1007 ¶ 79). Sharrah also describes the focusing ring as being connected to the housing by threading: “A focusing ring 290 having internal threads 292 that engage with external

threads 230 on the end of the lamp housing 205 retains the reflector 300 within the housing.” Pet. 25 (citing Ex. 1004, 3:6–9; Ex. 1007 ¶ 80).

Thus, Petitioner argues, because Sharrah discloses that the reflector is held in place between the focusing ring, which keeps the reflector in place, and the lamp socket, which acts as the LED support, and because the focusing ring is connected to the housing, Sharrah discloses the limitation of “the optical means are held between a retaining element connected to the housing and the support for the LED.” Pet. 25–26 (citing Ex. 1007 ¶ 81).

f. Element (f)

Petitioner point to the Sharrah disclosure that the reflector is “urged into contact with the focusing ring” with the aid of a coil spring placed between the lamp socket and the reflector. Pet. 26 (citing Ex. 1004, 3:12–13; Ex. 1007 ¶ 82). Petitioner urges that it is clear from the Sharrah disclosure that the reflector is held in place by pressure exerted by the focusing ring and the lamp socket via the coil spring, and the use of coil springs to exert pressure was well known in the art prior to August 2000. *Id.*

Petitioner points out that the use of springs is identified by the ’690 patent as one of the possible methods to exert pressure according to the alleged invention. *Id.* (citing Ex. 1001, 4:30–34 (“for example, the use of springs is conceivable”); Ex. 1007 ¶ 83). Petitioner further argues that the ’690 patent makes clear that pressure can be exerted on either the retaining element or the support for the LED. *Id.* (citing Ex. 1001, 4:33–35; Ex. 1007 ¶ 83).

g. Element (g)

Petitioner argues that Sharrah discloses that the reflector has two ends: one through which the LED is inserted, and the second that is in contact with the focusing ring. Pet. 27 (citing Ex. 1007 ¶ 85). Thus, the first end of the reflector is proximate to the lamp socket, which is the LED support connected to the housing; and the second end is proximate – indeed, touching – the focusing ring, which is the retaining element. Ex. 1007 ¶ 85.

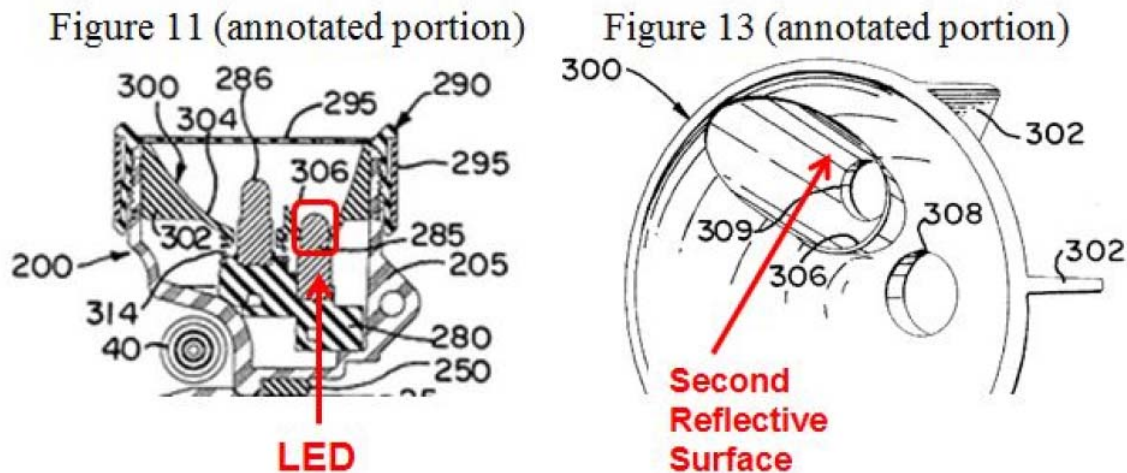
3. Patent Owner Contentions

Patent Owner argues that 1) Sharrah does not disclose the claimed “optical means for guiding the light emitted by the LED towards outside of the housing” (PO Resp. 23–26); 2) Sharrah does not disclose the claimed “retaining element” (PO Resp. 26–31); and 3) Sharrah does not disclose an “optical means” held between a retaining element and the support for the LED by pressure exerted by the retaining element and the support for the LED (PO Resp 31–33). Each of these contentions is discussed below.

a. “Optical Means”

Patent Owner contends that Sharrah does not disclose the required “optical means for guiding the light emitted by the LED towards outside of the housing.” According to Patent Owner, Petitioner identifies the Sharrah parabolic reflector as the optical means (Pet. 22), but fails to address its lack of symmetry. Patent Owner argues that as properly construed, the “optical means” must include a “symmetrical lateral surface.” The reflective surface 306 of Sharrah lacks a symmetrical lateral surface. PO Resp. 24 (citing Ex. 2007 ¶¶ 62–63). Patent Owner provides annotated versions of Sharrah Figures 11 and 13 (truncated, reproduced below) showing that the sides of

the second reflective surface 306 (identified in red) differ in length and therefore are not “symmetrical.” *Id.*



Patent Owner annotated version of Sharrah Figures 11 and 13.

Nor, according to Patent Owner, is the Sharrah reflector equivalent to a “collimator” with a “symmetrical lateral surface.” Patent Owner argues that although one of ordinary skill would have understood that a collimator with a nearly symmetrical lateral surface might be equivalent to one with a perfectly symmetrical lateral surface—in some cases, manufacturing or design limitations would result in minor variations (Ex. 2007, ¶¶ 64–65)—the Sharrah reflector lacks a symmetrical lateral surface entirely. PO Resp. 24–25 (citing Ex. 2007 ¶¶ 62–66). As a result of its lopsided configuration, much of the light emitted by the LED would not be guided to the outside of the housing by surface 306. Pet. 25 (citing Ex. 2007 ¶ 65).

b. “Retaining Element”

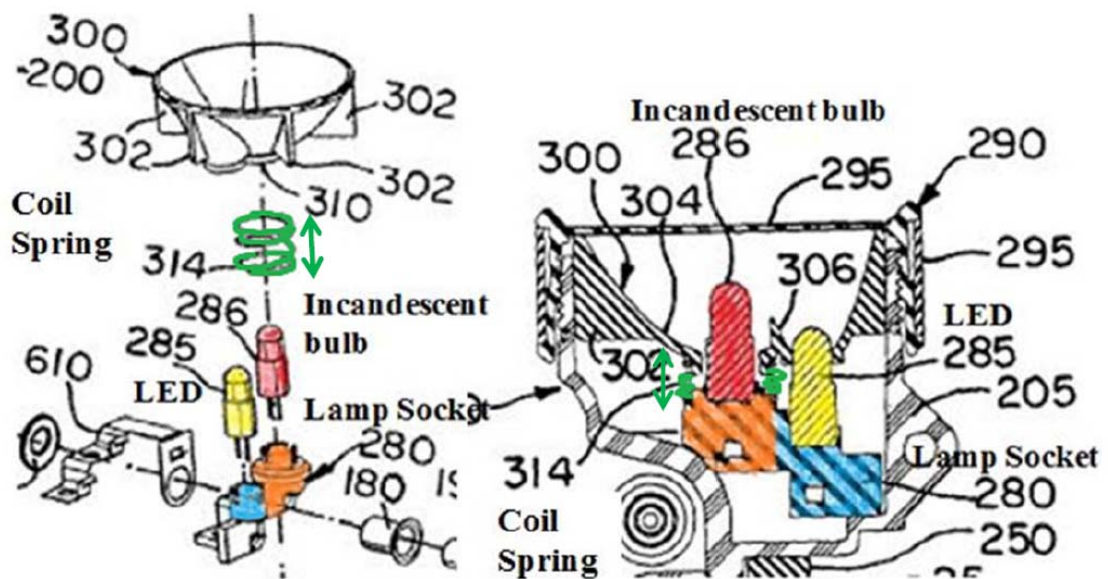
Patent Owner argues that Sharrah does not disclose a “retaining element.” PO Resp. 26–31. Patent Owner argues that Sharrah’s focusing ring 290 is not a “retaining element” because it serves a different purpose, namely rather than fixing the position of reflector 300, focusing ring 290 allows reflector 300 (and surface 306) to move “relative to the lamp elements 285, 286.” PO Resp. 28 (citing Ex. 1004 at 3:13–15).

Patent Owner argues that the fixed nature of the retaining element is not an arbitrary requirement and that serious departures from the luminaire’s optimal efficiency result when the optical means moves relative to the LED. PO Resp. 29 (citing Ex. 1001 at 2:25–31 (“Translatory movements of the retaining element connected to the housing or of the elastic retention means with respect to the housing on which the support of the LED is fixed may in fact carry the optical means along with them, which optical means in that case will be shifted from their position of optimum performance in relation to the emission characteristic of the LED.”), 3:53–56 (“The optimum luminous performance of the collimator 4, i.e. the control of the structure of the beam and its power, is obtained by means of a precise positioning of the collimator 4 with respect to the emission characteristic of the LED 2.”), 4:39–41 (“The collimator 4 is here constructed such that it offers an optimum efficiency when the contact of the collimator 4 to the support 3 of the LED 2 is planar.”), 5:49–54 (“A fixation of the optical means in the optimum position with respect to the emission characteristic of the LEDs is indeed of particular importance for safeguarding the homogeneity of the light output of each of the assemblies formed by a LED and its optical

means.”); Ex. 2007 ¶¶ 72–73).

c. Optical Means “Held Between a Retaining Element Connected to the Housing and the Support for the LED by Pressure Exerted by the Retaining Element and the Support for the LED”

Patent Owner also contends that Sharrah does not disclose optical means “held between a retaining element connected to the housing and the support for the LED by pressure exerted by the retaining element and the support for the LED.” PO Resp. 31–33. According to Patent Owner, Sharrah’s reflector 300 is between focusing ring 290 and the socket of incandescent bulb 286. Patent Owner provides annotated versions of Sharrah Figures 2 and 11, reproduced below from page 33 of Patent Owner’s Response.



Sharrah Figures 2 and 11, as annotated by Patent Owner
According to Patent Owner, the spring tension of spring 314 (green)
provides a force on socket 280 of incandescent bulb 286, and not on the

socket of the LED.

4. Analysis

a. “Optical Means”

Patent Owner’s argument that Sharrah does not address the “lateral surface” requirement of the “optical means” relies upon Patent Owner’s argument that we should construe the “optical means” limitation to require a “symmetrical lateral surface,” which we have not done. *See supra* Section II.A.1.

The best evidence regarding how to construe “optical means” comes from the ’690 patent itself, i.e. intrinsic evidence. We note the following passage:

The optical means here comprise a collimator 4 formed by a solid mass of a material which transmits light and is 25 temperature-resistant, for example polymethylmethacrylate (PMMA). The optical means are formed by a "full-body" collimator 4 here, *but they may alternatively be formed by, for example, a conical concave reflector*. The collimator 4 has a symmetrical lateral surface 5 based on a parabolic or 30 conical body of revolution, a planar front surface 6 here, and a base surface 7 geometrically opposed to the front surface 6. The base 7 is planar here, *but this characteristic does not exclude other geometries*.

Ex. 1001, 3:27–34.

b. “Retaining Element”

We are not persuaded by Patent Owner’s argument that Sharrah’s focus ring 290 cannot be considered to be the claimed “retaining element” because it permits movement. Patent Owner draws the conclusion that because the focusing ring and accompanying structures permit relative

movement, that the retaining element claim limitation is not met. We disagree. *See supra* Section II.A.2.

Even while the focusing ring is being manipulated to cause relative movement, coil spring 314 still exerts pressure (even while expanding or contracting). A user's manipulation of focusing ring 290 moves the relative positions of the reflector and lamp elements from one steady state position to another, each having pressure applied by coil spring 314 working against a fixed surface (albeit the fixed surface may be in a different position after adjustment of the focusing ring). Therefore, we are unpersuaded by Patent Owner's argument.

c. "Held Between"

Limitation (f) requires "the optical means is held between a retaining element connected to the housing and the support for the LED by pressure exerted by the retaining element and the support for the LED."

Patent Owner argues that one end of the spring presses against the socket of the incandescent lamp and not the support for the LED. PO Resp. 31–33. The Petition states "the reflector is held in place by pressure exerted by the focusing ring and the lamp socket via the coil spring, and the use of coil springs to exert pressure was well known in the art prior to August 2000." Pet. 26. Petitioner notes that the '690 patent makes clear that pressure can be exerted on either the retaining element or the support for the LED. Pet 26 (citing Ex. 1001 at 4:33–35; Ex. 1007 ¶ 83). Petitioner, earlier in the Petition states "the LED disclosed in Sharrah is mounted to a support—the lamp socket—which is connected to the housing. Pet. 24 (citing Ex. 1007 ¶ 77). Patent Owner's argument relies upon dividing

Sharrah's socket 208 into two portions, one portion for the incandescent lamp (colored orange in Patent Owner's annotation) and one portion for the LED (colored blue in Patent Owner's annotation). Patent Owner argues that the spring pressure is applied to the portion of the socket that receives the incandescent bulb.

Patent Owner is correct regarding where the spring applies its pressure. However, socket 208 is a single structure. Patent Owner's orange and blue color annotations cover patent drawing cross hatching that suggests that the socket is a single structure. Thus, spring pressure applied to one portion of the structure, applies spring pressure to the entire structure. Therefore, we are not persuaded by this Patent Owner argument.

d. Conclusions

We have reviewed and agree with all of Petitioner's contentions and supporting evidence as described above and adopt those contentions as our findings. Having reviewed Patent Owner's contentions to the contrary, and for the reasons stated, we find that Petitioner has established by a preponderance of the record evidence that Sharrah describes all the limitations of claim 1.

C. Patent Owner's Motion to Exclude Evidence (Paper 38)

Patent Owner moves to exclude paragraphs 16–20 of the Bretschneider Declaration, Ex. 1014, introduced into the record with Petitioner's Reply (Paper 24). According to Patent Owner, Dr. Bretschneider opines, in his declaration, on the Sharrah reflector based on an

“optical study” using technical parameters set by Dr. Bretschneider rather than the Sharrah disclosure and an “efficiency” measure having no relationship to the claimed function of “guiding the light emitted by the LED towards outside of the housing.” Paper 38. Because Dr. Bretschneider’s opinions are unrelated to the facts of the case and are not the product of reliable methodology, Patent Owner argues, the Board should exclude paragraphs 16-20 of the Bretschneider Declaration under Federal Rule of Evidence 702. *Id.* Patent Owner timely objected to the Bretschneider Declaration in objections filed and served June 1, 2016. Paper 26.

The paragraphs sought to be excluded relate to ray traces carried out by Dr. Bretschneider. Petitioner submitted them in an effort to counter an argument raised by Patent Owner that the retaining element must not be movable because it will reduce optical efficiency of Sharrah’s reflector 306. Pet. Opp. PO Mot. Exclude 1. We therefore deny the motion. However, we give little weight to both Patent Owner’s argument regarding efficiency and to Petitioner’s attempt to blunt that argument. Patent Owner’s Motion to Exclude is denied.

D. Petitioner’s Motion to Exclude Evidence (Paper 40)

Petitioner moves to Exclude testimony elicited from Dr. Bretschneider during cross-examination deposition regarding a previous engagement as an expert for Everlight Electronics Co. Pet. Mot. Exclude 1. The questions asked by Patent Owner during cross-examination were apparently intended to attack Dr. Bretschneider’s credibility. We deny Petitioner’s motion to exclude cross-examination questions and answers related to Dr.

Bretschneider's prior testimony insofar as they relate to Dr. Bretschneider's credibility.

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claim 1 of the '690 patent is unpatentable; and

FURTHER ORDERED that Patent Owner's Motion to Exclude is denied;

FURTHER ORDERED that Petitioner's Motion to Exclude is denied; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2015-01291
Patent 6,561,690 B2

PETITIONER:

David Radulescu
Angela Chao
RADULESCU LLP
david@radulesculp.com
angela@radulesculp.com

PATENT OWNER:

C. Brandon Rash
Kenie Ho
FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP
denise.defranco@finnegan.com
kenie.ho@finnegan.com