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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LUXOTTICA OF AMERICA INC.,

Petitioner,

v.

E-VISION OPTICS, LLC,

Patent Owner.

Case No. IPR2024-01030

Patent No. 8,708,483

**PETITIONER'S REPLY IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 8,708,483**

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 8,708,483 (“the ’483 patent”)
1002	Declaration of John Feland, Ph.D.
1003	U.S. Patent Publication No. 2005/0230596 (“Howell-596”)
1004	U.S. Patent No. 7,581,833 (“Howell-833”)
1005	U.S. Patent No. 6,857,741 (“Blum-741”)
1006	English Translation, Declaration, and Original of Japanese Unexamined Patent Application Publication JPS58-113912 (“Hattori-912”)
1007	U.S. Patent No. 6,091,546 (“Spitzer”)
1008	International Patent Publication No. WO2005/119344 (“Ogren”)
1009	U.S. Patent No. 5,760,868 (“Jannard-868”)
1010	Excerpts from McGraw-Hill Dictionary of Engineering (2d ed. 2003)
1011	Excerpts from Walter Sikonowiz, <i>Designing and Creating Printed Circuits</i> (1981) (“Sikonowiz”)
1012	Excerpts from Merriam Webster’s Collegiate Dictionary (10th ed. 1997)
1013	Gian Carlo Corazza, <i>Marconi’s History</i> , 86 Proceedings of the IEEE 1307-11 (1998) (“Corazza”)
1014	U.S. Patent No. 5,980,037 (“Conway”)
1015	U.S. Patent Publication No. 2005/0248719 (“Howell-719”)
1016	U.S. Patent Publication No. 2006/0001827 (“Howell-827”)
1017	U.S. Patent No. 6,719,425 (“Conner”)

Exhibit No.	Description
1018	Sandra Corns Pickel, <i>The Evolution of the Modern Spectacle Frame</i> , 136 Review of Optometry 9 (1999) (“Pickel”)
1019	Excerpts from the File History of the ’483 Patent
1020	CV of John Feland, Ph.D.
1021	Excerpt of Federal Court Management Statistics, <i>available at</i> https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf
1022	Case No. 8:23-cv-02013 (C.D. Cal.), Dkt. 115, Stipulated Interim Order Regarding Case Schedule
1023	Infringement Contentions for ’483 Patent dated July 19, 2024, <i>e-Vision Optics, LLC et al. v. Luxottica Group, S.p.A. et al.</i> , No. 8:23-cv-02013 (C.D. Cal.)
1024	Transcript of June 11, 2025 Deposition of Dr. James Oliver in IPR2024-01030

I. INTRODUCTION

The claims of the '483 patent are unpatentable, as set forth in the Petition. In its Patent Owner Response (Paper 19, “POR”), e-Vision Optics, LLC (“PO”) fails to make any arguments supporting the patentability of claims 1-2, 4-12, 14-15, and 17-18. As a result, PO has waived any such arguments regarding these claims.

Although PO makes arguments regarding the patentability of claims 3, 13, 16, 19, 21, 32, and 36, its arguments fail to rebut the Petition’s clear showing that these claims are unpatentable. The only independent claim still in dispute is claim 19. For this claim, PO argues solely that there is no motivation to combine the prior art and that a new claim construction renders the prior art deficient. However, PO’s arguments lack merit, conflict with the prior art, and contradict PO’s own infringement contentions. Moreover, PO relies on the flawed legal reasoning that prior art references must be analogous to one another. PO also chose not to depose Petitioner’s expert, Dr. Feland, whose opinions stand unrebutted.

Regarding the dependent claims addressed in the POR (claims 3, 13, 16, 21, 32, and 35), PO does not rebut the Petition’s showing of obviousness. Instead, PO merely argues that a person of ordinary skill in the art (“POSITA”) would not have been motivated to combine the prior art—an argument grounded in PO’s misinterpretation of both the prior art and applicable legal standards.

Accordingly, the Board should reject PO's arguments and find all claims unpatentable.

**II. UNREBUTTED ARGUMENTS: INDEPENDENT CLAIM 1 AND
DEPENDENT CLAIMS 2, 4-10, 14-15, AND 17-18 ARE
UNPATENTABLE**

The POR fails to address any of Grounds 1, 4, 6-7, and 11. For Grounds 2 and 8, the POR does not address the arguments concerning claims 1-2, 4-10, 14-15, and 17-18. POR, i-ii. Accordingly, PO has waived any opposition to these grounds and claims. *In re NuVasive, Inc.*, 842 F.3d 1376, 1380-81 (Fed. Cir. 2016) (holding PO waived arguments on issues not raised in its response after institution).

As a result, the unpatentability of the following claims stands unrebutted:

- Ground 1: claims 1, 9-10, 14-15, and 18
- Ground 2: claims 1-2, 6-10, 14-15, and 18
- Ground 4: claims 4-5, 7, and 17
- Grounds 6 and 10: claim 11
- Grounds 7 and 11: claim 12
- Ground 8: claims 1-2, 4-10, 14-15, and 17-18

Id.

III. DEPENDENT CLAIM 3 IS UNPATENTABLE

A. Howell-596, Howell-833, Blum-741, And Spitzer Render Claim 3 Obvious (Ground 5)

Claim 3 depends on claim 2, which in turn depends on claim 1. PO does not dispute that claims 1 and 2 are unpatentable, as shown, for example, in Ground 2. Instead, PO argues that claim 3—reciting the use of a flex circuit—is not obvious in light of Spitzer. POR, 17-24. PO does not dispute that Spitzer discloses a flex circuit or that the prior art, as a whole, discloses all limitations of claim 3.¹ *Id.* Rather, PO’s sole argument is that there is no motivation to combine. *Id.* But this argument lacks merit.

Specifically, PO argues that there is no reason to include Spitzer’s flex circuit in the combination, asserting that Howell-596 and Blum-741 lack the specific “sliding mechanism” or “strap” component connected via a flex circuit in Spitzer. *Id.*, 18, 20-21. But PO fails to address the clear motivations for the combination provided in the Petition. Pet., 44-46; Ex. 1002, ¶¶148-152. For example, PO ignores that a POSITA would have been motivated to use flex circuits—well-known at the time—to enable component positioning without imposing strain on the leads. Pet., 45 (citing Ex. 1007, 7:56-60); *see also* Ex. 1024, 64:15-65:2 (Dr. Oliver agreeing

¹ In fact, PO does not dispute any other limitations of claim 3, given its failure to address the unpatentability of claims under Grounds 2-4.

that “a POSITA would have been familiar with flex circuits prior to 2006” as “a viable option”). PO also overlooks the motivations expressly disclosed in Spitzer, including the advantage of a flat cross-section flex circuit in small spaces, such as the temple of an eyeglass frame. Pet., 45 (citing Ex. 1007, 9:60-61; Ex. 1002, ¶148).

PO dismisses these motivations to use a flex circuit by asserting—without support—that incorporating one, as set forth in Ground 5, would be “unnecessary and wasteful.” POR, 19. But it is established precedent that “the law does not exclude from an obviousness determination solutions which are more complex and/or expensive.” *See Polaris Wireless, Inc. v. Trueposition, Inc.*, IPR2013-00323, Paper 62 (Final Written Decision) at 36 (P.T.A.B. Nov. 3, 2014), *aff’d*, 622 F. App’x 915 (Fed. Cir. 2015); *see also Orthopedic Equip. Co., Inc. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983) (holding that references “would not be combined by businessmen for economic reasons” is not relevant to obviousness analysis). PO’s arguments lack merit and should be rejected.

PO next argues that a POSITA would have avoided using a flex circuit in Howell-596’s eyewear due to the use of printed circuit boards (“PCBs”). POR, 18-20. But Howell-596 does not limit electrical connections to PCBs. On the contrary, it expressly describes alternative connections, such as wires, for interfacing with electrical components. *See, e.g.*, Ex. 1003, [0184] (“The various electrical components can be *wire* bonded onto the substrate 1502.”), [0205] (“The optical

sensor is coupled to the UV detection system 2102 via one or more electrical wires 2106.”). Furthermore, Spitzer teaches the use of both printed circuits and flex circuits within a single implementation, directly contradicting PO’s claim that a POSITA would have avoided such integration. Ex. 1007, 8:41-65 (“[T]his multiplexer integrated circuit can be mounted on Kapton flexible circuitry which can connect to the other circuits in the eyeglasses, or it may be part of an MCM.”); *see also id.*, 8:31-35. Moreover, as Dr. Oliver admitted, “You don’t necessarily need a printed circuit board” and instead “[y]ou can distribute the electronics throughout the eyeglass frame.” Ex. 1024, 48:9-22.

PO further contends that the need for manual assembly and increased cost would have deterred a POSITA from incorporating a flex circuit. POR, 19. This too is unsupported and legally irrelevant. As an initial matter, PO provides no evidence to establish that a flex circuit would have increased costs. *Id.* Moreover, more complex or expensive solutions are not excluded from an obviousness determination. *See Polaris*, IPR2013-00323, Paper 62 at 36. “[Federal Circuit] case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.” *Novartis Pharm. Corp. v. West-Ward Pharm. Int’l Ltd.*, 923 F.3d 1051, 1059 (Fed. Cir. 2019) (citing *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004)).

PO also asserts that a POSITA would have understood that “Howell-596 teaches integrating different components together as a single unit, rather than distributing them across multiple locations.” POR, 19-20. But Howell-596 clearly discloses distributing components, including a detection system 2102 (yellow) and an opening 2104 covering a sensor (green) across different areas of a temple 2100:

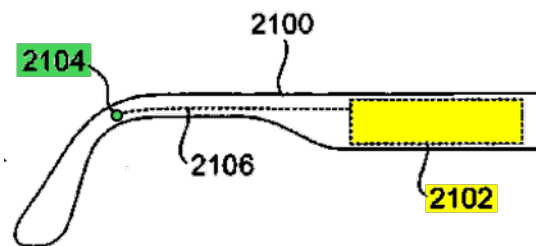


FIG. 21

Howell-596 Fig. 21

Ex. 1003, Fig. 21 (annotated), [0205]. Dr. Oliver confirmed that such distribution of electronics in eyewear can be a “robust placement” that is “functional yet aesthetically pleasing.” Ex. 1024, 45:11-46:12. Even assuming Howell-596 only taught integrated components, PO still fails to demonstrate that Howell-596 teaches away from using a flex circuit. *Syntex (U.S.A.) LLC v. Apotex, Inc.*, 407 F.3d 1371, 1380 (Fed. Cir. 2005) (“A statement that a particular combination is not a preferred embodiment does not teach away *absent clear discouragement of that combination.*”) (emphasis added). Far from teaching away, Dr. Oliver testified that flex circuits were “a viable option” that provides electrical connection with the added benefit of flexure. Ex. 1024, 64:18-66:3.

Lastly, PO argues that a POSITA would not have been motivated to combine Howell-596, Blum-741, and Spitzer because these references are allegedly in different fields and aim to solve different problems. POR, 22-23. PO misunderstands the law. “When more than one prior art reference is used as the basis of an obviousness rejection, it is not required that the references be analogous art to each other.” *Sanofi-Aventis Deutschland GmbH v. Mylan Pharms. Inc.*, 66 F.4th 1373, 1380 (Fed. Cir. 2023); *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1007 (Fed. Cir. 2023). Instead, the references must be analogous to the claimed invention. *See, e.g., In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (explaining that an obviousness reference must be analogous art to the claimed invention, i.e., either (1) belonging to the same field of endeavor or (2) being reasonably pertinent to the problem faced by the inventor). The Petition establishes that these references fall within the field of electronic eyewear and address problems pertinent to the claimed invention. Pet., 11-14, 34-35, 43-44. Moreover, the ’483 patent itself acknowledges the relevance of prior art relating to eyewear with electronics and electro-active lenses. *See, e.g.,* Ex. 1001, 1:56-2:7. Dr. Oliver admitted that the types of problems encountered in the art of the ’483 patent span a broad range of issues relating to eyewear, including “electronics, aesthetics, miniaturization,” as well as “mechatronics, industrial design, usability, UI,” Ex. 1024, 25:18-27:13, which

overlap with the problems addressed by Howell-596, Blum-741, and Spitzer, *see* Ex. 1002, ¶¶43-51, 54-55.

Accordingly, the Petition’s obviousness rationale is well supported, and the Board should reject PO’s arguments and find claim 3 unpatentable.

B. Blum-741 And Hattori-912 Render Claim 3 Obvious (Ground 9)

For Ground 9, PO argues that the prior art does not render claim 3 obvious because the references fail to disclose or suggest “a sealed moisture resistant module attached to the frame,” and that there would have been no motivation to combine Blum-741, Hattori-912, and Spitzer. POR, 24. Each of these arguments fails.

PO argues that the references fail to disclose or suggest the claimed sealed moisture resistant module because: “Petitioner never identifies which component in Hattori-912 allegedly satisfies the claim requirement of a sealed moisture-resistant module attached to the frame.” *Id.*, 25. But this argument contradicts PO’s own infringement contentions, in which it identified an alleged “sealed moisture resistant module attached to the frame” in Petitioner’s accused products.

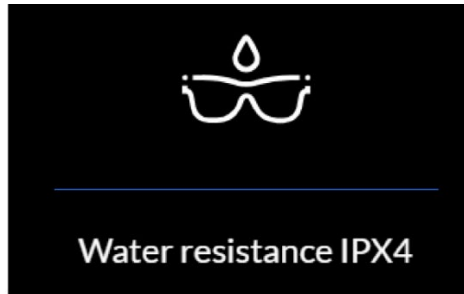
Specifically, PO asserted that “the Accused Products include various modules sealed within the frame as shown in the images below:”



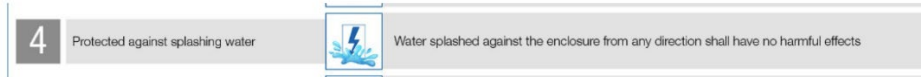
Ex. 1023, 6-9. PO also asserted that “[t]he Accused Products include a printed circuit board within the right temple,” and “[t]he printed circuit board includes a processor and a touch sensor”:



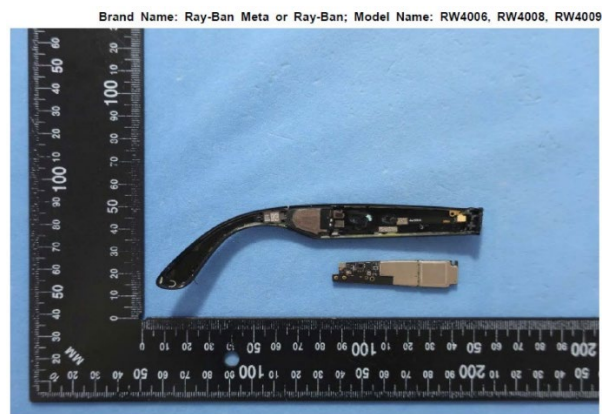
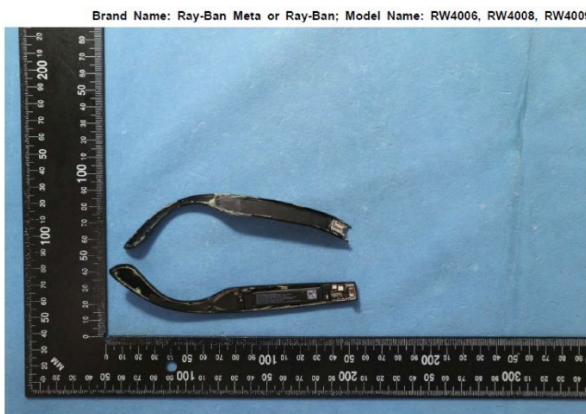
Id., 10-11. In support of its position that the “modules” are “sealed,” PO contended that “the Accused Products are water resistant and include electronics modules disposed within two temples,” citing the following:



(See <https://www.ray-ban.com/usa/discover-ray-ban-meta-smart-glasses/clp#tech.>)



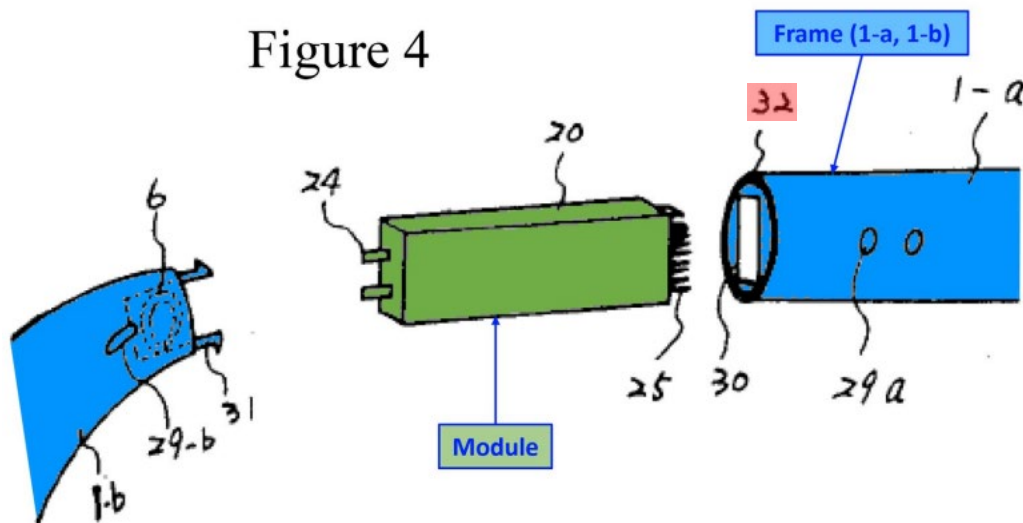
(See <https://www.iec.ch/ip-ratings>)



Id., 12-15. PO’s contentions establish that it considers the scope of a “sealed moisture resistant module attached to the frame” to include electronics on a printed circuit board within a temple, where the electronics are protected from water splashes.

PO argues that Hattori-912’s “[i]ntegrated semiconductor circuit 20 is clearly not ‘a sealed moisture resistant module’ because as Hattori-912 expressly discloses, and as Petitioner admits, any sealing in Hattori-912 is achieved by waterproof ring 32.” POR, 26. However, this is the same type of mapping PO applied in its infringement contentions, where it asserted that “various modules sealed within the

frame”—even without separate sealing of the electronics—satisfy the limitation. Hattori-912 discloses that a waterproof ring 32 (red) provides sealed moisture resistance to the integrated semiconductor circuit 20 (green), which is housed within the frame (blue):



Ex. 1006, Fig. 4. As Dr. Feland explains, “A person of ordinary skill would have been motivated to incorporate Hattori-912’s sealed module into Blum-741’s eyewear, for example by placing some or all of Blum-741’s electronic components in a recess sealed by a waterproof ring[.]” Ex. 1002, ¶179.

PO also argues that Hattori-912’s disclosure of a protective film does not constitute a sealed moisture resistant module. POR, 26. Specifically, PO argues that “a protective film can cover only the top of an integrated semiconductor circuit but not the substrate, and a POSITA would not have understood that a protective film forms a sealed module because the substrate is still exposed to the external

environment.” *Id.*, 26-27. However, this interpretation is inconsistent with PO’s own infringement mapping, where it argued that resistance to splashes was sufficient to meet the “sealed” requirement. Ex. 1023, 12-15.

Hattori-912 discloses that its eyewear components may be “covered by protective film 41.” Ex. 1006, 65. Dr. Feland explains that “[a] person of ordinary skill would have understood this to disclose that components of Hattori-912’s eyewear that are coated with protective film 41 form a sealed moisture resistant module.” Ex. 1002, ¶178. Dr. Feland further notes that “[a] person of ordinary skill would have been motivated to incorporate Hattori-912’s sealed module into Blum-741’s eyewear, for example by ... coating some or all of Blum-741’s electronic components with a protective film[.]” *Id.*, ¶179. PO’s expert, Dr. Oliver, agreed that such “conformal layers are a very common way to protect electronics from many different things, and vapor and water is one of those things” Ex. 1024, 33:8-16; *see also id.*, 33:17-22 (confirming that using a conformal layer has been “a technique for many years to protect primarily printed circuit boards”).

The Board should reject PO’s newly advanced and inconsistent interpretations, which appear tailored solely to avoid invalidity. *See Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1351 (Fed. Cir. 2001) (holding that a “patent may not, like a ‘nose of wax,’ be twisted one way to avoid

[unpatentability] and another to find infringement”); *CommScope Techs. LLC v. Dali Wireless Inc.*, 10 F.4th 1289, 1299 (Fed. Cir. 2021) (same).

PO also argues that a POSITA would not have been motivated to combine Blum-741 and Hattori-912, asserting that these references come from different fields and solve different problems. POR, 27-28. But the references need not be analogous art to each other as PO contends. *Sanofi-Aventis*, 66 F.4th at 1380; *Corephotonics*, 84 F.4th at 1007. The references must be analogous to the claimed invention. *See, e.g., Bigio*, 381 F.3d at 1325. The Petition establishes that both references are in the field of electronic eyewear and address problems pertinent to the claimed invention. Pet., 34-35, 53-54. Moreover, the '483 patent itself acknowledges that prior art involving eyewear with electronics and audio functionality is directly relevant. *See, e.g., Ex. 1001*, 1:56-67. Dr. Oliver further admitted that the types of problems encountered in the art of the '483 patent span a broad range of issues relating to eyewear, including “electronics, aesthetics, miniaturization,” as well as “mechatronics, industrial design, usability, UI,” Ex. 1024, 25:18-27:13, which overlap with the problems addressed by Blum-741 and Hattori-912, *see Ex. 1002*, ¶¶47-53.

PO further refers back to its arguments concerning Spitzer from Ground 5, contending that a POSITA would not have been motivated to combine Spitzer with

Blum-741 and Hattori-912. POR, 28. These arguments fail for the same reasons discussed with respect to Ground 5. *See supra* §III.A.

Regardless, PO’s arguments improperly treat the POSITA as a mere automaton, incapable of applying the disclosures in the references to the specific application at hand. *KSR Int’l v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.”). Hattori-912 would have provided motivation for a POSITA to construct “a sealed moisture resistant module attached to the frame,” while Spitzer would have motivated the incorporation of a flex circuit. Pet., 55-56, 78, 44-46. This configuration would have been well within the skill of a POSITA to implement (Ex. 1002, ¶243), and PO does not dispute this point.

In sum, PO has failed to rebut the Petition’s showing of obviousness. The Board should therefore find that claim 3 is unpatentable.

IV. DEPENDENT CLAIMS 13 AND 16 ARE UNPATENTABLE

A. Howell-596 Renders Claims 13 And 16 Obvious (Ground 2)

PO argues that Howell-596’s “module is water-resistant or waterproof, not hermetically sealed as Petitioner contends.” POR, 29-30. But PO ignores that the ’483 patent itself treats hermetically sealing as conventional and equivalent to waterproofing. Specifically, the ’483 patent states:

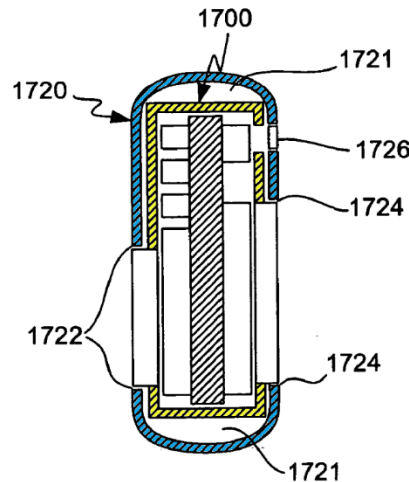
- “[O]ther dimensional shapes may alternatively be used to form the module that will be preferably placed in a cavity and perhaps molded therein to form an electronic frame component that is ***hermetically sealed*** to prevent water from contacting the electronics.” Ex. 1001, 6:47-53 (emphasis added).
- “In this way, the module may be ***hermetically sealed*** while still allowing the battery to be recharged without breaking a moisture resistant seal.” *Id.*, 9:15-18 (emphasis added).
- “The module preferably houses any of the aforementioned electrical components in a substantially water-proof and wear resistant/moisture resistant environment and is preferably ***hermetically sealed.***” *Id.*, 10:47-50 (emphasis added).

Accordingly, PO’s arguments are contrary to the express teachings of the ’483 patent and lack merit.

Moreover, PO ignores that Dr. Feland explains a POSITA would have been motivated to “hermetically seal the module for a variety of reasons, for example, to keep the components clean, dust-free, etc.” Ex. 1002, ¶103. PO does not, and indeed cannot, argue that hermetically sealing was beyond the skill of a POSITA. In fact, the ’483 patent provides no detailed instruction on how to hermetically seal a module. As the Federal Circuit has held, a patent demonstrates what was within the

skill of a POSITA, “and it does so not by what [the patent] discloses but by what it *does not* disclose.” *Abbott Labs. v. Andrx Pharms., Inc.*, 452 F.3d 1331, 1341 (Fed. Cir. 2006); *see also In re Epstein*, 32 F.3d 1559, 1568 (Fed. Cir. 1994); *Smith & Nephew, Inc. v. Rea*, 721 F.3d 1371, 1381 (Fed. Cir. 2013). The ’483 patent does not purport to solve any problems relating to hermetically sealing, further confirming that such sealing techniques were already within the knowledge of a POSITA. *Abbott Labs.*, 452 F.3d at 1341; *Epstein*, 32 F.3d at 1568; *Smith & Nephew*, 721 F.3d at 1381. PO cannot demand highly specific disclosures in the prior art to demonstrate knowledge of hermetically sealing a module when the ’483 patent itself offers no such detail and relies entirely on the knowledge of a POSITA. *Epstein*, 32 F.3d at 1568 (“[T]he Board’s observation that appellant did not provide the type of detail in his specification that he now argues is necessary in prior art references supports the Board’s finding that one skilled in the art would have known how to implement the features of the references and would have concluded that the reference disclosures would have been enabling.”).

PO’s argument regarding the patentability of claim 16 is similarly without merit. PO and its expert claim that “a POSITA would not have understood that Howell-596 discloses any wear resistant module.” POR, 32; Ex. 2019, ¶102. Yet Howell-596 expressly describes that its “module housing 1700 [yellow] protects the module” (Ex. 1003, [0195]), illustrating this protection in the following figure:

**FIG. 17B**

Ex. 1003, Fig. 17B (annotated). As shown and confirmed by Dr. Feland’s analysis (Ex. 1002, ¶104), the outer portion of the module housing 1700 (yellow) is designed to protect the inner components from damage caused by motion relative to another surface, such as the eyewear housing 1720 (blue). This disclosure plainly describes a module that is “substantially wear resistant” as required by the claim.

Accordingly, the Board should find claim 16 unpatentable.

B. Blum-741 And Hattori-912 Render Claims 13 And 16 Obvious (Ground 8)

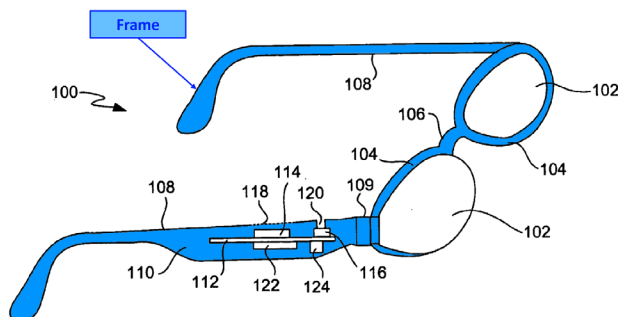
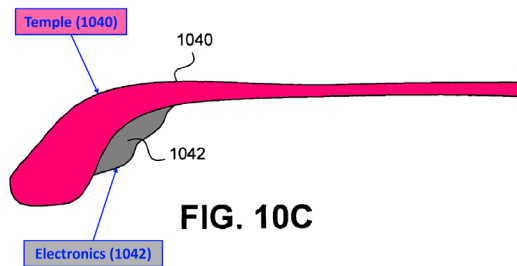
PO’s arguments regarding claims 13 and 16 under Ground 8 fail for the same reasons discussed with respect to those claims under Ground 2. *See supra* §IV.A.

V. INDEPENDENT CLAIM 19 IS UNPATENTABLE

A. Howell-596 And Howell-833 Render Claim 19 Obvious (Ground 3)

The Petition establishes that the combination of Howell-596 and Howell-833 renders claim 19 obvious. PO does not dispute that Howell-596 discloses both the

claimed frame and sealed moisture resistant module, nor does PO dispute that Howell-833 teaches the only remaining limitation—disposing the module at least partially behind the ear of the wearer. *See* Pet., 14-15, 31; POR, 9-11, 33-34. These features are illustrated, for example, in the following figures:

**FIG. 1****Howell-596 Fig. 1****FIG. 10C****Howell-833 Fig. 10C**

Ex. 1003, Fig. 1 (annotated); Ex. 1004, Fig. 10C (annotated).

PO argues only that a POSITA would not have been motivated to combine these references. POR, 33-37. Specifically, PO argues there would have been no motivation because placing the UV detection system of Howell-596 behind the ear would render it unfit for its intended purpose, as it would somehow obstruct “a clear window for a sensor to receive UV radiation.” *Id.*, 34. But PO ignores that Howell-596 expressly teaches placing an opening 2104 covering a sensor (green) behind the ear of a wearer:

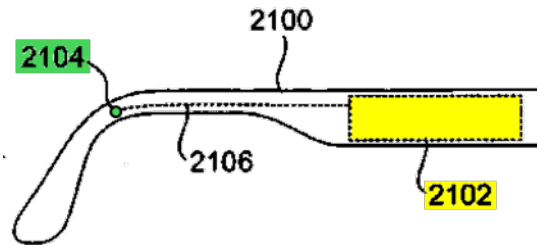


FIG. 21

Howell-596 Fig. 21

Ex. 1003, Fig. 21 (annotated), [0205].

Similarly, Howell-833 discloses placing a sensor behind the wearer's ear. The POR acknowledges that "Figure 1 of Howell-833 (reproduced below) illustrates an eyewear with electrical components 112 located at the tip of both temples:"

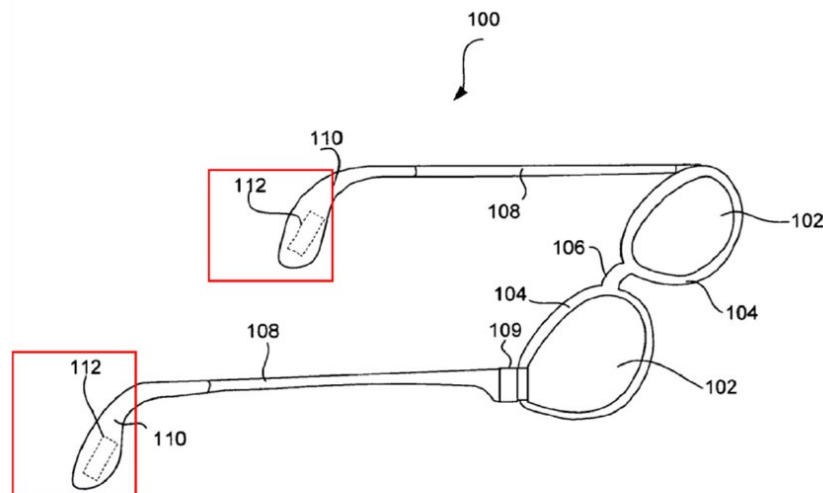


FIG. 1

POR, 10-11 (citing and annotating Ex. 1004, Fig. 1). As the POR further acknowledges, Howell-833's Figure 4 specifies the types of components that can be included in the electrical components 112 behind the ear. *Id.*, 11. Among those

components, Howell-833 identifies a “UV sensor” and other detection system components:

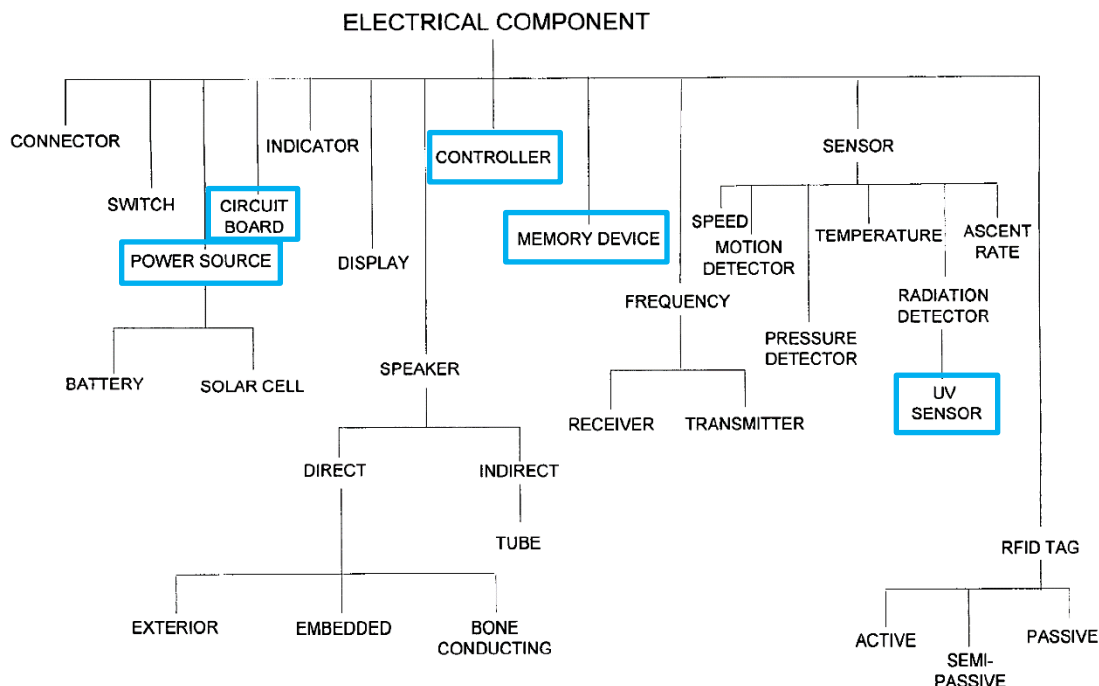


FIG. 4

Ex. 1004, Fig. 4 (annotated); *see also id.*, 9:59 (“sun sensor”), 16:66-17:2 (“ultraviolet (UV) detector”), 18:9-11 (“environmental sensor” sensing “ultraviolet radiation or light”).

Accordingly, Howell-596 and Howell-833 each expressly teach placing a module at least partly behind the ear, directly refuting PO’s arguments.

PO next contends that “a POSITA would not have been motivated to place only a portion of the UV detection system of Howell-596 behind a user’s ear.” POR, 35. However, neither claim 19 nor the Petition’s combination requires that “only a portion,” and not the entirety, of the module be disposed behind the ear. Ex. 1001,

claim 19; Pet., 31-33. Consistent with the requirements of claim 19, the combination’s “module is disposed, *at least partially*, on a portion of the frame configured to be [sic] behind the ear of a wearer of the eyewear.” Pet., 31-33. Thus, this limitation is satisfied regardless of whether the module is entirely or only partially disposed behind the ear.

PO also argues that “the testimony of Petitioner’s own expert confirms that a POSITA would not have been motivated to separate various components of Howell-596’s UV detection system and place only some of them behind a user’s ear while leaving the rest in front of the ear.” POR, 35-36. But Dr. Feland’s testimony regarding the advantages of including multiple components in a sealed module does not require separating Howell-596’s components at opposite ends of an eyeglass frame, as PO suggests. Rather, the sealed module may be disposed either in part or entirely behind the ear.

Moreover, PO fails to rebut the Petition’s showing that only a limited number of placement options exist along the eyewear’s temple—making the behind-the-ear location an “obvious to try” configuration under *KSR*. Pet., 33 (citing Ex. 1002, ¶113). The background of the ’483 patent itself supports this conclusion, acknowledging that prior art eyewear had already positioned electronic components in similar temple locations:

Various electronic components have been disclosed in prior art whereby said components are located in the side of one or both temples,

in or on the end piece of the temple, in or on the eyeglass frame's bridge, in or on the lens or lenses, or affixed to the hinge or hinges that attach the frame's temple to the frame's front.

Ex. 1001, 2:18-23 (emphasis added). Dr. Oliver acknowledged this obviousness rationale, and yet failed to provide any rebuttal to Dr. Feland's opinion on this issue.

Ex. 2024, 14:6-18, 21:8-22:5; Ex. 2019, ¶21.

For these reasons, the Board should find claim 19 unpatentable under Ground 3.

B. Blum-741 And Hattori-912 Render Claim 19 Obvious (Ground 8)

PO simply repeats its same arguments concerning claim 3 in support of claim 19 under Ground 8. POR, 37. These arguments are wrong for the same reasons discussed above with respect to claim 3. *See supra* §III.B.

Accordingly, the Board should find claim 19 unpatentable under Ground 8.

VI. CLAIMS DEPENDENT ON INDEPENDENT CLAIM 19 ARE UNPATENTABLE

A. Grounds 3-11 Render Claims 20, 22-31, 33-34, And 36-37 Obvious

PO provides no additional arguments for claims 20, 22-31, 33-34, and 36-37 beyond those presented for independent claim 19. For the reasons discussed in Section V, PO's arguments are wrong, and these dependent claims are thus also unpatentable.

B. Grounds 5 And 9 Render Claim 21 Obvious

PO provides no additional arguments for claim 21 beyond those presented for independent claim 19 and for claim 3 under Ground 5. For the reasons discussed in Sections III.A and V, PO's arguments are wrong and claim 21 should likewise be found unpatentable.

C. Grounds 3 And 8 Render Claims 32 And 35 Obvious

PO similarly provides no additional arguments for claims 32 and 35 beyond those presented for independent claim 19 and for claims 13 and 16 under Ground 2. For the reasons discussed in Sections IV.A and V, PO's arguments are wrong, and these claims are also unpatentable and should be canceled.

Respectfully submitted,

Dated: June 23, 2025

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this **PETITIONER’S REPLY IN SUPPORT OF PETITION FOR INTER PARTES REVIEW** contains 4,201 words according to the word-processing program used to prepare this paper. The foregoing word count complies with the 5,600-word type-volume limit specified by 37 C.F.R. § 42.24(c)(1).

Dated: June 23, 2025

By: / Ali S. Razai /

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CERTIFICATE OF SERVICE

I hereby certify that on the date below, a true and correct copy of **PETITIONER’S REPLY IN SUPPORT OF PETITION FOR INTER PARTES REVIEW** is being served via email pursuant to 37 C.F.R. § 42.6(e), to counsel for Patent Owner as addressed below:

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