Filed on behalf of Wangs Alliance Corporation
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

Patent Owner of
U.S. Patent No. 6,561,690 to Christophe Balestriero and Marc Olivier Flaissier

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Inter Partes Review Case No. Unassigned

PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 6,561,690 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. §§ 42.1-.80, 42.100-.123

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I. MANDATORY NOTICES AND FEES

A. Real Parties-in-Interest

Wangs Alliance Corporation d/b/a WAC Lighting Co. is the real party-in-interest.

B. Related Matters

The following matter may affect or be affected by a decision herein: *Koninklijke Philips N.V. et al. v. Wangs Alliance Corporation*, Case No. 14-cv-12298-DJC (D. Mass.). Additionally, the 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"). On the same week as 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.

C. Counsel

Lead counsel in this case is David Radulescu, Ph.D. (PTO Reg. No. 36,250); backup counsel is Angela Chao (PTO Reg. No. 71,991). Powers of attorney accompany this Petition.

D. Service Information

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E. Payment

Under 37 C.F.R § 42.103(a), the Office is authorized to charge the fee set forth in 37 C.F.R. § 42.15(a) to Deposit Account No. 506352 as well as any additional fees that might be due in connection with this Petition.

II. CERTIFICATION OF GROUNDS FOR STANDING

The Petitioner certifies pursuant to 37 C.F.R § 42.104(a) that the patent for which review is sought is available for *inter partes* review and that the Petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in this Petition.

III. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

Pursuant to Rules 42.22(a)(1) and 42.104(b)(1)-(2), the Petitioner challenges claims 1, 5, and 6 of U.S. Patent No. 6,561,690 (the "'690 Patent") (Ex. 1001).

A. Prior Art Patents and Printed Publications

The Petitioner relies upon the patents and printed publications listed in the

Table of Exhibits, including:

1. U.S. Patent No. 4,978,843 to Yamakawa ("Yamakawa" (Ex. 1003)), which is prior art under § 102(b).
2. U.S. Patent No. 5,871,272 to Sharrah, ("Sharrah" (Ex. 1004)), which is prior art under § 102(b).
3. U.S. Patent No. 4,388,673 to Maglica, ("Maglica" (Ex. 1005)) which is prior art under § 102(b).
4. U.S. Patent No. 5,173,810 to Yamakawa, ("Yamakawa II" (Ex. 1006)), which is prior art under § 102(b).

B. Grounds for Challenge

The Petitioner requests cancellation of claims 1, 5, and 6 of the '690 Patent ("challenged claims") as unpatentable under 35 U.S.C. §§ 102 and 103. This Petition, supported by the declaration of Eric Bretschneider, Ph.D ("Bretschneider Decl." (Ex. 1007)), filed herewith, demonstrates that there is a reasonable likelihood that the Petitioner will prevail with respect to at least one challenged claim and that each challenged claim is not patentable. *See* 35 U.S.C. § 314(a).

Ground 1: Claims 1, 5, and 6 are anticipated by Yamakawa.

Ground 2: Claim 1 is anticipated by Sharrah.

Ground 3: Claims 1 and 5 are anticipated by Yamakawa II.

Ground 4: Claim 6 is obvious over Yamakawa II.

IV. CLAIM CONSTRUCTION

A claim in *inter partes* review is given the "broadest reasonable construction in light of the specification in which it appears." 37 C.F.R. § 42.100(b). The broadest reasonable construction is the broadest reasonable interpretation of the claim language. *See In re Yamamoto*, 740 F.2d 1569, 1571-72 (Fed. Cir. 1984). Any claim term which lacks a definition in the specification is therefore also given a broad interpretation. *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007).[1] Should the Patent Owner contend that the claims have a construction different from their broadest reasonable construction in order to avoid the prior art, the appropriate course is for the Patent Owner to seek to amend the claims to expressly correspond to its contentions in this proceeding. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48756, 48764 (Aug. 14, 2012).

A. "Optical means for guiding the light emitted by the LED towards outside the housing"

The "**optical means for guiding the light emitted by the LED towards outside the housing**" performs the function of **guiding the light emitted by the**

[1] Petitioner adopts the "broadest reasonable construction" standard as required by the governing regulations. 37 C.F.R. § 42.100(b). Petitioner reserves the right to pursue different constructions in a district court, where a different standard is applicable.

LED towards outside the housing. Bretschneider Decl. ¶ 34-35 (Ex. 1007). Under the broadest reasonable construction standard, the specification provides the following structure to perform this function: **a collimator**. See '690 patent at Figs. 1-3; 3:24-52; Bretschneider Decl. ¶ 34-35 (Ex. 1007).

B. "Retaining element"

The broadest reasonable construction of the term "**retaining element**" is "a structure that fixes the position of another element." Ex. 1001 at Fig. 1 (plate 10 which transmits light); Bretschneider Decl.¶ 34-35 (Ex. 1007). The Patent Owner and its expert have agreed with this construction in the District Court litigation.

V. OVERVIEW OF THE '690 PATENT

A. Background

The '690 patent "relates to a luminaire comprising a housing which defines an internal space containing at least one light source formed by a light-emitting diode (LED) and optical means for guiding the light emitted by the LED to the exterior of the housing." Ex. 1001 at 1:4-8; Bretschneider Decl. ¶ 17, 31 (Ex. 1007). According to the specification, "[i]t is an object of the invention to resolve to a high extent the problem of mounting the optical means relative to the LED inside the luminaire." Ex. 1001 at 1:39-41; Bretschneider Decl. ¶ 17 (Ex. 1007).

B. Summary of Alleged Invention of the '690 Patent

The '690 patent purports to solve the problems associated with manipulating the LEDs during the construction of luminaires. According to the '690 patent, prior

art devices included an LED "fixed inside the optical means, which in their turn are fixed to the housing." Ex. 1001 at 1:25-27; Bretschneider Decl. ¶ 18 (Ex. 1007). But the LEDs "are highly sensitive to mechanical manipulations …The LED comprises, among other things, a fragile dome on which no major forces are allowed to be exerted." Ex. 1001 at 1:28-35; Bretschneider Decl. ¶ 18 (Ex. 1007). If methods of construction disclosed in the prior art are to be used, avoiding damage to the LEDs requires a "delicate mounting operation" that is "time-consuming and costly in terms of automated operations." Ex. 1001 at 1:35-38; Bretschneider Decl. ¶ 18 (Ex. 1007).

The '690 patent purports to solve this problem by mounting an LED onto a support connected to the housing, and placing "the optical means on the support of the LED and the use of the retaining element connected to the housing for keeping it fixed." Ex. 1001 at 1:48-51; Bretschneider Decl. ¶ 19 (Ex. 1007).

The specification teaches that the optical means can be "a collimator formed by a solid mass of a material which transmits light and is temperature-resistant, for example polymethylmethacrylate (PMMA)." The optical means may also be "formed by, for example, a conical concave reflector." The specification also teaches that the optical means can have various geometries, including "a symmetrical lateral surface based on a parabolic or conical body of revolution." Ex. 1001 at 3:24-32; Bretschneider Decl. ¶ 20 (Ex. 1007).

According to the '690 patent, the "retaining element" used to keep the optical means in place is "connected to the housing" of the luminaire. Ex. 1001 at 1:42-47. The specification teaches that the retaining element can be a plate that transmits light, and that different methods can be used to connect the retaining element to the housing. Ex. 1001 at 2:55-61; Bretschneider Decl. ¶ 21 (Ex. 1007). Whatever method is used, the optical means must be held between the LED support and the retaining element by pressure. For example, one embodiment discusses the use of "elastic retention means" such as foams or springs to exert pressure on the optical means. Ex. 1001 at 2:5-14; Bretschneider Decl. ¶ 21 (Ex. 1007).

The exertion of pressure, according to the specification, eliminates "mechanical play which may exist between the retaining element connected to the housing and the optical means and between the optical means and the support of the LED." Ex. 1001 at 1:61-64; Bretschneider Decl. ¶ 21 (Ex. 1007).

C. Prosecution History

The '690 Patent stems from French Patent Office application No. 0010804, filed on August 22, 2000. During the prosecution of the '690 Patent, original claims 1, 2, and 4-7 were rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 6,076,950 to Topping ("Topping"). PH 7/18/02 Office Action (Ex. 1002). Claim 3 was objected to as being dependent on a rejected base claim, but allowable if rewritten in independent form. *Id.* In response, Petitioner cancelled claims 1 and

2, amended claims 2-7, and added new claims 8-15, and rewrote claim 3 in independent form as new claim 16. PH 10/25/02 Amendment (Ex. 1002). The examiner subsequently allowed claims 3-16, which issued as claims 1-14. PH 11/15/02 Notice of Allowability (Ex. 1002). None of the prior art references cited in this Petition were cited during prosecution of the '690 patent.

VI. OVERVIEW OF THE PRIMARY PRIOR ART REFERENCES

A. Summary of the Prior Art

As shown below, there is nothing new or non-obvious in the Patent Owner's claims. The claimed luminaire was well known. Bretschneider Decl. ¶ 56 (Ex. 1007).

B. Overview of Yamakawa (Ex. 1003)

U.S. Patent No. 4,978,843 ("Yamakawa") discloses a photoelectric sensor comprising a light collecting system and a light receiving system. Ex. 1003 at Abstract; Bretschneider Decl ¶ 23 (Ex. 1007). Yamakawa has an effective filing date of July 18, 1989. Bretschneider Decl ¶ 23 (Ex. 1007).

Yamakawa discloses a best mode for carrying out the invention. Ex. 1003 at 3:19-20; Bretschneider Decl ¶ 24 (Ex. 1007). Included in this description is an indicating light (**4b**), which may be a light emitting diode (LED). Ex. 1003 at 3:37-39; 4:53-56; Bretschneider Decl ¶ 24 (Ex. 1007). This LED is located within an opening side of a casing (**2**). Ex. 1003 at 3:26-31; Bretschneider Decl ¶ 24 (Ex. 1007). Specifically, the LED is mounted on a circuit block (**4**), which is attached to

a transparent resinous optical body having a thin plate shape.(**1**). Ex. 1003 at Fig. 1; 3:25-26; 3:37-42; Bretschneider Decl ¶ 24 (Ex. 1007). This optical body is held in place with a transparent resinous protector (**3**), which is disposed in in the casing. Ex. 1003 at 3:27-35; Bretschneider Decl ¶ 24 (Ex. 1007). The optical body is designed to "radiate a luminous flux of the operation indicating lamp 4b through the objective surface" of the optical body. Ex. 1003 at 4:19-28; Bretschneider Decl ¶ 24 (Ex. 1007).

C. Overview of Sharrah (Ex. 1004)

U.S. Patent No. 5,871,272 ("Sharrah") discloses a flashlight that has a rotatable lamp head. Ex. 1004 at Abstract; Bretschneider Decl ¶ 25 (Ex. 1007). Sharrah has an effective filing date of January 28, 1997; Bretschneider Decl ¶ 25 (Ex. 1007).

The lamp head disclosed in Sharrah pivots about two cylindrical coaxial electrical connectors. Ex. 1004 at Abstract; Bretschneider Decl ¶ 25 (Ex. 1007). The lamp head also includes a reflector having a major parabolic reflective surface and a minor reflective parabolic surface. Ex. 1004 at Abstract; Bretschneider Decl ¶ 25 (Ex. 1007). The reflector is configured so that the minor reflective surface is nested within the major reflective surface. Ex. 1004 at Abstract; Bretschneider Decl ¶ 25 (Ex. 1007). The flashlight also includes a series of fluid-tight seals to insure

that the flashlight is waterproof. Ex. 1004 at Abstract; Bretschneider Decl ¶ 25 (Ex. 1007).

Sharrah discloses that a lamp socket is mounted "within the lamp head housing for receiving two lamp elements." Ex. 1004 at 2:50-51; Bretschneider Decl ¶ 26 (Ex. 1007). Sharrah further states that "preferably … lamp element **285** is a light-emitting diode (LED)." Ex. 1004 at 2:53-54; Bretschneider Decl ¶ 26 (Ex. 1007). Sharrah also discloses that the lamp head housing further includes a reflector. Ex. 1004; at 3:6-9; Bretschneider Decl ¶ 26 (Ex. 1007). The LED is inserted through an opening in the reflector. While the disclosure in Sharrah is silent about the role of the reflector, a PHOSITA would have understood that a reflector is one possible "optical means." Bretschneider Decl ¶ 26 (Ex. 1007). A PHOSITA would further understand that a reflector is added to the lamp head housing in Sharrah to control the direction of the LED light beam, and direct it towards the outside of the housing. Bretschneider Decl ¶ 26 (Ex. 1007).

D. Overview of Maglica (Ex. 1005)

U.S. Patent No. 4,388,673 ("Maglica") discloses flashlights, and more specifically an improved flashlight and flashlight holder/battery charger adapted to be stored between uses. Bretschneider Decl ¶ 29 (Ex. 1007). Maglica has an effective filing date of June 22, 1981. Bretschneider Decl ¶ 29 (Ex. 1007).

Maglica includes an improved mechanism for varying the intensity of the beam of light of a flashlight, by moving the light bulb closer and farther from a reflector that aims the light out of the flashlight, without axially moving the head of the flashlight or the reflector itself. Ex. 1005 at Abstract; Bretschneider Decl ¶ 30 (Ex. 1007). The reflector is held in place by a transparent disc (72), which is connected to the housing by way of an O-ring (68). Ex. 1005 at 3:39-49; Bretschneider Decl ¶ 30 (Ex. 1007). The bulb itself is set within a camming member, 80, and the reflector is positioned between the camming member and the transparent disc. Ex. 1005 at 3:39-49; Bretschneider Decl ¶ 30 (Ex. 1007).

E. Overview of Yamakawa II (Ex. 1006)

U.S. Patent No. 5,173,810 ("Yamakawa II") discloses a light transmitting lens for use with a photoelectric sensor. Ex. 1006 at Abstract; Bretschneider Decl ¶ 27. Yamakawa II has an effective filing date of August 21, 1991. Bretschneider Decl ¶ 27 (Ex. 1007).

Yamakawa II is directed towards a light transmitting lens for transmitting light emitted by a light source, such as a light emitting diode, and the purpose of the

lens is to transmit substantially all of the light from that light source. Ex. 1006 at Abstract; Bretschneider Decl ¶ 28 (Ex. 1007). This light transmitting lens has two sides. Ex. 1006 at Abstract; Bretschneider Decl ¶ 28 (Ex. 1007). The first side is attached to a transparent panel (**6**), and the second side surrounds the LED light and its support. Ex. 1006 at Fig. 1; Bretschneider Decl ¶ 28 (Ex. 1007). The lens is contained by a casing (**B**), and is held in place between the transparent panel, and spacers (**7**). Ex. 1006 at 2:66-3:4; Bretschneider Decl ¶ 28 (Ex. 1007).

The light emitting diode is mounted on a wiring substrate (**22**), and this substrate is connected to the casing. Ex. 1006 at 3:5-6; Fig. 1; Bretschneider Decl ¶ 28 (Ex. 1007). Figure 4 depicts the pattern of light rays output from the light transmitting lens. Ex. 1006 at 2:48-49, Fig. 4; Bretschneider Decl ¶ 28 (Ex. 1007).

VII. SPECIFIC GROUNDS FOR PETITION

Pursuant to Rule 42.104(b)(4)-(5), the below sections, and as confirmed in the Declaration of Eric Bretschneider (Ex. 1007), demonstrate in detail how the prior art discloses each and every limitation of the claims of the ’690 Patent, and how those claims are rendered obvious by the prior art.

A. Ground 1: Claims 1, 5 and 6 Are Anticipated by Yamakawa

1. Independent Claim 1

(a) *Limitation (1a)*: “A luminaire comprising”

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.” Webster’s

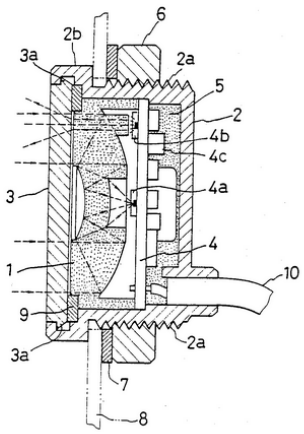
New Universal Unabridged Dictionary at 1144 (1996) (Ex. 1009); Bretschneider Decl ¶ 58 (Ex. 1007). Yamakawa discloses a transparent resinous optical body (**1**) that includes on it an opening formed in order to radiate a luminous flux of an operating indicating lamp (**4b**) through the objective surface of the body. Ex. 1003 at 3:25-26; 4:19-27; Bretschneider Decl ¶ 58 (Ex. 1007). Yamakawa also discloses that light from a light emitting diode is radiated to the objective surface 21 of the optical body 1 through the light collecting lens means 9.[2] Ex. 1003 at 4:52-56; Bretschneider Decl ¶ 58 (Ex. 1007). Therefore, Yamakawa discloses a luminaire.

(b) *Limitation (1b)*: "a housing which defines an internal space containing"

Yamakawa discloses a resinous casing having an opening side (**2**). Ex. 1003 at Fig. 1; 3:26-27; Bretschneider Decl ¶ 59 (Ex. 1007). The "opening side" of this casing is depicted in Figure 1 of Yamakawa II, and contains within it most of the other components of the device; Bretschneider Decl ¶ 59 (Ex. 1007). Therefore, this casing is a housing, and the casing defines an internal space. Ex. 1003 at Fig. 1, 3:26-27; Bretschneider Decl ¶ 59 (Ex. 1007).

[2] Yamakawa earlier refers to the light collecting means as element 51. Yamakawa, 4:14-16, 4:40 (Ex. 1003). The reference to element 9 in column 4:56 appears to be in error. Bretschneider Decl ¶ 59 n.3 (Ex. 1007).

FIG.1



Thus Yamakawa discloses this limitation.

(c) *Limitation (1c)*: "at least one light source formed by a light-emitting diode (LED) and"

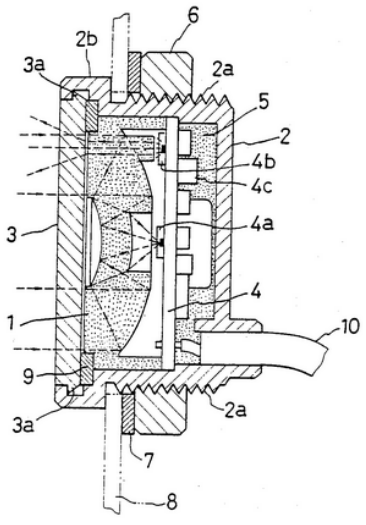
Yamakawa discloses that the operation indicating lamp (**4b**) can be a light emitting diode (LED). Ex. 1003 at 4:53:56; Bretschneider Decl ¶ 60 (Ex. 1007). Yamakawa further discloses an optical means because it discloses an optical body having a thin plate shape (**1**). Ex. 1003 at 3:25-26; Bretschneider Decl ¶ 60 (Ex. 1007). Additionally, Yamakawa discloses that the optical body guides the light emitted by the LED towards the outside of the casing objective surface 21, which is shown in Figure 4a to be on the opposite side of the optical body as the LED. *See* Ex. 1003 at Fig. 4a; 4:53-56; Bretschneider Decl ¶ 60 (Ex. 1007). Therefore, Yamakawa discloses that the light from the LED is guided by the optical means of

the lens towards the outside of the casing, and Yamakawa discloses this limitation. Bretschneider Decl ¶ 60 (Ex. 1007).

(d) *Limitation (1d)*: "optical means for guiding the light emitted by the LED towards outside of the housing"

Yamakawa discloses that the operation indicating lamp (**4b**) is mounted upon a surface opposed to the optical body (1). Ex. 1003 at 3:37-40; Bretschneider Decl ¶ 61 (Ex. 1007). As described above, the operation indicating lamp can be an LED. Ex. 1003 at 4:53-56; Bretschneider Decl ¶ 61 (Ex. 1007). Additionally, Figure 1 of Yamakawa shows that this surface is circuit block (**4**), and that this circuit block is connected to casing (2) on its sides. Ex. 1003 at Fig. 1; Bretschneider Decl ¶ 61 (Ex. 1007).

FIG. 1



Therefore, Yamakawa discloses an LED that is mounted to a surface that is connected to the casing, which is a disclosure of this limitation.

(e) *Limitation (1e)*: "characterized in that the LED is mounted to a support connected to the housing, and"

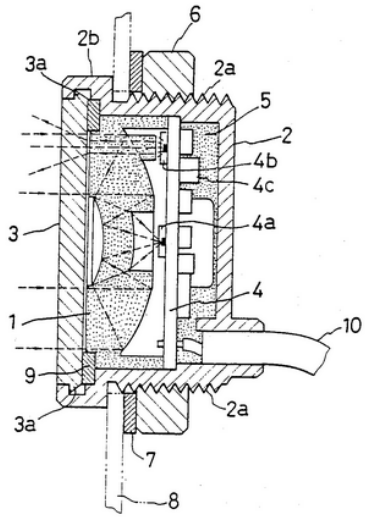
Yamakawa discloses a disc type protector (**3**) which is disposed in the opening of the casing (**2**). Ex. 1003 at 3:33-35; Bretschneider Decl ¶ 62 (Ex. 1007). Thus, this protector meets the retaining element of the '690 patent. Yamakawa further discloses that this protector can be opposed to the objective surface of the optical body (1). Ex. 1003 at 5:9-11; Bretschneider Decl ¶ 62 (Ex. 1007). As described above, the optical body of Yamakawa meets the optical means element; Bretschneider Decl ¶ 62 (Ex. 1007). Yamakawa further discloses that the surface circuit block, which as described above meets the support limitation, is a surface opposed to the optical body 1. Ex. 1003 at 3:36-37; Bretschneider Decl ¶ 62 (Ex. 1007). Thus the optical body is held between the protector that is connected to the casing, and the support for the operation indicating lamp, and therefore discloses this limitation; Bretschneider Decl ¶ 62 (Ex. 1007).

(f) *Limitation (1f)*: "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"

Yamakawa discloses that an annular rubber packing (**9**) is inserted between the protector and the casing. Ex. 1003 at 49-51; Bretschneider Decl ¶ 63 (Ex.

1007). The use of this annular rubber packing is to apply pressure from the protector to the optical body, as is clear from Figure 1. Bretschneider Decl ¶ 63 (Ex. 1007).

FIG. 1

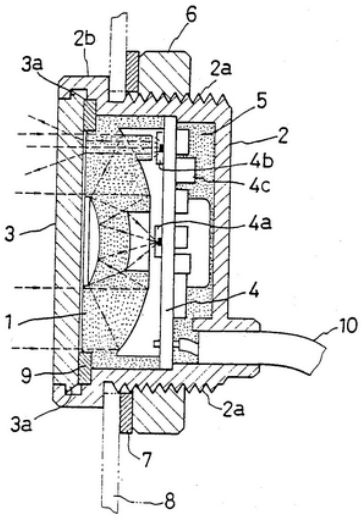


Indeed, the same type of pressure by use of an elastic retention means between the optical means and the retaining element is disclosed in the '690 patent. Ex. 1001 at 1:55-58; Bretschneider Decl ¶ 64 (Ex. 1007). Therefore, Yamakawa discloses this limitation.

(g) ***Limitation (1g)*: "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"**

Yamakawa discloses that the optical body has two ends, a circular flattened objective surface (**21**) and a circular convex surface (**31**). Ex. 1003 at 3:57-66; Bretschneider Decl ¶ 65 (Ex. 1007). The circular convex surface includes an opening formed on its surface (**1b**). Ex. 1003 at 3:22-25; Bretschneider Decl ¶ 65 (Ex. 1007). Yamakawa discloses that the flattened objective surface (21) is opposed to protector (3), which as described above meets the retaining element limitation. Ex. 1003 at 5:9-11; Bretschneider Decl ¶ 65 (Ex. 1007). Finally, Yamakawa discloses that the circular convex surface is positioned adjacent to the operation indicating lamp, as is further depicted by Figure 1. Ex. 1003 at Fig. 1; 4:22-24; Bretschneider Decl ¶ 65 (Ex. 1007).

FIG.1



Thus, Yamakawa discloses this limitation.

2. Dependent Claim 5: "A luminaire as claimed in claim 1, characterized in that the retaining element connected to the housing is a plate which transmits light"

Claim 5 depends from claim 1, and therefore incorporates all of the limitations of claim 1. As described above, Yamakawa discloses each and every limitation of claim 1. Bretschneider Dec. ¶ 66 (Ex. 1007).

Yamakawa also discloses the added limitation of claim 5. As described in claim 1 above, the "retaining element" of the '690 patent is met by the protector (**3**) of Yamakawa. Bretschneider Decl ¶ 67 (Ex. 1007). Yamakawa discloses that the protector is a "transparent resinous protector" and is a "disc type." Ex. 1003 at 3:31-35; Bretschneider Decl ¶ 67 (Ex. 1007). A transparent protector transmits light, and a disc type protector is a "plate." Bretschneider Decl ¶ 67 (Ex. 1007). Therefore, Yamakawa discloses this element.

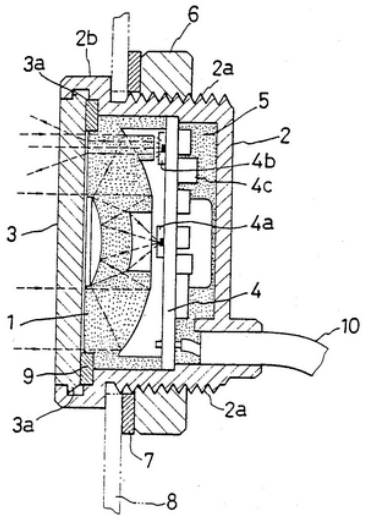
3. Dependent Claim 6: "A luminaire as claimed in claim 1, characterized in that the first end of the optical means is in contact with the support connected to the housing"

Claim 6 depends from claim 1, and therefore incorporates all of the limitations of claim 1. As described above, Yamakawa discloses each and every limitation of claim 1. Bretschneider Decl ¶ 68 (Ex. 1007).

Yamakawa also discloses the added limitation of claim 6. Yamakawa discloses that the optical body (1) – the optical means – is in contact with the circuit

block (4), which acts as the LED support. Ex. 1003 at Figure 1; Bretschneider Decl ¶ 69 (Ex. 1007).

FIG.1



Therefore, Yamakawa discloses this element.

B. Ground 2: Claim 1 Is Anticipated by Sharrah

1. Independent Claim 1

(a) *Limitation (1a)*: "A luminaire comprising"

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." Webster's New Universal Unabridged Dictionary at 1144 (1996) (Ex. 1009); Bretschneider Decl ¶ 72 (Ex. 1007). Therefore, by disclosing an LED-containing flashlight,

Sharrah discloses a luminaire. *See, e.g.,* Ex. 1004 at 1:5-9, Figure 1); Bretschneider Decl ¶ 72 (Ex. 1007).

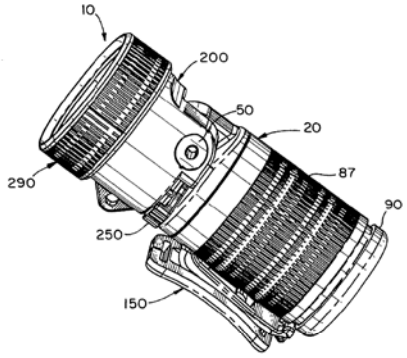


FIG. 1

(b) *Limitation (1b)*: "a housing which defines an internal space containing"

The flashlight disclosed in Sharrah includes a lamp housing (or "lamp head"). Ex. 1004 at 2:50-52, 5:40-45; Bretschneider Decl ¶ 73 (Ex. 1007). The housing (denoted by number **205** in Figures 2, 11, and 12) defines an internal space, as can be clearly seen in Figure 11 of Sharrah as the space enclosing at least components 280, 285, 286, and 306:

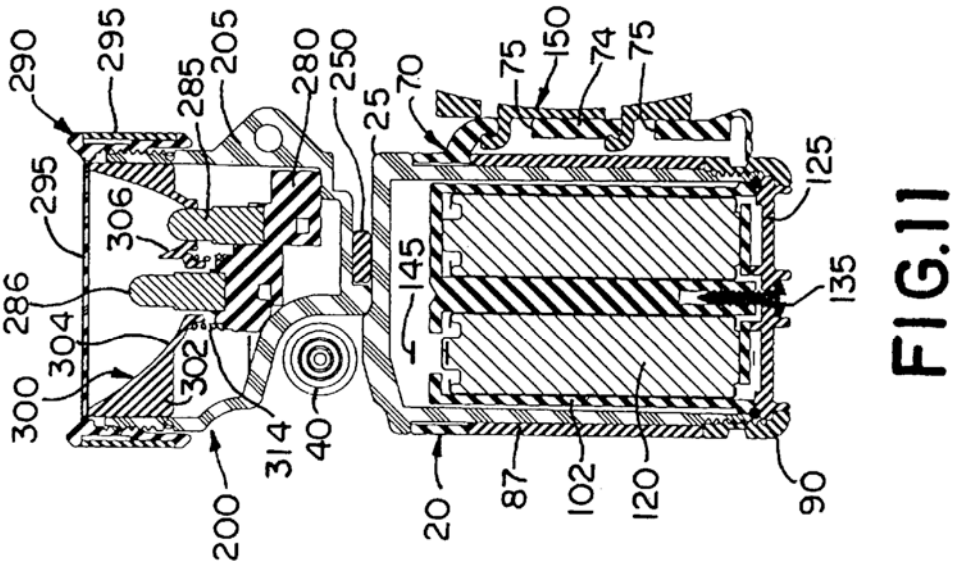


FIG.11

(c) *Limitation (1c)*: "at least one light source formed by a light-emitting diode (LED) and"

Sharrah discloses that a lamp socket is mounted "within the lamp head housing for receiving two lamp elements." Ex. 1004 at 2:50-51; Bretschneider Decl ¶ 74 (Ex. 1007). Sharrah further states that "preferably … lamp element **285** is a light-emitting diode (LED)." Ex. 1004 at 2:53-54; Bretschneider Decl ¶ 74 (Ex. 1007). Thus, Sharrah discloses a housing containing an LED.

Sharrah also discloses that the lamp head housing further includes a pair of parabolic reflectors. Ex. 1004 at 3:6-9; Bretschneider Decl ¶ 75 (Ex. 1007). In my opinion, a PHOSITA would understand that a parabolic reflector surrounding a light source would be used to direct light away from the light source by reflection. Indeed, the '690 patent specifically discloses that the claimed "optical means" limitation can be met by a "conical concave reflector." Ex. 1001 at 3:24-29;

Bretschneider Decl ¶ 75 (Ex. 1007). In Sharrah, the LED is inserted through an opening in the first reflector, and an incandescent light is inserted through an opening in the second reflector. Ex. 1004 at 3:1-5; Bretschneider Decl ¶ 75 (Ex. 1007). The reflector is described as incorporating a smaller reflective surface 306 nested within a larger reflective surface 304. Ex. 1004 at 7:11-13; Bretschneider Decl ¶ 75 (Ex. 1007). 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 the second lamp element 285 (the LED). Ex. 1004 at 7:13-16; Bretschneider Decl ¶ 75 (Ex. 1007). Sharrah explains that this configuration prevents the minor reflective surface 306 (reflecting the LED light) from interfering with the reflection of the light from lamp element 286 (the incandescent light) off of the major reflective surface 304. Ex. 1004 at 7:17-20; Bretschneider Decl ¶ 75 (Ex. 1007). In this way, the reflectors are able to control the direction of both light sources, directing them out of the flashlight without interfering with one another. *Id;* Bretschneider Decl ¶ 75 (Ex. 1007).

(d) *Limitation (1d)*: "optical means for guiding the light emitted by the LED towards outside of the housing"

Sharrah discloses that the LED is "mounted in the lamp socket." Ex. 1004 at 6:34-35; Bretschneider Decl ¶ 76 (Ex. 1007). The lamp socket, in turn, is mounted onto a mounting post connected with the lamp housing. Bretschneider Decl ¶ 76 (Ex. 1007).

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.

Ex. 1004 at 5:40-56; Bretschneider Decl ¶ 76 (Ex. 1007).

Thus the LED disclosed in Sharrah is mounted to a support—the lamp socket—which is connected to the housing. Bretschneider Decl ¶ 77 (Ex. 1007).

(e) *Limitation (1e)*: "characterized in that the LED is mounted to a support connected to the housing, and"

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. Bretschneider Decl ¶ 78 (Ex. 1007).

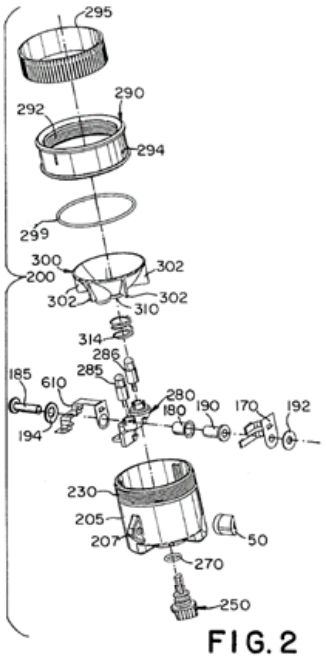


FIG. 2

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." Ex. 1004 at 3:12-13; Bretschneider Decl ¶ 79 (Ex. 1007).

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." Ex. 1004 at 3:6-9; Bretschneider Decl ¶ 80 (Ex. 1007).

Thus, 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 Sharrah that 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. Bretschneider Decl ¶ 81 (Ex. 1007).

(f) *Limitation (1f)*: "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"

As discussed above, Sharrah discloses 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. Ex. 1004 at 3:12-13; Bretschneider Decl ¶ 82 (Ex. 1007).

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. Indeed, the use of springs is identified by the '690 patent as one of the possible methods to exert pressure according to the alleged invention. Ex. 1001 at 4:30-34 ("…for example, the use of springs is conceivable"); Bretschneider Decl ¶ 83 (Ex. 1007). Furthermore, the '690 patent makes clear that pressure can be exerted on either the retaining element or the support for the LED. Ex. 1001 at 4:33-35; Bretschneider Decl ¶ 83.

Thus Sharrah discloses that the optical means – the reflector – is held in place by pressure exerted by the retaining element and the support for the LED. Bretschneider Decl ¶ 84.

(g) *Limitation (1g)*: "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"

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. Bretschneider Decl ¶ 85 (Ex. 1007). 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. Bretschneider Decl ¶ 85 (Ex. 1007). Therefore, Sharrah discloses this limitation. *Id.*

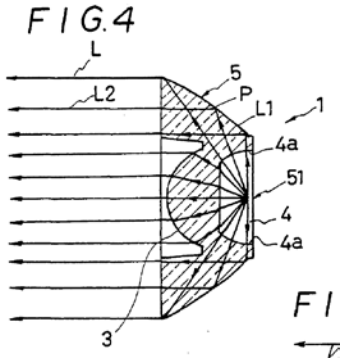
C. Ground 3: Claims 1 and 5 Are Anticipated by Yamakawa II

1. Independent Claim 1

(a) *Limitation (1a)*: "A luminaire comprising"

As described above, 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." Webster's New Universal Unabridged Dictionary at 1144 (1996) (Ex. 1009); Bretschneider Decl ¶ 87 (Ex. 1007). Yamakawa II discloses a light transmitting lens for use with a photoelectric sensor. Bretschneider Decl ¶ 87 (Ex. 1007). The light transmitting lens of Yamakawa II is preferably used with a light emitting diode ("LED"). Ex. 1006 at Abstract; Bretschneider Decl ¶ 87 (Ex. 1007). Indeed, Yamakawa II discloses that the patent is "directed to a light transmitting

device." Ex. 1006 at 1:8-9; Bretschneider Decl ¶ 87 (Ex. 1007). Figure 4 of Yamakawa II further "depicts the pattern of light rays output from the light transmitting lens" of the preferred embodiment. Ex. 1006 at Fig. 4, 2:42-49; Bretschneider Decl ¶ 87 (Ex. 1007).

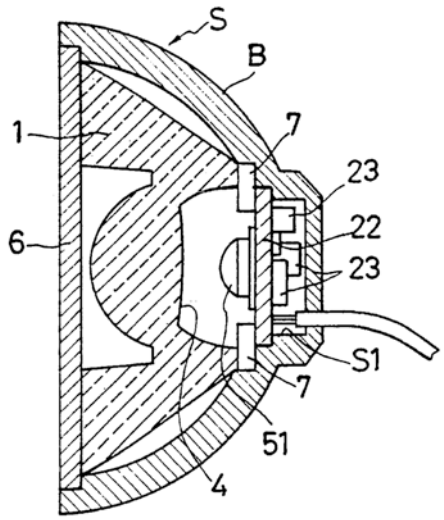


Therefore, Yamakawa II discloses a luminaire.

(b) *Limitation (1b)*: "a housing which defines an internal space containing"

Yamakawa II discloses that the light transmitting lens is disposed in casing B. Ex. 1006 at 2:68-3:2; Bretschneider Decl ¶ 88 (Ex. 1007). The casing defines a hemispherical internal space. Ex. 1006 at 3:2-4; Bretschneider Decl ¶ 88 (Ex. 1007). Figure 1 is further illustrative of the casing (**B**) and the hemispherical space it defines.

FIG. 1



Thus, Yamakawa II discloses this limitation.

(c) *Limitation (1c)*: "at least one light source formed by a light-emitting diode (LED) and"

Yamakawa II discloses that the casing contains within it a light source formed by a light emitting diode (**51**). Ex. 1006 at 3:5-6; Bretschneider Decl ¶ 89 (Ex. 1007). Yamakawa II also discloses an optical means because it discloses that the casing contains a "light transmitting lens" (**1**). Ex. 1006 at 2:66-3:2; Bretschneider Decl ¶ 89 (Ex. 1007). The lens's transmission and guiding of the light emitted by the LED is shown in Figure 4.

FIG. 4

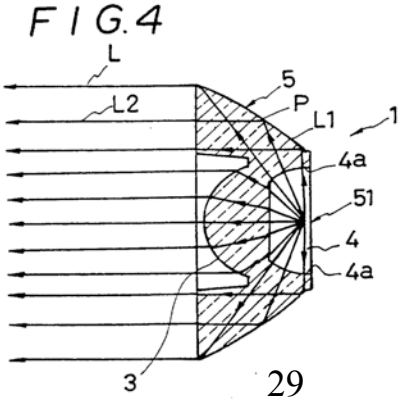
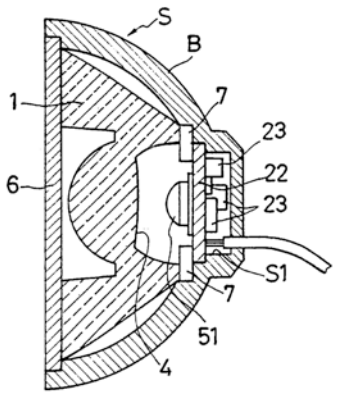


Figure 4 clearly shows that the transparent lens is directing light from the LED at the center towards the outside of the housing to the left. Bretschneider Decl ¶ 89 (Ex. 1007). Therefore, Yamakawa II discloses that the light from the LED is guided by the optical means of the lens outwards from the housing. Bretschneider Decl ¶ 89 (Ex. 1007).

(d) *Limitation (1d)*: "optical means for guiding the light emitted by the LED towards outside of the housing"

Yamakawa II discloses that the LED (**51**) "is disposed on wiring substrate **22**." Ex. 1006 at 3:5-6; Bretschneider Decl ¶ 90 (Ex. 1007). Figure 1 shows that the substrate is connected to the casing, **B**.

FIG. 1



Therefore, Yamakawa II discloses a support, the wiring substrate 22, connected to the housing, the casing B, and thus discloses this limitation. Bretschneider Decl ¶ 91 (Ex. 1007).

(e) *Limitation (1e)*: "characterized in that the LED is mounted to a support connected to the housing, and"

Yamakawa II discloses that the photoelectric sensor comprises "light transmitting lens **1** disposed in casing **B** via panel **6** and spacers **7**." Ex. 1006 at 2:68-3:2; Bretschneider Decl ¶ 92 (Ex. 1007). As described above, Yamakawa II discloses a transmitting lens that meets the optical means limitation, and this transmitting lens is held in place between the cover panel, which acts as the retaining element, and spacers placed between the lens and the support for the LED. Bretschneider Decl ¶ 92 (Ex. 1007). Figure 1 also shows that the transparent panel **6** is connected to the casing **B**. Bretschneider Decl ¶ 92 (Ex. 1007). Thus, Yamakawa II discloses that the optical means are held between a retaining element connected to the housing and the support for the LED. Bretschneider Decl ¶ 92 (Ex. 1007).

(f) *Limitation (1f)*: "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"

Yamakawa II discloses that light transmitting lens **1** is "disposed in casing **B** via panel **6** and spacers **7**." Ex. 1006 at 2:68-3:2; Bretschneider Decl ¶ 93 (Ex.

1007). As discussed above, the spacers are placed between the lens and the substrate onto which the LED is mounted. Bretschneider Decl ¶ 93 (Ex. 1007). It was well known in the art that spacers are used to reduce distance between objects, where distance is undesirable, and helps increase pressure on an object to keep it in place. Bretschneider Decl ¶ 93 (Ex. 1007). As Figure 1 demonstrates, the use of spacers here keeps the lens in place between the panel and the LED substrate because the panel exerts direct pressure on the lens, and the spacer transmits the pressure exerted by the substrate to the lens. Bretschneider Decl ¶ 93 (Ex. 1007). Thus, Yamakawa II discloses that the optical means are held in place by pressure exerted by the retaining element and the support for the LED. Bretschneider Decl ¶ 93 (Ex. 1007).

(g) *Limitation (1g)*: "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"

Yamakawa II discloses that the light transmitting lens has two ends: Figure 1 depicts the optical means (the transparent lens) as having a first end facing the LED **51**, and a second end facing the transparent panel **6**. Bretschneider Decl ¶ 94 (Ex. 1007). Additionally, in Figure 1, the first end of the lens is very near to the wiring substrate 22 that meets the support limitation as described above, and the second end of the lens is very near to the cover panel that meets the retaining element as

described above. Bretschneider Decl ¶ 94 (Ex. 1007). Therefore, Yamakawa II discloses this limitation. *Id.*

Because Yamakawa II discloses each and every limitation of claim 1, it anticipates claim 1. Bretschneider Decl ¶ 95 (Ex. 1007).

2. Dependent Claim 5: "A luminaire as claimed in claim 1, characterized in that the retaining element connected to the housing is a plate which transmits light"

Claim 5 depends from claim 1, and therefore incorporates all of the limitations of claim 1. As discussed above, Yamakawa II discloses each and every limitation of claim 1. Bretschneider Decl ¶ 96 (Ex. 1007).

Yamakawa II also discloses the added limitation of claim 5. As described in claim 1, the "retaining element" limitation of the '690 patent is met by the transparent panel 6 of Yamakawa II. Bretschneider Decl ¶ 97 (Ex. 1007). Indeed, Yamakawa II states that the lens "is disposed in casing B via panel **6** and spacers **7**. Bretschneider Decl ¶ 97 (Ex. 1007). In the preferred embodiment, the interior surface of casing **B** is hemispherical, casing **B** is black plastic, *and panel **6** is transparent*." Ex. 1006 at 3:2-4 (emphasis added); Bretschneider Decl ¶ 97 (Ex. 1007). Thus Yamakawa II discloses that the panel, which acts as the retaining means for the lens, is a panel which transmits light, and therefore, Yamakawa II discloses this element. Bretschneider Decl ¶ 97 (Ex. 1007).

Because Yamakawa II discloses each and every limitation of claim 5, it anticipates claim 5. Bretschneider Decl ¶ 98 (Ex. 1007).

D. Ground 4: Claim 6 Is Obvious Over Yamakawa II

Claim 6 depends from claim 1, and therefore incorporates all of the limitations of claim 1. As discussed above, Yamakawa II discloses each and every limitation of claim 1. Bretschneider Decl ¶ 99 (Ex. 1007).

1. Dependent Claim 6: "A luminaire as claimed in claim 1, characterized in that the first end of the optical means is in contact with the support connected to the housing"

The only added limitation in claim 6 requires that one end of the optical means is in contact with the support connected to the housing. As described above, the "optical means" element is met by the transparent lens in Yamakawa II, the "support" element is met by the wiring substrate 22, and the "housing" element is met by casing B. Bretschneider Decl ¶ 100 (Ex. 1007). Yamakawa II discloses that the lens is held in place by being in contact between the retaining means and the spacers, and in my opinion the spacers are small components placed between the wiring substrate and the optical means to apply pressure to the optical means. Bretschneider Decl ¶ 100 (Ex. 1007).

The placement of spacers in Yamakawa II's sensors was a design choice, and that a PHOSITA would have been just as likely to place the spacers between the lens and the plate, and keep the lens in contact with the substrate. Bretschneider

Decl ¶ 101 (Ex. 1007). For instance, Maglica (Ex. 1005) discloses an optical means (a reflector) in contact with the camming element, onto which the bulb is mounted, but it includes an O-ring—a type of elastic spacer—between the reflector and the cap that acts as part of the retaining means. Ex. 1005 at 3:26-49 (Ex. 1006); Bretschneider Decl ¶ 101 (Ex. 1007).

The placement of the spacers either between the lens and the substrate or the lens and the plate would have no effect on the optical performance of the lens. This placement would also not increase the cost or difficulty of the production of the sensor disclosed in Yamakawa II. Bretschneider Decl ¶ 102 (Ex. 1007).

Not only is the placement of spacers an obvious design choice, but it would have also been one of only a limited number of options facing a PHOSITA. Bretschneider Decl ¶ 103 (Ex. 1007). Because placing the lens onto the substrate, then securing it with the spacers and the plate can be an easier process to perform than the process shown in Yamakawa II, it would have been at least obvious to try it, and the attempt would have resulted in the expected result: a lens held in place by pressure exerted by the retaining element – the plate – and by the substrate with which the lens was in contact. Bretschneider Decl ¶ 103 (Ex. 1007).

Therefore, the added limitation in claim 6 is nothing more than the recitation of known elements, used in a known fashion, and producing expected results. Bretschneider Decl ¶ 104 (Ex. 1007).

VIII. CONCLUSION

Based on the foregoing, Claims 1, 5, and 6 of the '690 Patent recite subject matter that is unpatentable. The Petitioner requests institution of an *inter partes* review to cancel these claims.

RESPECTFULLY SUBMITTED,
RADULESCU LLP

Date: May 28, 2015

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Attachment A:

CERTIFICATE OF SERVICE ON PATENT OWNER UNDER 37 C.F.R. §§ 42.6(e) and 42.105

Pursuant to 37 C.F.R. §§ 42.6(e) and 42.105, the undersigned certifies that on May 28, 2015, a complete and entire copy of this Petition for *Inter Partes* Review of U.S. Patent No. 6,561,690 was served via EXPRESS MAIL®, postage prepaid, to the Patent Owner by serving the following parties:

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Attachment B: Appendix of Exhibits

Exhibit	Description
Ex. 1001	U.S. Patent No. 6,561,690 to Balestriero
Ex. 1002	File History of U.S. Patent No. 6,561,690 to Balestriero
Ex. 1003	U.S. Patent No. 4,978,843 to Yamakawa
Ex. 1004	U.S. Patent No. 5,871,272 to Sharrah
Ex. 1005	U.S. Patent No. 4,388,673 to Maglica
Ex. 1006	U.S. Patent No. 5,173,810 to Yamakawa
Ex. 1007	Declaration of Eric Bretschneider, Ph.D
Ex. 1008	Curriculum Vitae of Eric Bretschneider, Ph.D
Ex. 1009	Webster's New Universal Unabridged Dictionary