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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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LUXOTTICA OF AMERICA INC.,  
Petitioner,

v.

E-VISION OPTICS, LLC,  
Patent Owner.

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Case IPR2024-01030  
Patent 8,708,483

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**PETITION FOR *INTER PARTES* REVIEW OF  
U.S. PATENT NO. 8,708,483**

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| <b>Exhibit</b> | <b>Description</b>                                                                                                                |
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| 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”)                              |

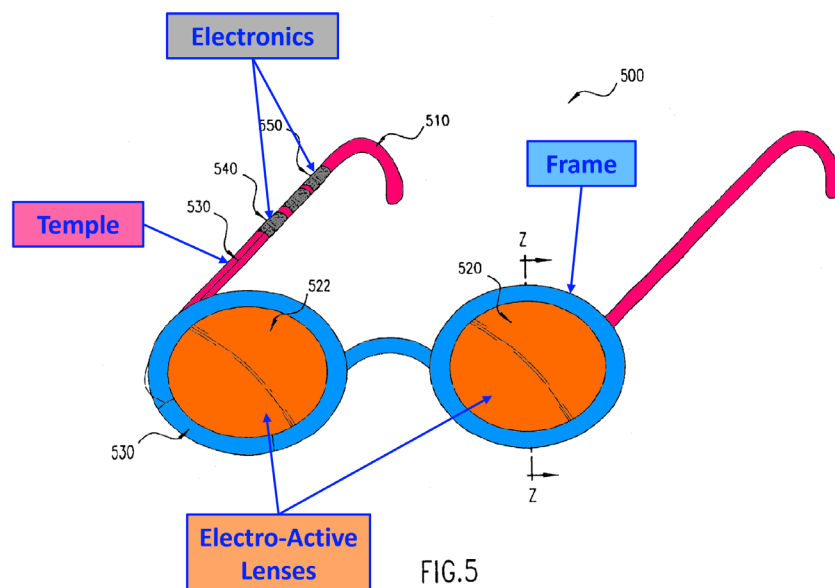
| <b>Exhibit</b> | <b>Description</b>                                                                                                                                                                                                                                |
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| 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”)                                                                                                                                                                                                              |
| 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> <a href="https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf">https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf</a> |

Petitioner Luxottica of America Inc. (“Luxottica” or “Petitioner”) requests *inter partes* review (“IPR”) of claims 1-37 (“challenged claims”) of U.S. Patent No. 8,708,483 (“the ’483 patent,” Ex.1001) owned by e-Vision Optics, LLC (“Patent Owner” or “PO”).

## **I. INTRODUCTION AND BACKGROUND**

Per the ’483 patent, the invention is directed to “integrating electronic components into an electro-active frame for driving electro-active focusing lenses.” Ex.1001, Abstract. But such eyewear with electro-active lenses was well-known at the time of the ’483 patent’s priority date of May 2007.

For example, in 2005, Blum-741 disclosed eyewear having an electro-active lens system, including a controller and power source connected to the lenses. *E.g.*, Ex.1005, 7:52-8:2.



*Id.*, Fig. 5<sup>1</sup>; Ex.1002 ¶28.

Moreover, most of the '483 patent's claims are even broader, and do not require electro-active focusing lenses. Rather, the claims are simply directed to eyewear with electronics contained in a sealed, moisture-resistant module in the temple of an eyewear frame. *E.g.*, Ex.1001, independent claims 1, 19. Such eyewear was also well-known before the '483 patent.

For example, in 2005, Howell-596 disclosed eyewear with an integrated radiation detection module. Ex.1003, Abstract, ¶¶[0194]-[0196]. Howell's eyewear included electronic components mounted in the temple region of an eyewear frame, and these components may be enclosed in a waterproof protective module housing.

*Id.*

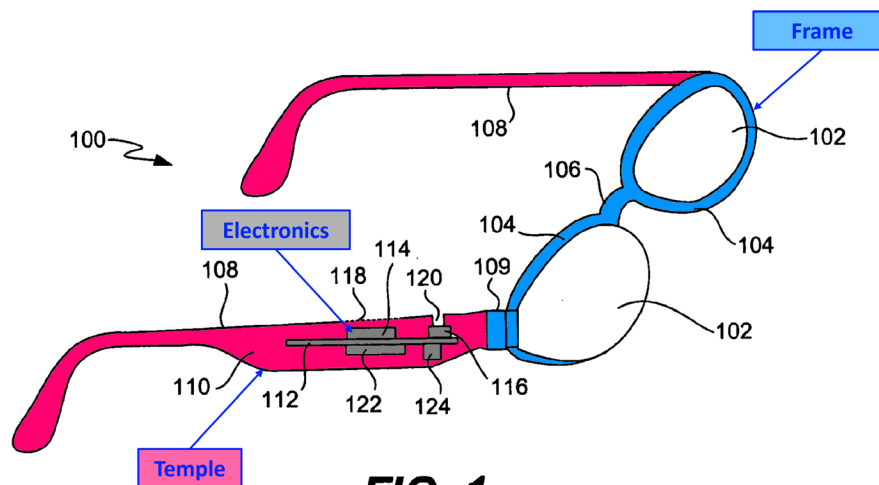


**FIG. 1**

*Id.*, Fig. 1; Ex.1002 ¶30.

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<sup>1</sup> Figures herein are colored and annotated for clarity.

In 1983, Hattori-912 disclosed eyewear that includes a display driven by an electronics module located in the eyewear frame. Ex.1006, 63. The electronics included sensors, a power supply, and processing circuitry, embedded in the eyewear frame, which was sealed by a waterproof ring. *Id.*, 63-65.

Figure 1

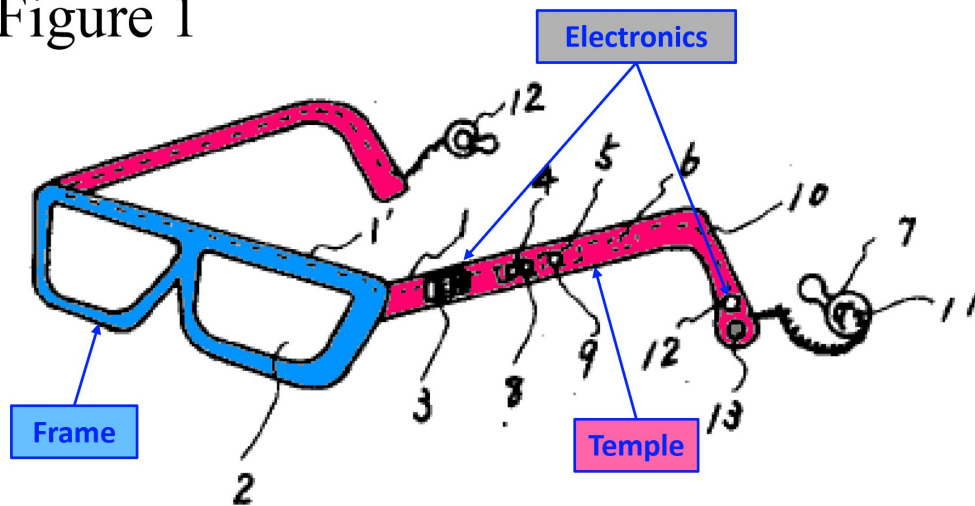
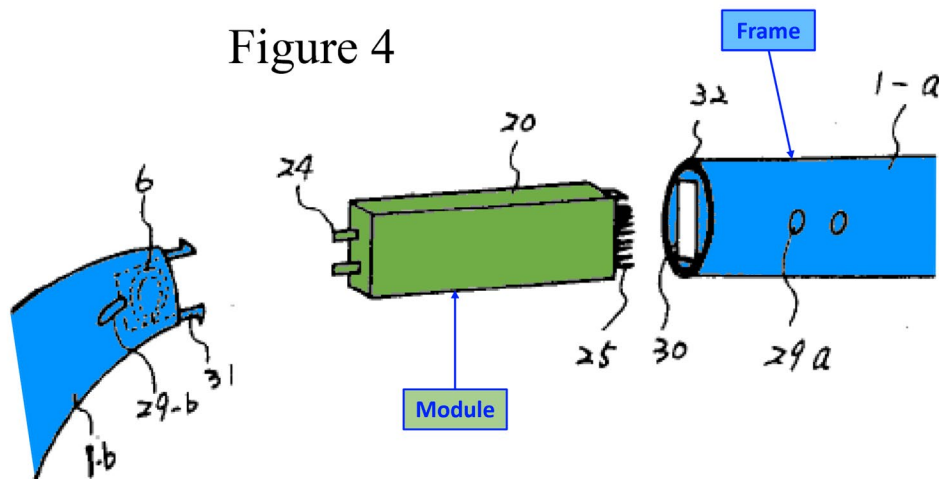


Figure 4



*Id.*, Figs. 1, 4; Ex.1002 ¶31.

Similarly, in 2000, Spitzer disclosed an electronic eyewear system with a display system, a camera system, and various sensors mounted on an eyeglass frame.

Ex.1007, Abstract.

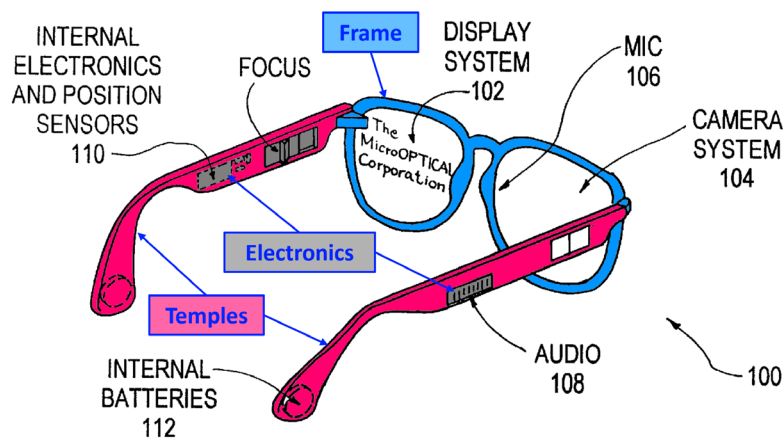


**FIG. 1**

*Id.*, Fig. 1; Ex.1002 ¶32.

Likewise, Howell-833, which issued from an application filed in 2006, disclosed an electronic eyewear system that included various electronic components mounted on an eyeglass frame. Ex.1004, Abstract.

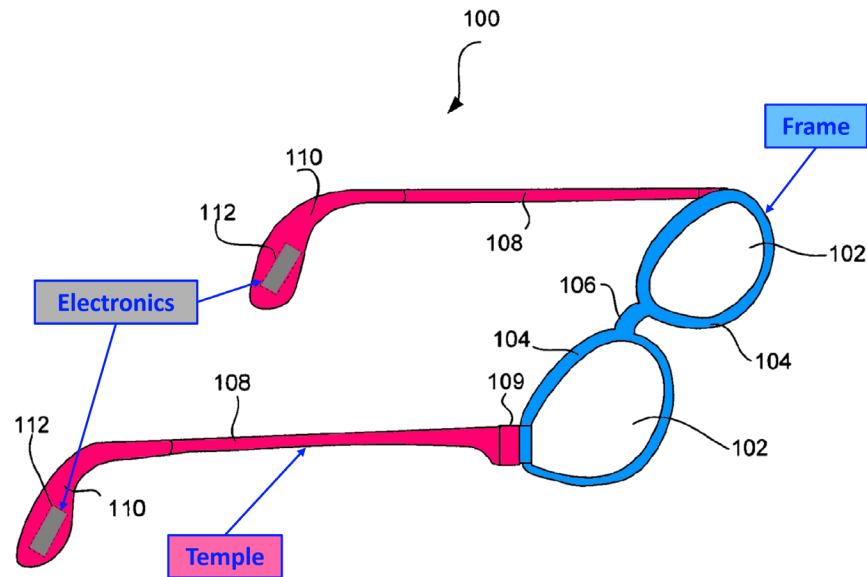


**FIG. 1**

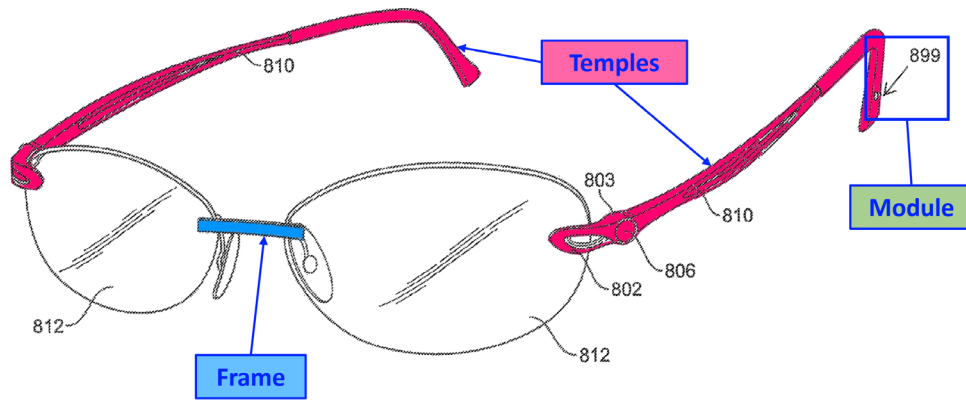
*Id.*, Fig. 1; Ex.1002 ¶33.

None of these references were applied by the Examiner. For the reasons described herein, the challenged claims should be cancelled because they are directed to conventional electronic eyewear having features widely known in the field.

## **II. THE '483 PATENT**

### **A. Overview**

The '483 patent describes an eyewear frame with attached and/or embedded electronic components. *E.g.*, Ex.1001, 2:51-3:21. One example of the disclosed eyewear frame is shown in Figure 8B:



*Id.*, Fig. 8B; Ex.1002 ¶35. Electronic components, including a power source, may be contained within a module located on or in the temple of the frame. *Id.* The module may be sealed to be waterproof. Ex.1001, 10:47-50.

The eyewear may also comprise additional electronic components, such as electro-active lenses, switches, detectors, sensors, transceivers, and the like, which are either inside or outside the module. *E.g., id.*, 2:55-67 (electro-active lenses located outside the module), 10:40-47 (additional components inside the module); Ex. 1002 ¶36.

## **B. Claims**

The '483 patent includes two independent claims, 1 and 19. Claim 1 is set forth below.

| Claim 1  |                     |
|----------|---------------------|
| Preamble | Eyewear comprising: |

| Claim 1 |                                                                                                                                                                                      |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1[a]    | a frame; and                                                                                                                                                                         |
| 1[b]    | a sealed moisture resistant module attached to the frame,                                                                                                                            |
| 1[b][i] | wherein the module comprises within the seal any two of: a switch, a detector, a processor, a power source, a drive circuit, a transmitter, a receiver, a transceiver, and a sensor, |
| 1[c]    | wherein the frame comprises a first temple and a second temple, and                                                                                                                  |
| 1[c][i] | wherein the module is disposed within the first temple.                                                                                                                              |

Independent claim 19 is generally the same, except it recites that the module is “disposed, at least partially, on a portion of the frame configured to be behind the ear of a wearer.”

### **C. Prosecution History**

During prosecution of the application leading to the '483 patent, the Examiner issued a single rejection and then allowed the claims after the applicant added limitations to each independent claim. To what is now claim 1, the applicant added that the sealed module is disposed within the temple of the eyewear frame; and to what is now claim 19, the applicant added that the sealed module is disposed on a portion of the eyewear frame configured to be behind the ear of a wearer. Ex.1019, 138-45. But prior art references not considered by the Examiner, including Howell-596, Hattori-912, and Howell-833, disclose these limitations. The Examiner never

applied these references, or any like them. Thus, the claims were allowed under a mistaken premise.

### **III. LEVEL OF ORDINARY SKILL**

The '483 patent relates to eyewear with electronics integrated in the eyewear frame. Ex.1001, 1:32-37; Ex.1002 ¶24. Based on the relevant factors, *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995), a hypothetical person of ordinary skill in the art (“POSITA”) would have had at least a bachelor’s degree in mechanical or manufacturing engineering; mechatronics; electrical engineering plus coursework in mechanical engineering, manufacturing engineering, or mechatronics; or a similar technical degree, and at least 2 years of experience designing consumer electronics, such as eyewear with electronics. Ex.1002 ¶¶23-25. Work experience could substitute for formal education and additional formal education could substitute for work experience. *Id.*

This Petition does not turn on this specific definition of the level of ordinary skill. The claims would be obvious from the perspective of a POSITA under any reasonable definition. *Id.*

### **IV. CLAIM CONSTRUCTION**

In October 2023, Patent Owner sued Petitioner for infringement of the '483 patent in *e-Vision Optics, LLC et al. v. Luxottica Group S.p.A. et al.*, No. 8:23-cv-02013 (C.D. Cal.) (“the Litigation”). Although the parties may propose

constructions for certain terms to address infringement in the Litigation, no claim terms require construction to resolve the patentability challenges here. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Petitioner has herein accorded all claim terms their plain and ordinary meaning, including “frame” and “rimless frame,” which are defined in the patent in accordance with their plain and ordinary meaning. Ex. 1001, 4:49-51, 5:18; 37 C.F.R. §42.100(b); *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).

## **V. STATEMENT OF RELIEF REQUESTED**

### **A. Grounds**

Petitioner requests that the Board cancel all claims of the ’483 patent as follows:

| Ground | Reference(s)                                  | 35 U.S.C. § | Challenged Claims              |
|--------|-----------------------------------------------|-------------|--------------------------------|
| 1      | Howell-596                                    | 102         | 1, 9-10, 14-15, 18             |
| 2      | Howell-596                                    | 103         | 1-2, 6-10, 13-16, 18           |
| 3      | Howell-596 and Howell-833                     | 103         | 19-20, 24-28, 31-35, 37        |
| 4      | Howell-596, Howell-833, and Blum-741          | 103         | 4-5, 7, 17, 22-23, 25, 36      |
| 5      | Howell-596, Howell-833, Blum-741, and Spitzer | 103         | 3, 21                          |
| 6      | Howell-596, Howell-833, and Ogren             | 103         | 11, 29                         |
| 7      | Howell-596, Howell-833, and Jannard-868       | 103         | 12, 30                         |
| 8      | Blum-741 and Hattori-912                      | 103         | 1-2, 4-10, 13-20, 22-28, 31-37 |
| 9      | Blum-741, Hattori-912, and Spitzer            | 103         | 3, 21                          |
| 10     | Blum-741, Hattori-912, and Ogren              | 103         | 11, 29                         |
| 11     | Blum-741, Hattori-912, and Jannard-868        | 103         | 12, 30                         |

## **B. Asserted References**

The '483 patent's earliest possible priority date is May 4, 2007. Ex.1001. Petitioner does not concede the claims are entitled to that priority date and reserves its right to contest it. Nevertheless, the references herein are prior art as follows:

| Ex.  | Reference   | Date                     | Art Type (Pre-AIA 35 U.S.C. §) |
|------|-------------|--------------------------|--------------------------------|
| 1003 | Howell-596  | Published: Oct. 20, 2005 | 102(b)                         |
| 1004 | Howell-833  | Filed: Oct. 11, 2006     | 102(e)                         |
| 1005 | Blum-741    | Issued: Feb. 22, 2005    | 102(b)                         |
| 1006 | Hattori-912 | Published: July 7, 1983  | 102(b)                         |
| 1007 | Spitzer     | Issued: July 18, 2000    | 102(b)                         |
| 1008 | Ogren       | Published: Dec. 15, 2005 | 102(b)                         |
| 1009 | Jannard-868 | Issued: June 2, 1998     | 102(b)                         |

The Petition is also supported by the expert declaration of Dr. John Feland.  
Ex.1002.

**VI. GROUND 1: HOWELL-596 ANTICIPATES CLAIMS 1, 9-10, 14-15, AND**  
**18**

**A. Overview of Howell-596**

Howell-596 discloses eyewear with a radiation (e.g., ultraviolet (UV) radiation) monitoring system integrated in the eyewear. Ex.1003, Abstract; Ex.1002 ¶¶43-45. As shown in Figure 1, the UV-monitoring eyewear includes electronic components mounted in the temple of the eyewear frame:

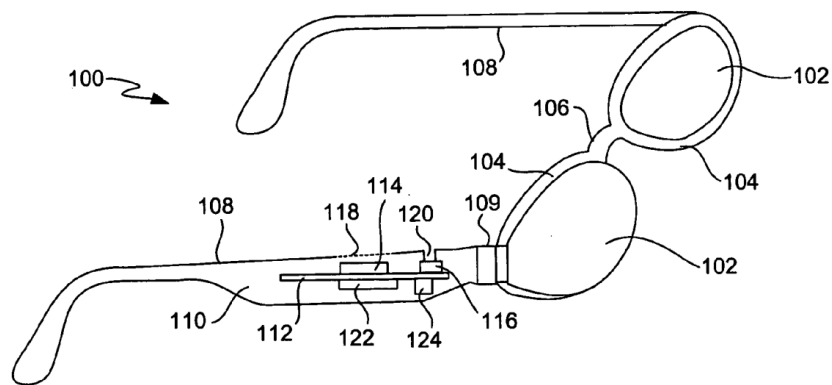


**FIG. 1**

Ex.1003, Fig. 1. Howell-596 describes that all components of the UV monitoring system may be contained within one or both temples. *Id.* ¶[0007]. An embodiment of the eyewear includes a detector, electrical circuitry, an output device, one or both of a battery and a solar cell to power the electrical circuitry, one or more sensors, and communication capabilities. *Id.* ¶[0008].

An embodiment of the UV detection system is depicted in Figure 15A:

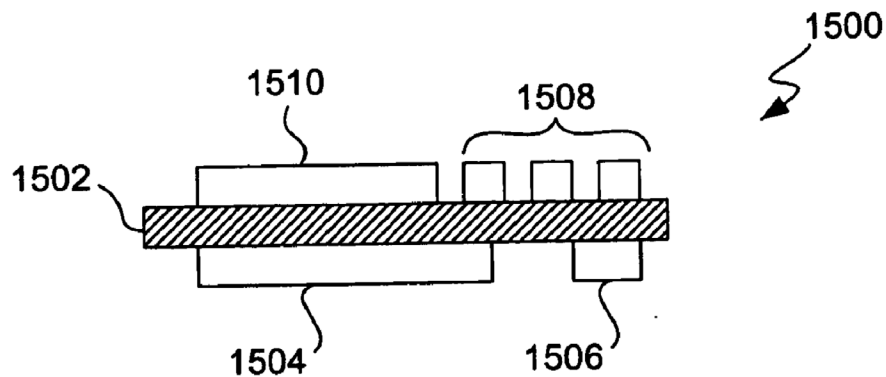


**FIG. 15A**

*Id.*, Fig. 15A. As shown, the UV detection system 1500 includes a substrate, e.g., a printed circuit board, 1502. *Id.* ¶[0184]. The system includes a UV sensor 1506, a power source 1504 (either a battery or solar cell), a display device 1510, and electrical circuitry 1508. *Id.*

The UV detection system can be contained within a module housing such as depicted in Figure 17A:

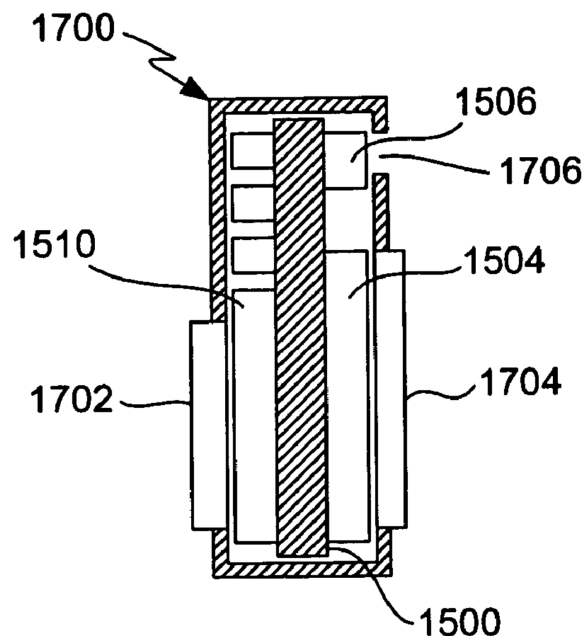


**FIG. 17A**

*Id.*, Fig. 17A. The module housing 1700 includes window 1702 for the display device and window 1704 for when the power supply 1504 is a solar cell. *Id.* ¶[0194]. Howell-596 describes that the housing 1700 can have an opening, such as depicted above, or it can also be water-resistant or waterproof. *Id.* The module can be “placed

into an opening, cavity or container of any eyewear housing, such as a temple region of the eyewear housing.” *Id.* ¶[0195]. The module housing allows one “to regularize or standardize the form factor for the UV detection system, such that the opening, cavity or container of the eyewear housing can be regularized or standardized.” *Id.*

## **B. Claim 1**

The preamble of claim 1 recites “[e]yewear.” Howell-596 discloses eyewear. *E.g.*, Ex.1003, Abstract, ¶[0007], Fig. 1; Ex.1002 ¶59.

### **1. Limitation 1[a]: “a frame”**

Howell-596 discloses a frame. *E.g.*, Ex.1003 ¶¶[0073], [0203]-[0206]. The frame is shown in Figure 1:

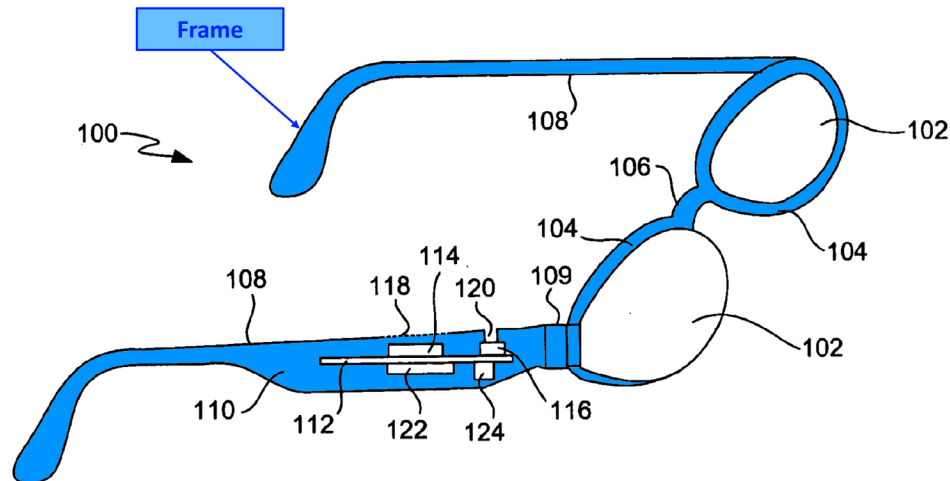


**FIG. 1**

*Id.*, Fig. 1; Ex.1002 ¶60.

2. **Limitation 1[b]: “a sealed moisture resistant module attached to the frame”**

Howell-596 discloses that “[in some embodiments] the module housing 1700 does not include vents or holes, so as to be water resistant or water-proof.” Ex.1003 ¶[0194]. The module housing 1700 “is then placed into an opening, cavity or container of an eyewear housing” and is thus attached to the eyewear frame. *Id.* ¶[0195]; Ex.1002 ¶61.

3. **Limitation 1[b][i]: “wherein the module comprises within the seal any two of: a switch, a detector, a processor, a power source, a drive circuit, a transmitter, a receiver, a transceiver, and a sensor”**

Howell-596 discloses that its module comprises various electrical components. These include, for example, a power source (one or both of a battery and a solar cell) and a UV detector. *See, e.g.*, Ex.1003 ¶[0194] (power source 1504 and UV detector 1506 contained within sealed module housing 1700); Ex.1002 ¶62.

Specifically, Howell-596 discloses that its UV detection system includes “power source 1504 [which] is, for example, a battery or a solar panel of one or more solar cells.” Ex.1003 ¶[0184]; *see id.* ¶[0073] (discussing “solar cell 114”). Howell-596 also discloses that the power source 1504 is included within the sealed module. *Id.* ¶¶[0194] (module may house UV detection system 1500), [0184] (UV detection system 1500 includes power source 1504); Ex.1002 ¶63.

The '483 patent discloses several types of detectors, including a photo detector, a motion detector, and a view detector. Ex.1001, 10:40-59; Ex.1002 ¶64. Howell-596 likewise discloses a “UV detector 306” that may comprise “a photodetector 305 and an optical filter 308.” Ex.1003 ¶[0078]; *see also id.* ¶¶[0073]-[0075], [0078]-[0082], [0211]-[0212]. Howell-596 also discloses that a UV detector is included within the sealed module. *Id.* ¶[0194] (“the module housing 1700 can operate as a housing for the UV detection system 1500”); Ex.1002 ¶64.

Howell-596’s power source and UV detector are shown within the module in Figure 17A:

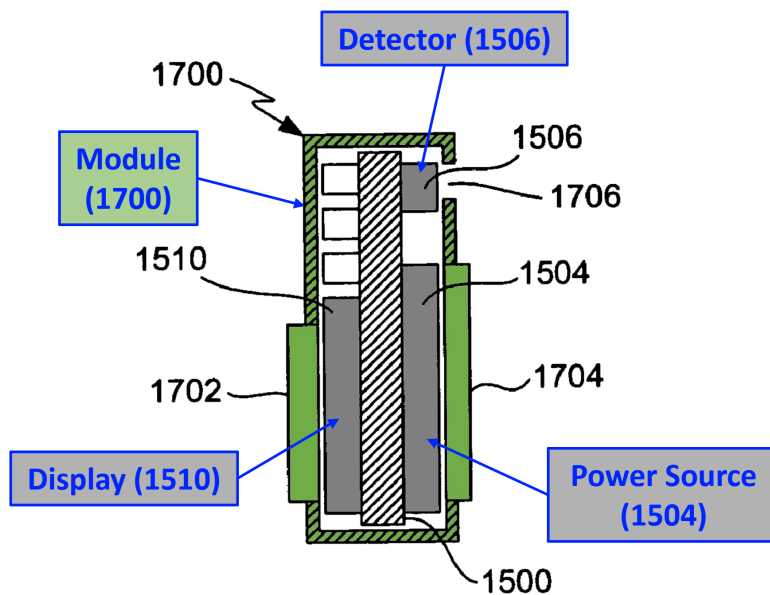


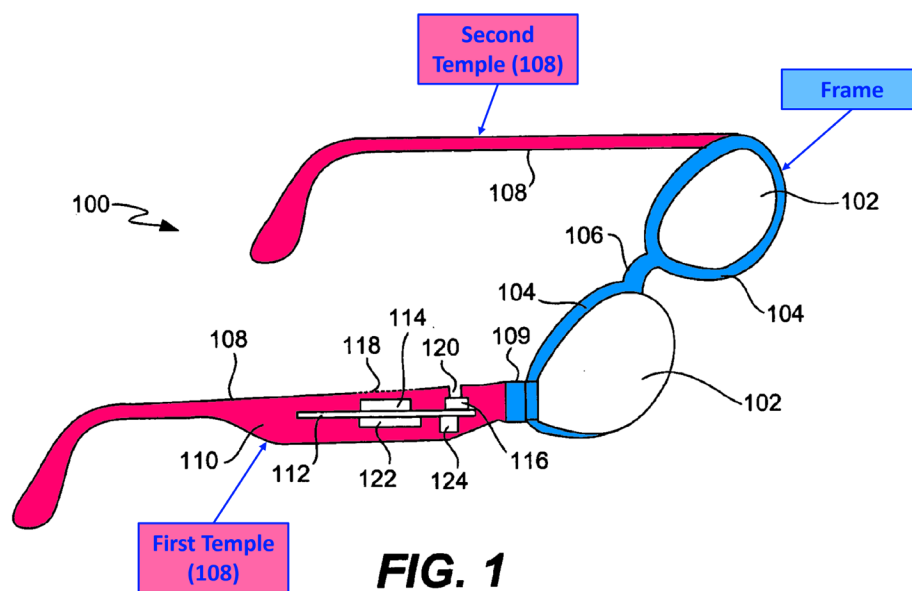
**FIG. 17A**

Ex.1003, Fig. 17A; *id.* ¶¶[0184], [0194]; Ex.1002 ¶65.

Because Howell-596 discloses that its sealed module includes at least a power source and a detector, Howell-596 discloses this limitation. Ex.1002 ¶¶62-66.

4. **Limitation 1[c]: “wherein the frame comprises a first temple and a second temple”**

Howell-596 discloses a frame having first and second temples. For example, Figure 1 shows the temples:



Ex.1003, Fig. 1; Ex.1002 ¶67.

5. **Limitation 1[c][i]: “wherein the module is disposed within the first temple”**

Howell-596 discloses that the module is disposed within a temple of the eyewear frame. Ex.1003 ¶¶[0195], [0197]; Ex.1002 ¶68. Thus, Howell-596 discloses this limitation.

Because Howell-596 discloses each limitation of claim 1, Howell-596 anticipates the claim. Ex.1002 ¶¶59-69.

**C. Claim 9**

Claim 9 depends from claim 1 and further recites that “the module is removably attached to the frame.”

Howell-596 discloses this limitation because Howell-596 discloses that its “module housing 1700 is contained by the eyewear housing 1720” and “can, for example, be held in position with respect to the eyewear housing 1720 ... by an interference fit.” Ex.1003 ¶[0196]. One of skill would have understood an interference fit would provide a removable connection. Ex.1002 ¶70.

Accordingly, Howell-596 discloses each limitation of claim 9 and thus anticipates the claim. *Id.*

**D. Claim 10**

Claim 10 depends from claim 1 and further recites that “the module is affixed directly to the frame.”

Howell-596 discloses this limitation because it discloses that “[t]he module housing 1700 can, for example, be held in position with respect to the eyewear housing 1720 by an adhesive[.]” Ex.1003 ¶[0196]. Because the eyewear housing 1720 is part of the frame (*see id.*), the module is affixed directly to the frame via an adhesive. Ex.1002 ¶71.

Accordingly, Howell-596 discloses each limitation of claim 10 and thus anticipates the claim. *Id.*

**E. Claims 14-15**

Claim 14 depends from claim 1 and further recites that “the module is substantially water-proof.” Claim 15 likewise depends from claim 1 and further recites that “the module is water-proof.”

Howell-596 discloses that the module may “not include vents or holes, so as to be water-resistant or water-proof.” Ex.1003 ¶[0194]; Ex.1002 ¶72.

Accordingly, Howell-596 discloses each limitation of claims 14 and 15 and thus anticipates the claims. Ex.1002 ¶72.

**F. Claim 18**

Claim 18 depends from claim 1 and further recites that “the module includes electronic components configured to enable an electronic display.”

Howell-596 discloses that its module may include electronic components configured to enable an electronic display. *E.g.*, Ex.1003 ¶¶[0184], [0194], Figs. 15A, 17A-17B. In particular, Howell-596 discloses that its module includes “electrical circuitry 1508 and a display device 1510 (e.g., LCD or LED),” which are electronic components configured to enable an electronic display. *Id.* ¶¶[0184] (disclosing 1508 and 1510 as part of UV detection system 1500), [0194] (UV detection system 1500 is contained in module); Ex.1002 ¶73.

Accordingly, Howell-596 discloses each limitation of claim 18 and thus anticipates the claim. Ex.1002 ¶73.

**VII. GROUND 2: HOWELL-596 RENDERS CLAIMS 1-2, 6-10, 13-16, AND 18 OBVIOUS**

**A. Claims 1, 9-10, 14-15, and 18**

Because, as described above, Howell-596 discloses each limitation of claims 1, 9-10, 14-15, and 18, those claims would have been obvious to a POSITA in view of Howell-596. *Supra* §VI; *see In re Baxter Travenol Labs*, 952 F.2d 388, 391 (Fed. Cir. 1991) (“[S]ince anticipation is the ultimate of obviousness, the subject matter of these claims is necessarily obvious ...”); *Realtime Data v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (“anticipation is the epitome of obviousness.”). To the extent there were any difference between claims 1, 9-10, 14-15, or 18 and the disclosure of Howell-596, the claims nonetheless would have been obvious to a POSITA. Ex.1002 ¶75.

**B. Claim 2**

Claim 2 depends from claim 1 and further recites that “the module includes an electrical connector configured to connect the any two of switch, detector, processor, power source, drive circuit, transmitter, receiver, transceiver, and sensor with an external device.”

Howell-596 discloses that its eyewear “can also include one or more connectors” that “facilitate electrical or mechanical interconnection with an external

electrical device (e.g., computing device, media player, headset, power source).”

Ex.1003 ¶[0215]; *see also id.* ¶¶[0220]-[0221]. A POSITA would have understood that such a connector would connect the sealed module (which, as discussed above, contains at least the detector and power source) to the external electrical device because those portions of the eyewear are what would be connected to the external devices disclosed by Howell-596. Ex.1002 ¶76. For example, the eyewear’s power source would be connected to the external power source to facilitate charging. *Id.* The eyewear’s detector would be connected to the external computing device to facilitate calibration. Ex.1003 ¶[0220]; Ex.1002 ¶76.

To the extent Howell-596 does not explicitly disclose that the sealed module includes Howell-596’s electrical connector, Howell-596 suggests it for the reasons above. A POSITA would have been motivated to include the electrical connector in the sealed module to facilitate, for example, charging and calibration. Ex.1002 ¶77; *see* Ex.1003 ¶¶[0220]-[0221]. Furthermore, a POSITA would have had a reasonable expectation of success in doing so based on Howell-596’s disclosure, including that the sealed module contains “the UV detection system 500,” which Howell-596 discloses includes such functionality. *Id.*; Ex.1003 ¶[0194].

Accordingly, Howell-596 discloses, or at least suggests, each limitation of claim 2 and the claim would have been obvious to a POSITA in view of Howell-596. Ex.1002 ¶¶76-78.

**C. Claim 6**

Claim 6 depends from claim 1 and further recites that “the module includes each of drive circuit, a sensor, and a power source.”

**1. Drive Circuit**

A drive circuit is a circuit used to control another component, such as a display or speaker. Ex.1002 ¶80 (citing Ex.1012). This definition, which would have been well-known to a POSITA, is consistent with the term’s use in the ’483 patent. *Id.*; *see generally* Ex.1001.

Howell-596 discloses that its UV detection system may include a drive circuit for driving a LCD display. Ex.1003 ¶¶[0140], [0145], [0164]-[0175], Figs. 14O-14Q. Under certain conditions, “the LCD driver 1430 causes an output indication to be provided on a LCD display 1432.” *Id.* ¶[0140]. Howell-596 discloses at least three embodiments of “driver circuitry” providing an output indication on a LCD display. *Id.* ¶¶[0164]-[0175], Figs. 14O-14Q; Ex.1002 ¶81.

**2. Sensor**

The ’483 patent discloses several examples of sensors, including “one or more miniature or micro tilt switches, accelerometer, micro gyro, range finder, view detector, [and] imager,” but does not limit sensors to these examples. Ex.1001, 10:40-59; Ex.1002 ¶83.

Howell-596 discloses several types of sensors. Ex.1002 ¶84. For example, Howell-596 discloses that its UV detection system may include one or more “auxiliary sensors 402” providing additional information. Ex.1003 ¶[0079], Fig. 5. One such auxiliary sensor is a “being-worn” sensor, which includes a “thermal sensor” or a “stress sensor.” *Id.* ¶¶[0080], [0086]-[0087]. Howell-596 also discloses that an auxiliary sensor may be an “environmental sensor” that senses environmental conditions like temperature, pressure, humidity, and/or the presence of toxins. *Id.* ¶[0089]. Further, Howell-596 discloses that an auxiliary sensor may be a “physical sensor,” such as pedometer or heart-beat sensor, that senses some physical condition of the user. *Id.* ¶¶[0090]-[0091].

The ’483 patent also states that a sensor may be a switch or detector. Ex.1001, 10:44-46. Accordingly, each of the components discussed above as a switch or detector is also a sensor. *Supra* §VI.B.3; Ex.1002 ¶85.

### **3. Power Source**

As discussed above, Howell-596 discloses that its sealed module includes a power source. *Supra* §VI.B.3.

Thus, Howell-596 discloses that its eyewear comprises a drive circuit, a sensor, and a power source. Ex.1002 ¶¶80-87. To the extent Howell-596 does not explicitly disclose these components are included in the sealed module, a POSITA

would have been motivated to configure Howell-596's eyewear that way for the reasons discussed below. *Id.*; *infra* §VII.C.4.

#### **4. Components Included Within the Sealed Module**

To the extent Howell-596 does not explicitly disclose that one or more of the above components is included within the sealed module, it would have been obvious to a POSITA to configure Howell-596's eyewear to include those components within the sealed module for several reasons. Ex.1002 ¶¶88-93.

First, Howell-596 suggests doing so. *Id.* ¶89. Howell-596 states that the sealed module houses “the UV detection system 1500.” Ex.1003 ¶[0194]. Because, as discussed above, Howell-596 describes each of the components as part of a UV detection system, Howell-596 suggests their inclusion in the sealed module. Ex.1002 ¶89. This disclosure of Howell-596 also provides the POSITA with a reasonable expectation of success in configuring the sealed module to include the entire UV detection system, including each of the components above. *Id.* A POSITA would further have reasonably expected success because each of the components was well-known, as evidenced by Howell-596's disclosure, and integrating each of the components into a single module was well within a POSITA's skill. *Id.*

Second, a POSITA would have been motivated to include each component in the sealed module to obtain its benefits; for example, to protect the components from

potentially harmful moisture that could cause malfunction. *Id.* ¶90. Furthermore, including as many components as possible within the sealed module furthers Howell-596’s goal of “regulariz[ing] or standardiz[ing] the form factor” of the system. Ex.1003 ¶[0195]; Ex.1002 ¶90. This allows the system to be removable and swappable because it is self-contained, and would have benefits for maintenance and cleaning of the eyewear generally. Ex.1002 ¶90. It would also make the eyewear easier to manufacture and assemble. Ex.1003 ¶[0201] (“By having the switch in the module, the manufacture and assembly of the end-product having the UV detection system can be simplified.”); Ex.1002 ¶90.

Third, such a modification represents nothing more than the simple addition of one known element (one or more of the components described above) to another known element (Howell-596’s sealed module) to obtain predictable results (a sealed module as in Howell-596 that includes the one or more components). Ex.1002 ¶91; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2006).

Fourth, the combination represents the use of a known technique (including one or more of the components described above) to improve a similar device and method (Howell-596’s sealed module) in the same way. Ex.1002 ¶92; *KSR*, 550 U.S. at 417.

Fifth, the combination applies a known technique (including one or more of the components described above) to a known device and method (Howell-596’s

sealed module) that is ready for improvement and yields predictable results (a sealed module as in Howell-596 that includes the one or more components). Ex.1002 ¶¶93; *KSR*, 550 U.S. at 417.

Accordingly, Howell-596 discloses or at least suggests each limitation of claim 6 and the claim would have been obvious to a POSITA in view of Howell-596. Ex.1002 ¶¶79-94.

**D. Claim 7**

Claim 7 depends from claim 1 and further recites that “the module includes an antenna and at least one of a transmitter, a receiver or a transceiver.”

Howell-596 discloses that its UV detection system may include a “communication module [which] would allow data transmission to and from the radiation monitoring system (namely, the eyewear) and an external device.” Ex.1003 ¶[0221]. “The data transmission can be wireless[.]” *Id.* A POSITA would have understood this disclosure to encompass an antenna, transmitter, and receiver, or a transceiver, because such features are necessary to provide the disclosed functionality: namely, wireless “data transmission to and from” the eyewear. Ex.1002 ¶¶95.

Even if Howell-596 did not disclose including an antenna, transmitter, and receiver, or a transceiver, doing so would have been obvious in view of Howell-596’s suggestion. *Id.* ¶¶96. A POSITA would have been motivated to include an

antenna, transmitter, and receiver (or transceiver) in view of Howell-596's disclosure of wireless data transmission, and would have had a reasonable expectation of success, because those features were a long-known way of achieving wireless data transmission. *Id.* (citing Ex.1013).

Thus, Howell-596 discloses, or at least suggests, that its eyewear comprises an antenna, transmitter, receiver, and/or transceiver. *Id.* ¶¶95-97. To the extent Howell-596 does not explicitly disclose that the antenna, transmitter, receiver, and/or transceiver are included in the sealed module, a POSITA would have been motivated to configure Howell-596's eyewear that way for the reasons discussed above. *Id.* ¶97; *supra* §VII.C.4.

Accordingly, Howell-596 discloses each limitation of claim 7 and the claim would have been obvious to a POSITA in view of Howell-596. Ex.1002 ¶¶95-98.

**E. Claim 8**

Claim 8 depends from claim 1 and further recites that “the module includes a sensor” and “the sensor comprises a manual switch.” According to the '483 patent, a manual switch is “for example, a touch button, photo-detector, motion detector, [or] capacitive touch sensor[.]” Ex.1001, 10:40-42; Ex.1002 ¶99.

Howell-596 discloses that its system may include a “‘being-worn’ sensor” that “can be implemented as a switch.” Ex.1003 ¶[0088]. Howell-596 further discloses

that such a switch utilizes “optical, magnetic, or mechanical means,” which means the switch is a manual switch responsive to user action. *Id.*; Ex.1002 ¶100.

As another example, Howell-596’s UV detector is, or at least comprises, a UV sensor. *See supra* §VI.B.3. Howell-596 discloses that its UV sensor system may include switches such as a “skin type [switch], reset switch and/or an on/off switch.” Ex.1003 ¶[0099]. These switches are manual switches because they are responsive to user actions. *E.g., id.* ¶¶[0099]-[0100], [0181], [0193], [0216]; Ex.1002 ¶101.

Accordingly, Howell-596 discloses each limitation of claim 8 and the claim would have been obvious to a POSITA in view of Howell-596. Ex.1002 ¶¶99-102.

#### **F. Claim 13**

Claim 13 depends from claim 1 and further recites that “the module is hermetically sealed.”

As discussed above, Howell-596 discloses that the module may be waterproof. *Supra* §VI.E. For the same reasons, a POSITA would have understood Howell-596 to disclose that the module is hermetically sealed. Something that is hermetically sealed is sealed so as to be airtight. Ex.1010, 269; Ex.1002 ¶103. Howell-596 contrasts its waterproof arrangement without vents or holes with one that “include[s] one or more vents or holes *so that air can circulate through the module housing 1700.*” Ex.1003 ¶[0194] (emphasis added). A POSITA would have understood that in Howell-596’s configuration that does not include vents or

holes, air could not circulate through the module (and thus it would be air-tight). *Id.*; Ex.1002 ¶103. Thus, Howell-596 discloses, or at least suggests, that the module is hermetically sealed.

Accordingly, Howell-596 discloses, or at least suggests, each limitation of claim 13 and the claim would have been obvious to a POSITA in view of Howell-596. Ex.1002 ¶103.

**G. Claim 16**

Claim 16 depends from claim 1 and further recites that “the module is substantially wear resistant.” A POSITA would have understood “wear resistant” to mean resistant to deterioration from damage caused by relative motion between the module and another surface. Ex.1002 ¶104 (citing Ex.1010).

Howell-596 discloses this limitation because it discloses that “[t]he module housing 1700 protects the module.” Ex.1003 ¶[0195]. A POSITA would have understood this disclosure to mean that the module housing (e.g., the outer portion of the module) protects the inner portions of the module from damage and is thus wear resistant. Ex.1002 ¶104.

Accordingly, Howell-596 discloses each limitation of claim 16 and the claim would have been obvious to a POSITA in view of Howell-596. *Id.*

**VIII. GROUND 3: HOWELL-596 AND HOWELL-833 RENDER CLAIMS 19-20, 24-28, 31-35, AND 37 OBVIOUS**

**A. Overview of Howell-833**

Howell-833 discloses various techniques for integrating electronic components into eyewear frames. *E.g.*, Ex.1004, Abstract. For example, Howell-833 discloses that electronic components “can be partially or completely internal to eyewear” and can be provided “without having to substantially compromise aesthetic design principles of the eyewear.” *Id.* Howell-833’s Figure 1 shows one example, where electronic components (112) are integrated into an eyewear frame behind the ear of a wearer of the eyewear:

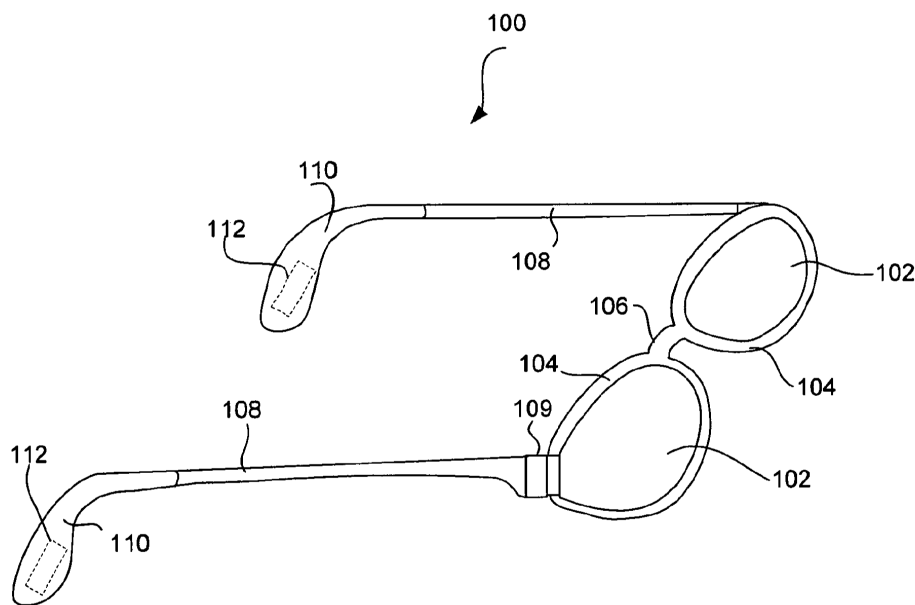


**FIG. 1**

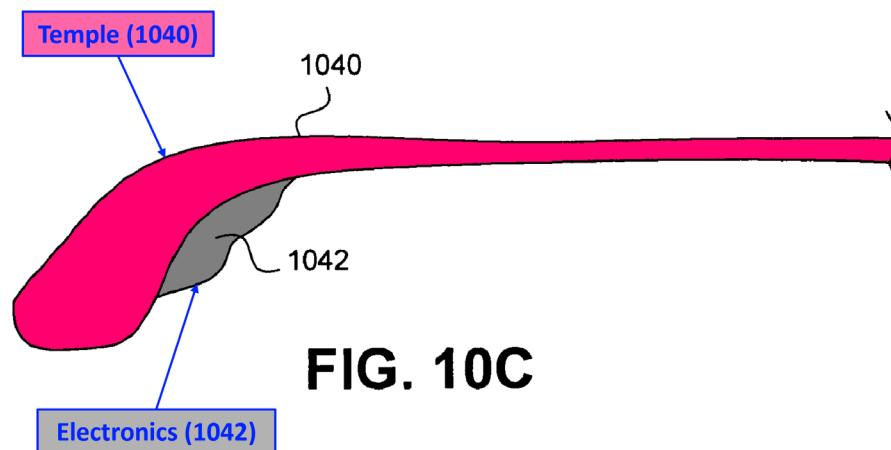
*Id.*, Fig. 1; Ex.1002 ¶46.

**B. Claim 19**

Independent claim 19 recites many of the same limitations as claim 1. These limitations are disclosed by Howell-596 for the reasons discussed above. *Supra* §VI.B; Ex.1002 ¶106.

Claim 19 also recites that “the 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.”

Howell-833 discloses several different locations on an eyewear frame where electronics could be placed. *E.g.*, Ex.1004, 21:41-22:2, Figs. 1, 10A-10C. One such location, as shown below, is “in the vicinity of the user’s ear, such as behind the user’s ear.” *Id.*, 21:62-22:2, Fig. 10C; Ex.1002 ¶107.



A POSITA would have been motivated to place Howell-596’s sealed module on the temple at least partially behind the wearer’s ear in view of Howell-833 for several reasons. First, Howell-833 discloses the benefits of such a configuration: “[t]he placement of the [components] in this embodiment can reduce impact to the

design of the eyeglasses.” Ex.1004, 21:67-22:2; Ex.1002 ¶108. A POSITA would have also recognized additional benefits; for example, that placement can improve the balance of the eyewear (particularly when other components, such as a display, may be located at the front of the eyewear; *supra* §VI.F, *infra* §§IX.B, IX.E, XIII.P). Ex.1002 ¶108. Furthermore, the placement would distribute the weight of the module to the ear rather than the more sensitive facial regions. *Id.*

Second, attaching components to or embedding components within an eyewear frame behind the ear of a wearer was well-known, leading a POSITA to reasonably expect success in the modification. *Id.* ¶109 (citing Exs.1003, 1004, 1006).

Third, the combination represents nothing more than the simple addition of one known element (components located behind a wearer’s ear) to another known element (an eyewear frame with a sealed module) to obtain predictable results (a sealed module positioned at least partially behind the ear of the wearer). *Id.* ¶110; *KSR*, 550 U.S. at 417.

Fourth, the combination represents the use of a known technique (positioning electronic components behind the wearer’s ear) to improve a similar device and method (an eyewear frame including a sealed module) in the same way. Ex.1002 ¶111; *KSR*, 550 U.S. at 417.

Fifth, the combination applies a known technique (positioning electronic components behind the wearer’s ear) to a known device and method (an eyewear frame including a sealed module) that is ready for improvement and yields predictable results (a sealed module positioned at least partially behind the ear of the wearer). Ex.1002 ¶112; *KSR*, 550 U.S. at 417.

Sixth, that placement represents a choice from a finite number of identified, predictable solutions (e.g., in front of or behind the wearer’s ear), each of which would have been obvious to try. Ex.1002 ¶113; *KSR*, 550 U.S. at 421.

Accordingly, Howell-596 and Howell-833 disclose each limitation of claim 19, and claim 19 would have been obvious to a POSITA in view of Howell-596 and Howell-833. Ex.1002 ¶¶106-14.

**C. Claim 31**

Claim 31 depends from claim 19 and further recites that “the module is disposed, at least partially, on a temple portion of the frame.”

As discussed above, Howell-596 and Howell-833 each disclose that a module is disposed on a temple portion of the frame. *Supra* §§VI.B.5, VIII.B; Ex.1002 ¶115. Accordingly, claim 31 would have been obvious to a POSITA in view of Howell-596 and Howell-833. Ex.1002 ¶115.

**D. Claims 20, 24-28, 32-35, and 37**

Claims 20, 24-28, 32-35, and 37 depend from claim 19 and parallel the limitations of claims 2, 6-10, 13-16, and 18. Because, Howell-596 discloses the additional limitations of each of claims 2, 6-10, 13-16, and 18, claims 20, 24-28, 32-35, and 37 are likewise rendered obvious by Howell-596 and Howell-833 for the same reasons discussed above. *Supra* §§VI-VII; Ex.1002 ¶116.

**IX. GROUND 4: HOWELL-596, HOWELL-833, AND BLUM-741 RENDER CLAIMS 4-5, 7, 17, 22-23, 25, AND 36 OBVIOUS**

The claims addressed in this Ground depend, directly or indirectly, from claims addressed in Grounds 2 and 3. Because Grounds 2 and 3 show that the limitations of those claims are disclosed or suggested by the prior art, this Ground addresses only the additional limitations of the claims challenged herein. *See supra* §§VII-VIII.

**A. Overview of Blum-741**

Blum-741 discloses eyewear with electro-active lenses. Ex.1005, 1:20-47. Blum-741's eyewear includes various electronic components that power and/or control the electro-active lenses. *E.g., id.*, 7:52-8:2, 29:66-30:13; Ex.1002 ¶¶47-51. One embodiment of Blum-741's eyewear is shown in Figure 5:

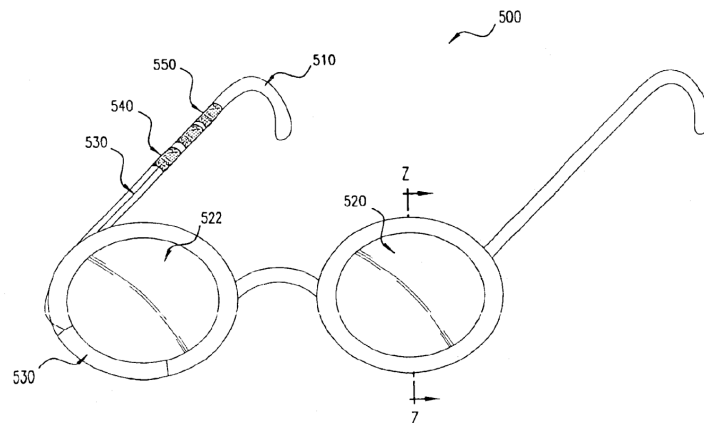


FIG.5

Ex.1005, Fig. 5; Ex.1002 ¶47.

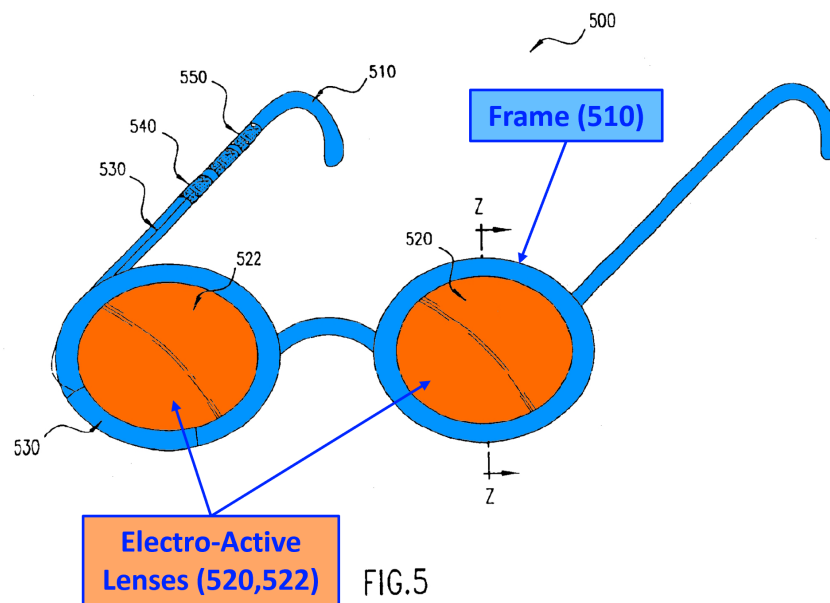
Blum-741 further discloses that the electro-active lenses 520 are electrically connected to various other eyewear components, including “by connecting wires 530 to electro-active eyewear controller 540 [e.g., a processor] and power source 550.” Ex.1005, 7:52-58. The electrical components are contained within the temple of frame 510. *Id.*

Blum describes various advantages of electro-active lenses, including, for example, providing multiple vision correction zones. *Id.*, Abstract. Blum-741 also discloses that its electro-active lenses “hav[e] the necessary electro-active means to change focus electrically.” *Id.*, 11:53-59, 52:48-65. Blum-741 further discloses that its electro-active lenses may include an electro-active layer that “create[s] an electronic tint or sunglass effect[.]” *Id.*, 26:27-48; *id.*, 27:12-16, 37:3-13.

**B. Claims 4 and 22**

Claims 4 and 22 depend from claims 2 and 20, respectively, and further recite that “the external device includes an electro-active lens mounted to the frame.”

Blum-741 discloses eyewear with electro-active lenses mounted to an eyewear frame. *E.g.*, Ex.1005, 1:20-47, 7:52-58. This is shown in Figure 5:



*Id.*, Fig. 5; Ex.1002 ¶118. Blum-741 further discloses that the electro-active lenses are electrically connected to at least a processor and a power source. Ex.1005, 7:52-58; Ex.1002 ¶118.

A POSITA would have been motivated to combine Blum-741’s electro-active lenses with Howell-596’s eyewear for several reasons. Ex.1002 ¶¶119-23.

First, Blum-741 discloses the benefits of electro-active lenses. For example, Blum-741 discloses that electro-active lenses may be used to correct various vision

errors present in the user’s eye (e.g., myopia, astigmatism, etc.) leading to a vision “better than 20/10.” Ex.1005, 9:4-18. This is “far better than the level of vision which is currently obtained by way of ... conventional spectacle lenses.” *Id.*, 4:31-44. A POSITA would have been motivated to integrate Blum-741’s electro-active lenses into Howell-596’s eyewear to gain the advantages Blum-741 discloses. Ex.1002 ¶120. A POSITA would have reasonably expected success in the combination because electro-active lenses were well-known, as evidenced by Blum-741’s disclosure, and integrating such lenses into eyewear was well within a POSITA’s skill. *Id.*

Second, such a modification represents nothing more than the simple addition of one known element (electro-active lenses as in Blum-741) to another known element (Howell-596’s eyewear) to obtain predictable results (eyewear including a sealed module that is connected to electro-active lenses). *Id.* ¶121; *KSR*, 550 U.S. at 417.

Third, the combination represents the use of a known technique (using electro-active lenses as in Blum-741) to improve a similar device and method (Howell-596’s eyewear) in the same way. Ex.1002 ¶122; *KSR*, 550 U.S. at 417.

Fourth, the combination applies a known technique (using electro-active lenses as in Blum-741) to a known device and method (Howell-596’s eyewear) that is ready for improvement and yields predictable results (eyewear including a sealed

module that is connected to electro-active lenses). Ex.1002 ¶123; *KSR*, 550 U.S. at 417.

Accordingly, Howell-596, Howell-833, and Blum-741 disclose each limitation of claims 4 and 22, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶¶118-24.

**C. Claims 5 and 23**

Claims 5 and 23 depend from claims 4 and 22, respectively, and further recite that “the electro-active lenses are configured to change at least one of focus, tint, and a display.” Blum-741’s electro-active lenses are configured to change each of these. Ex.1002 ¶¶125-29.

**Focus:** The lenses “hav[e] the necessary electro-active means to change focus electrically.” Ex.1005, 11:53-59, 52:48-65.

**Tint:** The lenses create “an electronic tint or sunglass effect[.]” *Id.*, 26:27-48; *id.*, 27:12-16, 37:3-13.

**Display:** The lenses can “display ... the patient or wearer’s best corrected prescription[.]” *Id.*, 7:22-29; *see also id.*, 6:10-19. Thus, Blum-741 discloses, or at least suggests, that its electro-active lenses are configured to change a display (e.g., to cause the display to output the patient’s prescription). Ex.1002 ¶128.

Furthermore, a POSITA would have understood that when Howell-596’s eyewear is combined with Blum-741’s electro-active lenses, the wearer would view

Howell-596's LCD display (*see supra* §VI.F) through Blum-741's electro-active lenses. Ex.1002 ¶129. Accordingly, a POSITA would have understood that when Blum-741's electro-active lenses are used to change focus and/or tint, the wearer's view of Howell-596's LCD display would correspondingly change. *Id.* Thus, Howell-596 and Blum-741 combined disclose, or at least suggest, that Blum-741's electro-active lenses are configured to change a display (e.g., to change the wearer's view of an LCD display). *Id.*

Accordingly, Howell-596, Howell-833, and Blum-741 disclose each limitation of claims 5 and 23, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶¶125-30.

**D. Claims 7 and 25**

Claims 7 and 25 depend from claims 1 and 19, respectively, and further recite that “the module includes an antenna and at least one of a transmitter, a receiver or a transceiver.”

Blum-741 discloses that its eyewear frame may include a receiver and antenna that communicate with a “controller-based switch” for controlling the lenses. Ex.1005, 32:7-52. Blum-741 provides that the switch need not “be on the spectacles themselves” but could be “in a pocket in the user's clothing[.]” *Id.* In one such embodiment, “the switch contains a small microwave or radio-frequency short-range transmitter which sends a signal regarding switch position to a tiny receiver antenna

mounted conformably on the spectacle frames.” *Id.* Accordingly, Blum-741 discloses a receiver and antenna to receive transmissions from an external switching device. *Id.*; Ex.1002 ¶131.

A POSITA would have been motivated to include this receiver and antenna in Howell-596’s sealed module for several reasons. First, a POSITA would have been motivated to include these components in the sealed module to, for example, protect the receiver and antenna from potentially harmful moisture that could cause them to stop working temporarily or permanently. Ex.1002 ¶132. Furthermore, including as many electronic components as possible in the sealed module furthers Howell-596’s goal of “regulariz[ing] or standardiz[ing] the form factor[.]” Ex.1003 ¶[0195]; Ex.1002 ¶132. This would allow the system to be easily removable and swappable because it is self-contained and would have benefits for maintenance and cleaning of the eyewear generally. Ex.1002 ¶132. It would also make the eyewear easier to manufacture and assemble. Ex.1003 ¶[0201] (“By having the [component] in the module, the manufacture and assembly of the end-product ... can be simplified.”); Ex.1002 ¶132. A POSITA would have reasonably expected success in the combination because antennas and transmitters were long-known and well-understood features. Ex.1002 ¶132 (citing Ex.1013).

Second, such a modification represents nothing more than the simple addition of one known element (an antenna and receiver to control electro-active lenses as in

Blum-741) to another known element (Howell-596’s sealed module) to obtain predictable results (eyewear including a sealed module that includes an antenna and receiver). *Id.* ¶133; *KSR*, 550 U.S. at 417.

Third, the combination represents the use of a known technique (using an antenna and receiver to control electro-active lenses as in Blum-741) to improve a similar device and method (Howell-596’s sealed module) in the same way. Ex.1002 ¶134; *KSR*, 550 U.S. at 417.

Fourth, the combination applies a known technique (using an antenna and receiver to control electro-active lenses as in Blum-741) to a known device and method (Howell-596’s sealed module) that is ready for improvement and yields predictable results (eyewear including a sealed module that includes an antenna and receiver). Ex.1002 ¶135; *KSR*, 550 U.S. at 417.

Accordingly, Howell-596, Howell-833, and Blum-741 disclose, or at least suggest, each limitation of claims 7 and 25, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶¶131-36.

**E. Claims 17 and 36**

Claims 17 and 36 depend from claims 1 and 19, respectively, and further recite that “the module includes a power source” and “the power source comprises an inductively rechargeable battery.”

Blum-741 discloses that its eyewear frame's temple includes inductively rechargeable batteries. Ex.1005, 29:66-30:13, 37:49-65; Ex.1002 ¶137.

As discussed above, Howell-596 discloses that a battery may be included as a power source in the sealed module. *Supra* §VI.B.3. A POSITA would have been motivated in view of Blum-741's disclosure to use an inductively rechargeable battery in Howell-596's eyewear for several reasons. Ex.1002 ¶¶138-43.

First, a POSITA would have recognized the benefits of inductive recharging, including that it allows for easy and convenient recharging without needing to plug in cables or maintain a stock of single-use batteries. *Id.* ¶139.

Second, Howell-596 suggests the combination because it states that “[t]he size and configuration of the battery 790 can also vary.” Ex.1003 ¶[0098]; Ex.1002 ¶140. A POSITA would have reasonably expected success in the combination based on Howell-596's disclosure. *Id.*

Third, such a modification represents nothing more than the simple addition of one known element (inductive charging as in Blum-741) to another known element (Howell-596's battery) to obtain predictable results (a sealed module that includes an inductively rechargeable battery). Ex.1002 ¶141; *KSR*, 550 U.S. at 417.

Fourth, the combination represents the use of a known technique (using inductive charging as in Blum-741) to improve a similar device and method (Howell-596's battery) in the same way. Ex.1002 ¶142; *KSR*, 550 U.S. at 417.

Fifth, the combination applies a known technique (using inductive charging as in Blum-741) to a known device and method (Howell-596's battery) that is ready for improvement and yields predictable results (a sealed module that includes an inductively rechargeable battery). Ex.1002 ¶143; *KSR*, 550 U.S. at 417.

Accordingly, Howell-596, Howell-833, and Blum-741 disclose each limitation of claims 17 and 36, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶¶137-44.

**X. GROUND 5: HOWELL-596, HOWELL-833, BLUM-741, AND SPITZER  
RENDER CLAIMS 3 AND 21 OBVIOUS**

**A. Overview of Spitzer**

Spitzer discloses eyewear with a display system, a camera system, and various sensors mounted on an eyeglass frame. *E.g.*, Ex.1007, Abstract. One embodiment of Spitzer's system is shown in Figure 1:

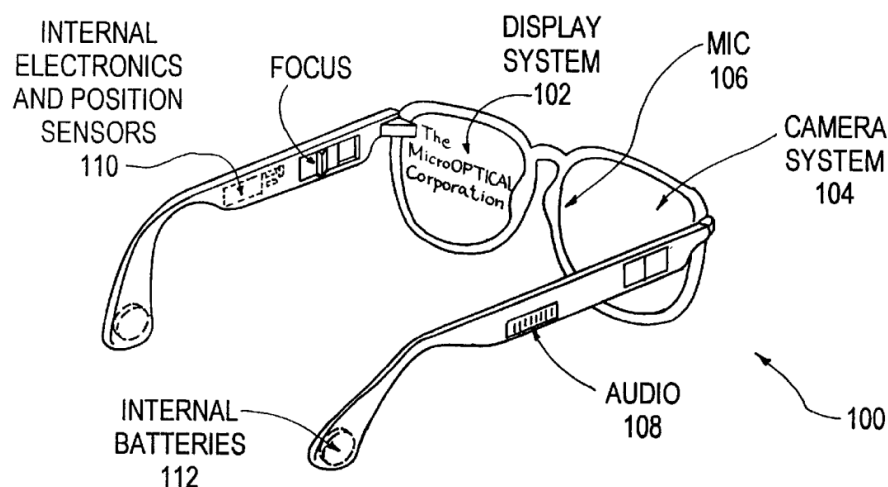


**FIG. 1**

*Id.*, Fig. 1; Ex.1002 ¶54.

Spitzer discloses that components located on various parts of an eyewear frame may be connected via “flexible stranded insulated wire, flexible coaxial cable, or flexible circuitry based on Kapton or other polymeric material.” Ex.1007, 7:44-60. Spitzer further discloses that such flexible circuitry is used to connect to an external device not mounted on the eyewear frame, such as one “placed in a pocket or worn on a belt.” *Id.*, 9:49-10:4; Ex.1002 ¶55.

**B. Claims 3 and 21**

Claims 3 and 21 depend from claims 2 and 20 (addressed in Grounds 2 and 3), respectively, and further recite that “the module is electrically connected to the external device by a flex circuit.”

Spitzer discloses that components located on various parts of an eyewear frame, or external to the frame, may connected via “flexible circuitry based on Kapton or other polymeric material” (e.g., a flex circuit). Ex.1007, 7:44-60, 9:49-10:4; Ex.1002 ¶146.

A POSITA would have been motivated to connect the sealed modules discussed in Grounds 2 and 3 to an external device mounted on the eyewear, such as Blum-741’s electro-active lenses (discussed in Ground 4), using a flex circuit in view of Spitzer for several reasons. Ex.1002 ¶¶147-52.

First, Spitzer discloses the benefits of flex circuits, including that they allow that “the position of [components] may be adjusted without strain to the leads.” Ex.1007, 7:56-60. Furthermore, the connection has a flat cross-section, which a POSITA would have recognized would be advantageous in locations where space is at a premium (for example, in the temple of an eyeglass frame). *Id.*, 9:60-61; Ex.1002 ¶148.

Second, flex circuits were well-known in the art, leading a POSITA to reasonably expect success in the combination. Ex.1002 ¶149 (citing Exs.1006, 1007, 1014).

Third, such a modification represents nothing more than the simple addition of one known element (flex circuits as in Spitzer) to another known element (eyewear with electronic components as in Howell-596, Howell-833, and/or Blum-741) to obtain predictable results (electronic eyewear that connects components using flex circuits). *Id.* ¶150; *KSR*, 550 U.S. at 417.

Fourth, the combination represents the use of a known technique (using flex circuits as in Spitzer) to improve a similar device and method (eyewear with electronic components as in Howell-596, Howell-833, and/or Blum-741) in the same way. Ex.1002 ¶151; *KSR*, 550 U.S. at 417.

Fifth, the combination applies a known technique (using flex circuits as in Spitzer) to a known device and method (eyewear with electronic components as in

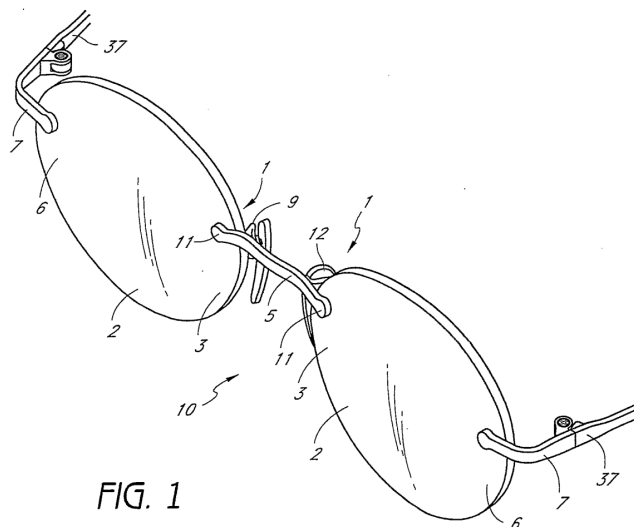
Howell-596, Howell-833, and/or Blum-741) that is ready for improvement and yields predictable results (electronic eyewear that connects components using flex circuits). Ex.1002 ¶152; *KSR*, 550 U.S. at 417.

Accordingly, the applied prior art discloses each limitation of claims 3 and 21, and those claims would have been obvious to a POSITA in view of the applied references for the reasons described above and in Grounds 2-4. Ex.1002 ¶¶145-53.

**XI. GROUND 6: HOWELL-596, HOWELL-833, AND OGREN RENDER CLAIMS 11 AND 29 OBVIOUS**

**A. Overview of Ogren**

Ogren discloses eyewear, and in particular a system for connecting together various components of eyewear such as lenses, temples, hinges, and the like. *See, e.g.*, Ex.1008, 1. A rimless embodiment of Ogren's eyewear is shown in Figure 1:



*Id.*, Fig. 1; Ex.1002 ¶56.

**B. Claims 11 and 29**

Claims 11 and 29 depend from claims 1 and 19 (addressed in Grounds 2 and 3), respectively, and further recite that “the module is included in a rimless frame.”

The '483 patent shows an example of a rimless frame in Figure 8B:

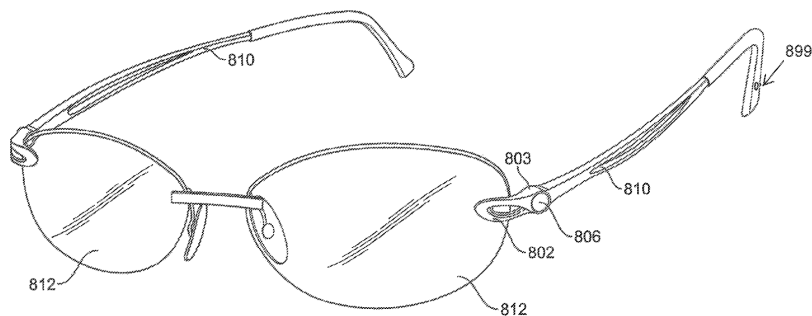


FIG. 8B

Ex.1001, Fig. 8B; *see id.*, 5:7-21, 8:42-54; Ex.1002 ¶155.

Ogren discloses a very similar rimless frame in its Figure 1:

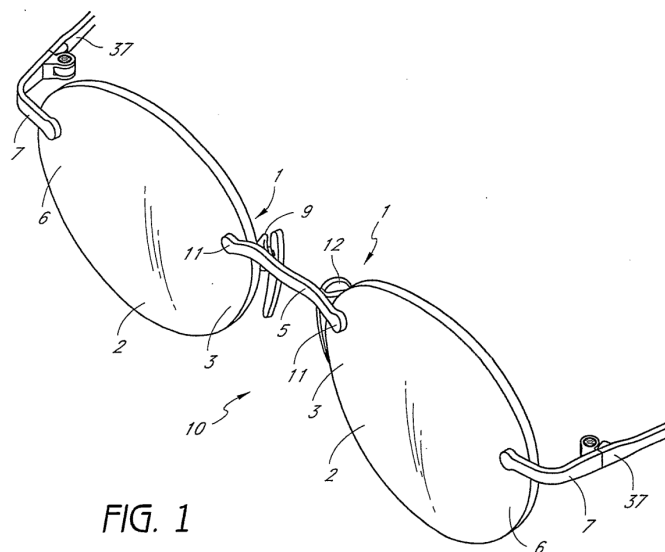


FIG. 1

Ex.1008, Fig. 1; Ex.1002 ¶156. Indeed, Ogren states that “Figure 1 is a ... view of a rimless eyeglass system.” Ex.1008, 1. Thus, Ogren discloses a rimless frame. Ex.1002 ¶156.

A POSITA would have been motivated to include a sealed module (e.g., as disclosed in Howell-596) in Ogren’s rimless frame for several reasons. First, Ogren discloses the benefits of a rimless frame: “rimless eyeglass systems ... reduce stress and fractures in the lenses.” Ex.1008, 1; Ex.1002 ¶157.

Second, rimless frame eyewear was well-known in the art, leading a POSITA to reasonably expect success in the combination. Ex.1002 ¶158 (citing Exs.1008, 1015, 1016). In particular, rimless frames were known for use with eyewear containing electronic components, strengthening a POSITA’s reasonable expectation of success. *Id.* (citing Exs.1015, 1016).

Third, such a modification represents nothing more than the simple addition of one known element (a rimless frame as in Ogren) to another known element (a sealed module as in Howell-596) to obtain predictable results (a rimless frame including a sealed module). *Id.* ¶159; *KSR*, 550 U.S. at 417.

Fourth, the combination represents the use of a known technique (using a rimless frame) to improve a similar device and method (an eyeglass frame including a sealed module) in the same way. Ex.1002 ¶160; *KSR*, 550 U.S. at 417.

Finally, the combination applies a known technique (using a rimless frame) to a known device and method (an eyeglass frame including a sealed module) that is ready for improvement and yields predictable results (a rimless frame including a sealed module). Ex.1002 ¶161; *KSR*, 550 U.S. at 417.

Accordingly, the applied prior art discloses each limitation of claims 11 and 29, and those claims would have been obvious to a POSITA in view of the applied references for the reasons described above and in Grounds 2 and 3. Ex.1002 ¶¶154-63.

**XII. GROUND 7: HOWELL-596, HOWELL-833, AND JANNARD-868  
RENDER CLAIMS 12 AND 30 OBVIOUS**

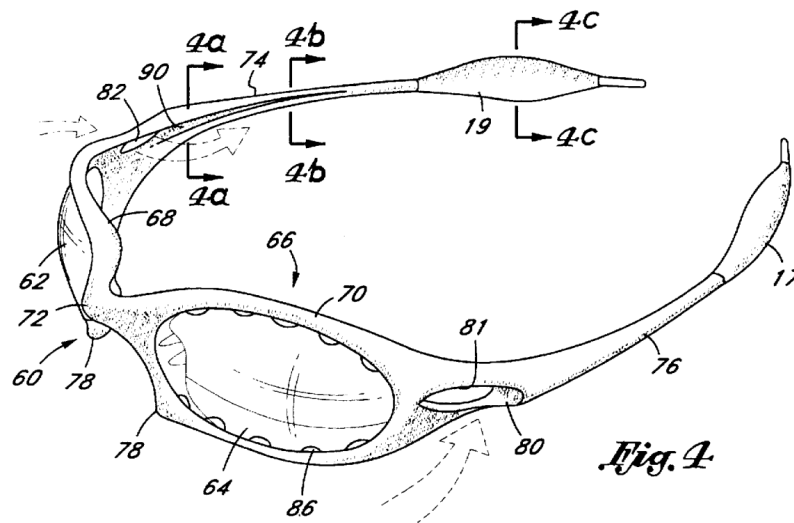
**A. Overview of Jannard-868**

Jannard-868 discloses a hingeless eyewear frame designed to increase the retentive force between the eyewear and the head and to allow for ventilation. Ex.1009, Abstract. One embodiment of Jannard-868's eyewear is shown in Figure 4:



### B. Claims 12 and 30

Jannard-868 discloses a hinge-less frame, as shown in Figure 4:



*Id.*, Fig. 4; see also *id.*, 7:63-8:11; Ex.1002 ¶166.

A POSITA would have been motivated to include a sealed module (e.g., as disclosed in Howell-596) in Jannard-868's hingeless frame for several reasons. First, Jannard-868 discloses the benefits of its frame, including that its design provides for an increased retentive force between the eyewear and the head (Ex.1009, Abstract, 8:12-22), and that it includes ventilation apertures that reduce fogging of the lenses (*id.*, 10:13-20). Ex.1002 ¶167. Furthermore, a POSITA would have recognized additional benefits when combining Jannard-868's hingeless frame with a sealed module and/or electro-active lenses, including that electronic components would not have to navigate a complicated hinge joint, and that a hingeless frame would be stronger and easier to manufacture than a hinged frame. *Id.* Thus, a POSITA would have been motivated to use Jannard-868's hingeless frame design to achieve these benefits. *Id.*

Second, hingeless frame eyewear was well-known in the art, leading a POSITA to reasonably expect success in the combination. *Id.* ¶168 (citing Exs.1009, 1017).

Third, such a modification represents nothing more than the simple addition of one known element (a hingeless frame as in Jannard-868) to another known element (a sealed module as in Howell-596) to obtain predictable results (a hingeless frame including a sealed module). *Id.* ¶169; *KSR*, 550 U.S. at 417.

Fourth, the combination represents the use of a known technique (using a hingeless frame) to improve a similar device and method (an eyeglass frame including a sealed module) in the same way. Ex.1002 ¶170; *KSR*, 550 U.S. at 417.

Finally, the combination applies a known technique (using a hingeless frame) to a known device and method (an eyeglass frame including a sealed module) that is ready for improvement and yields predictable results (a hingeless frame including a sealed module). Ex.1002 ¶171; *KSR*, 550 U.S. at 417.

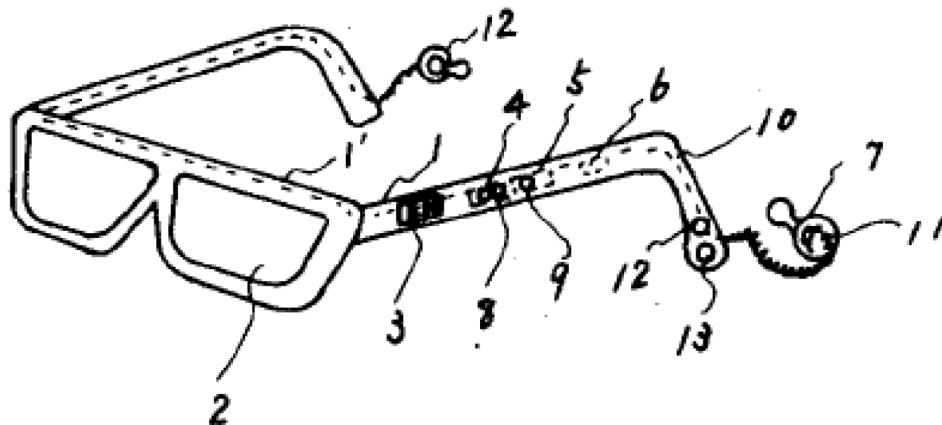
Accordingly, the applied prior art discloses each limitation of claims 12 and 30, and those claims would have been obvious to a POSITA in view of the applied references for the reasons described above and in Grounds 2 and 3. Ex.1002 ¶¶164-73.

**XIII. GROUND 8: BLUM-741 AND HATTORI-912 RENDER CLAIMS 1-2, 4-10, 13-20, 22-28, AND 31-37 OBVIOUS**

**A. Overview of Hattori-912**

Hattori-912 discloses eyewear that includes a small display mounted to an eyewear frame. Ex.1006, 63. Hattori-912's eyewear includes electronics, such as sensors, power supply, and processing circuitry, that are embedded in the eyewear frame and operate the display. *Id.*, 63-65. Hattori-912's eyewear is shown in Figure 1:

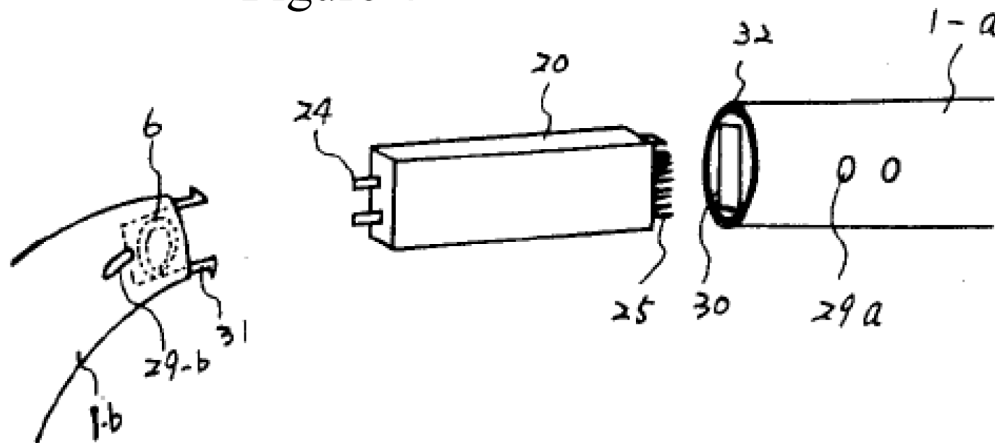
Figure 1



*Id.*, Fig. 1; Ex.1002 ¶52.

Furthermore, Hattori-912 discloses that the eyewear frame may include a portion sealed by a waterproof ring (32). Ex.1006, 64.

Figure 4



*Id.*, Fig. 4; Ex.1002 ¶53.

## B. Claim 1

The preamble of claim 1 recites “[e]yewear.” Blum-741 discloses eyewear.

*E.g.*, Ex.1005, Abstract, Fig. 5; Ex.1002 ¶175.

### 1. Limitation 1[a]: “a frame”

Blum-741 discloses eyewear having a frame as depicted in Figure 5:

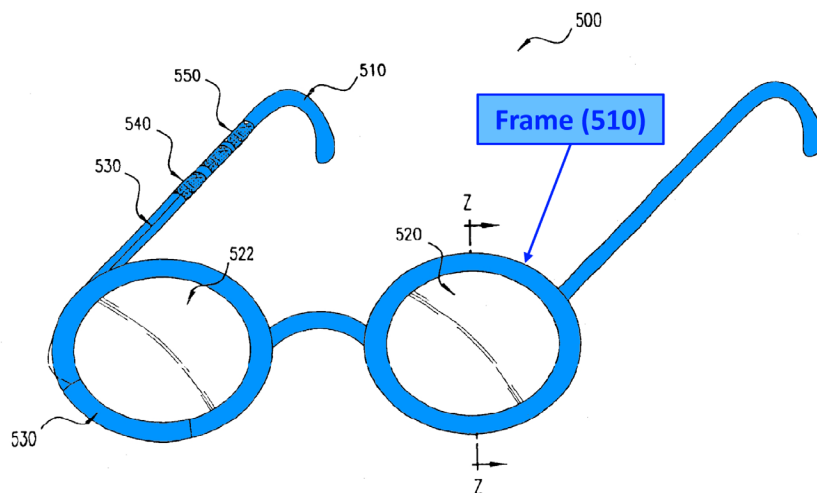
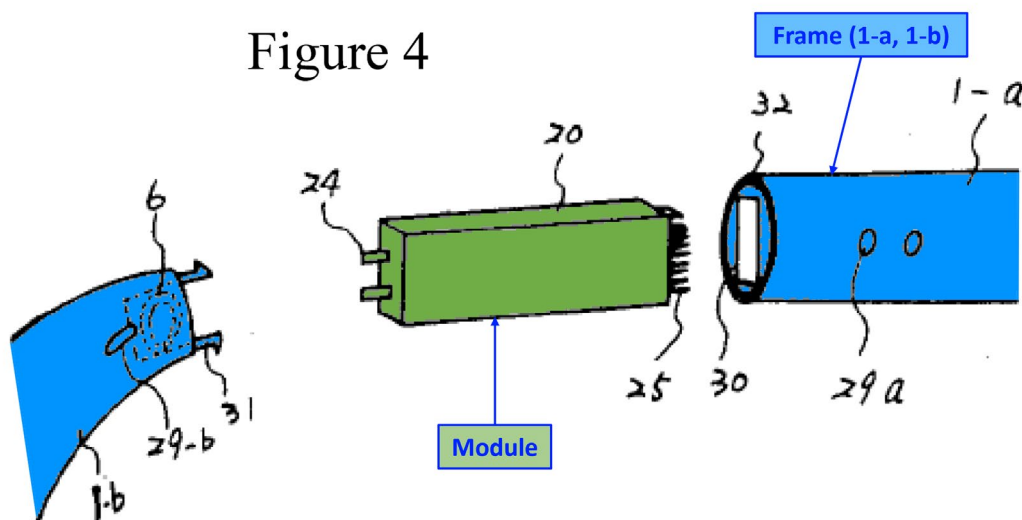


FIG.5

Ex.1005, Fig. 5; Ex.1002 ¶176.

2. **Limitation 1[b]: “a sealed moisture resistant module attached to the frame”**

Hattori-912 discloses an eyewear frame having a “hollow part 30” in which electronic components are embedded. Ex.1006, 64. Hattori-912 further discloses that the hollow part 30 is sealed by a “[w]aterproof ring 32.” *Id.* Thus, Hattori-912 discloses a sealed moisture resistant module (contents sealed in the hollow part 30 by waterproof ring 32). Ex.1002 ¶177. Because hollow part 30 is “provided ... in frame 1-a,” the contents of the hollow part 30 are attached to the frame. Ex.1006, 64; Ex.1002 ¶177. Figure 4 shows this:



Ex.1006, Fig. 4; Ex.1002 ¶177.

Additionally, Hattori-912 discloses that the eyewear components may be “covered by protective film 41.” Ex.1006, 65. A POSITA 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.

A POSITA 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 and/or coating some or all of Blum-741's electronic components with a protective film, for the reasons discussed below. *Infra* §XIII.B.3.c; Ex.1002 ¶179.

3. **Limitation 1[b][i]: “wherein the module comprises within the seal any two of: a switch, a detector, a processor, a power source, a drive circuit, a transmitter, a receiver, a transceiver, and a sensor”**

Blum-741 and/or Hattori-912 disclose that an eyewear system may comprise several components, including at least a switch, a detector, a processor, a power source, a drive circuit, a transmitter, a receiver, a transceiver, and a sensor. Ex.1002 ¶¶181-202.

a. **Blum-741 and Hattori-912 Together Disclose a Processor and a Power Source Within the Sealed Module**

i. **Processor**

Blum-741 discloses a “[c]ontroller 540” which “acts as the ‘brains’ of the electro-active eyewear 500.” Ex.1005, 7:59-8:2. Controller 540 “can contain at least one processor component.” *Id.* A POSITA would have been motivated to enclose

Blum-741’s processor in Hattori-912’s sealed module for the reasons discussed below. Ex.1002 ¶182; *infra* §XIII.B.3.c.

Similarly, Hattori-912 discloses that the sealed module includes “semiconductor integrated circuit 20,” which a POSITA would have understood to include a processor. Ex.1006, 64; Ex.1002 ¶183.

**ii. Power Source**

Blum-741 discloses a battery configured “[t]o provide electric power to the optical assemblies” of its electro-active lens system. Ex.1005, 29:66-30:13; Ex.1002 ¶184. A POSITA would have been motivated to enclose Blum-741’s battery in Hattori-912’s sealed module for the reasons discussed below. Ex.1002 ¶184; *infra* §XIII.B.3.c.

Similarly, Hattori-912 discloses that “[b]attery 6 for the power supply of drive circuit 4 and the radio receiving circuit 5 is removably embedded in temple 1” and is thus within the sealed module. Ex.1006, 64; Ex.1002 ¶185.

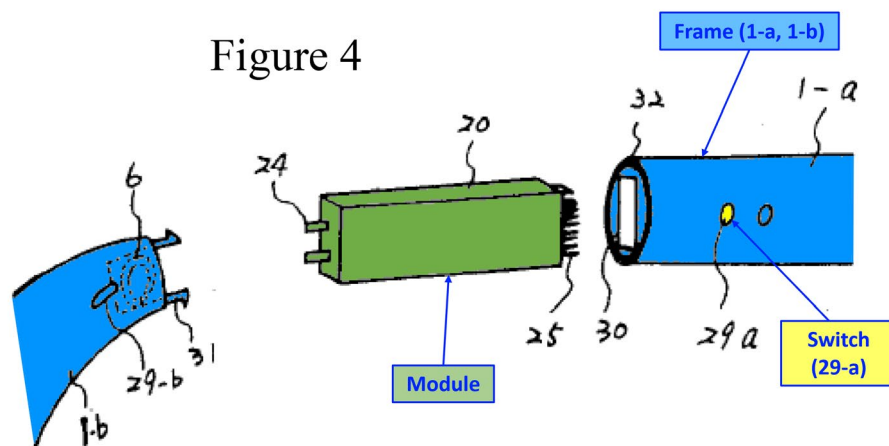
Because Blum-741 and Hattori-912 together disclose that the sealed module includes at least a processor and a power source, the references disclose this limitation. Ex.1002 ¶¶182-86.

**b. Blum-741 and/or Hattori-912 Also Disclose the Additional Components Recited in Limitation 1[b][i]**

**i. Switch**

Blum-741 discloses a switch that is used to control various properties of its electro-active lenses. Ex.1005, 31:29-32:57, 36:7-31; *see supra* §IX.D; Ex.1002 ¶185. A POSITA would have been motivated to enclose Blum-741’s switch in Hattori-912’s sealed module for the reasons discussed below. Ex.1002 ¶185; *infra* §XIII.B.3.c.

Additionally, Hattori-912 discloses that its eyewear includes “control switch 29-a.” Ex.1006, 64. As shown in Figure 4, control switch 29-a is provided adjacent to, and extending into, the sealed module:



*Id.*, Fig. 4; Ex.1002 ¶189. A POSITA would have understood that because Hattori-912’s switch is configured to control the display, the switch must be coupled to and communicate with semiconductor integrated circuit 20, which is part of the sealed

module. Ex.1002 ¶189. Thus, Hattori-912 discloses, or at least suggests, that the sealed module includes a switch. *Id.* ¶189.

**ii. Detector**

Blum-741 discloses a “radiation or light detector 2980” (e.g., a photo detector) used as part of “a range finder to help focus the electro-active refractive matrix 2990,” which enables the operation of Blum-741’s electro-active lens system. Ex.1005, 45:49-46:42; Ex.1002 ¶191. A POSITA would have been motivated to enclose Blum-741’s radiation or light detector in Hattori-912’s sealed module for the reasons discussed below. Ex.1002 ¶191; *infra* §XIII.B.3.c.

**iii. Drive Circuit**

Hattori-912 discloses a “drive circuit 4” which is used to drive a display. Ex.1006, 64. Hattori-912 further discloses “semiconductor integrated circuit 20,” which a POSITA would have understood to be at least in part a drive circuit because Hattori-912 discloses that the semiconductor integrated circuit 20 implements drive circuit 4 and/or radio receiving circuit 6. *Id.*; Ex.1002 ¶192. Furthermore, because Hattori-912 discloses that semiconductor integrated circuit 20 is included within the sealed module (Ex.1006, 64), Hattori-912 discloses including a drive circuit within the sealed module. Ex.1002 ¶192.

A POSITA would have been motivated to include Hattori-912’s electronic display, and thus the drive circuit that controls it, in Blum-741’s eyewear for several

reasons. *Id.* ¶¶193-96. First, a POSITA would have been motivated to make the combination to achieve the benefits Hattori-912 discloses. For example, Hattori-912 discloses that the display may be used to provide “the time, date, and image information or the like” to users, and that such functionality is commercially desirable. Ex.1006, 63, 65; Ex.1002 ¶193.

Second, such a modification represents nothing more than the simple addition of one known element (a display and accompanying drive circuit as in Hattori-912) to another known element (Blum-741’s eyewear) to obtain predictable results (eyewear as in Blum-741 that includes a display as in Hattori-912). Ex.1002 ¶194; *KSR*, 550 U.S. at 417.

Third, the combination represents the use of a known technique (including a display and accompanying drive circuit as in Hattori-912) to improve a similar device and method (Blum-741’s eyewear) in the same way. Ex.1002 ¶195; *KSR*, 550 U.S. at 417.

Fourth, the combination applies a known technique (including a display and accompanying drive circuit as in Hattori-912) to a known device and method (Blum-741’s eyewear) that is ready for improvement and yields predictable results (eyewear as in Blum-741 that includes a display as in Hattori-912). Ex.1002 ¶196; *KSR*, 550 U.S. at 417.

**iv. Transmitter/Receiver/Transceiver**

As discussed above, Blum-741 discloses a receiver and antenna to receive transmissions from an external switching device. Ex.1005, 32:7-52; *Supra* §IX.D; Ex.1002 ¶197. A POSITA would have been motivated to include this receiver and antenna in Hattori-912’s sealed module for the reasons discussed below. Ex.1002 ¶197; *infra* §XIII.B.3.c.

Blum-741 also discloses a “range finder transmitter 2160 and/or receiver 2170,” which are used as a range finding system to control electro-active lenses on the eyewear. Ex.1005, 32:58-34:62; Ex.1002 ¶198. A POSITA would have been motivated to include Blum-741’s transmitter and/or receiver in Hattori-912’s sealed module for the reasons discussed below. Ex.1002 ¶198; *infra* §XIII.B.3.c.

Furthermore, a POSITA would have understood Blum-741 to disclose a transceiver. Because a transceiver is simply a transmitter and a receiver together, *see* Ex.1002 ¶199 (citing Ex.1010), a POSITA would have understood Blum-741’s disclosure of a range finder transmitter and receiver to disclose a range finder transceiver. *Id.*

Similarly, Hattori-912 discloses a “radio receiving circuit” which is used to receive FM radio signals. Ex.1006, 64. Thus, Hattori-912 discloses a receiver. Ex.1002 ¶200. Because Hattori-912 discloses that radio receiving circuit 6 is

implemented by semiconductor integrated circuit 20, Hattori-912 discloses that its receiver is contained within the sealed module. Ex.1006, 64; Ex.1002 ¶200.

**v. Sensor**

Blum-741 discloses several sensors that may be used for controlling its electro-active lenses. For example, Blum-741 discloses a “micro-gyroscope or micro-accelerometer” (Ex.1005, 34:63-35:15), a “tilt switch” (*id.*, 35:16-36:19), a “manual switch” (*id.*, 36:20-30), and an “eye-tracker” consisting of “at least two adjacent photo-sensors” (*id.*, 36:47-61). Blum-741 also discloses a “miniature thermistor, thermocouple, or other temperature sensor” to sense changes in temperature that may affect the operation of the lenses. *Id.*, 37:14-24. Thus, Blum-741 discloses several sensors. Ex.1002 ¶202. A POSITA would have been motivated to enclose one or more of these sensors in Hattori-912’s sealed module for the reasons discussed below. *Id.*; *infra* §XIII.B.3.c.

**c. Components Included Within Sealed Module**

A POSITA would have been motivated to enclose the various electronic components disclosed by Blum-741 and/or Hattori-912 and discussed above within a sealed module as disclosed in Hattori-912 for several reasons. Ex.1002 ¶¶203-08.

First, a POSITA would have been motivated to include each component in Hattori-912’s sealed module to obtain the benefits of doing so; for example, to protect each of the components from potentially harmful moisture, dirt, or chemicals

that could cause them to stop working temporarily or permanently. Ex.1011 at 135-36; Ex.1002 ¶204. Furthermore, including as many components as possible in the sealed module would allow the system to be easily removable and swappable because it is self-contained, and would have benefits for maintenance and cleaning of the eyewear generally. *Cf.* Ex.1005, 37:49-65; Ex.1002 ¶204. It would also make the eyewear easier to manufacture and assemble. Ex.1002 ¶204.

Second, sealed modules like those in Hattori-912 were well-known, leading a POSITA to reasonably expect success in the combination. *Id.* ¶205 (citing Exs.1003, 1006, 1011).

Third, such a modification represents nothing more than the simple addition of one known element (a sealed module as in Hattori-912) to another known element (Blum-741's eyewear) to obtain predictable results (eyewear as in Blum-741 including a sealed module that includes various electronic components). *Id.* ¶206; *KSR*, 550 U.S. at 417.

Fourth, the combination represents the use of a known technique (using a sealed module as in Hattori-912) to improve a similar device and method (Blum-741's eyewear) in the same way. Ex.1002 ¶207; *KSR*, 550 U.S. at 417.

Fifth, the combination applies a known technique (using a sealed module as in Hattori-912) to a known device and method (Blum-741's eyewear) that is ready for improvement and yields predictable results (eyewear as in Blum-741 including

a sealed module that includes various electronic components). Ex.1002 ¶208; *KSR*, 550 U.S. at 417.

4. **Limitation 1[c]: “wherein the frame comprises a first temple and a second temple”**

Blum-741 discloses a frame that comprises a first and second temple. *E.g.*, Ex.1005, 5:61-67, 37:49-65, Fig. 5. This is shown in Figure 5:

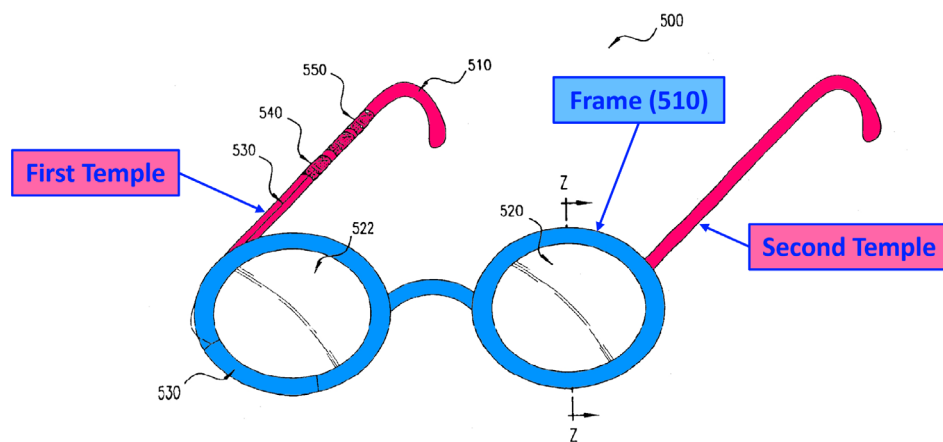


FIG.5

*Id.*, Fig. 5; Ex.1002 ¶210.

5. **Limitation 1[c][i]: “wherein the module is disposed within the first temple”**

Blum-741 discloses that various electronic components, including batteries, gyroscopes or accelerometers, and processors, are embedded in a temple of its eyewear frame. Ex.1005, 5:61-67, 7:52-58, 34:65-67, Fig. 5; Ex.1002 ¶211. As shown in Figure 5, these components are embedded in the first temple:

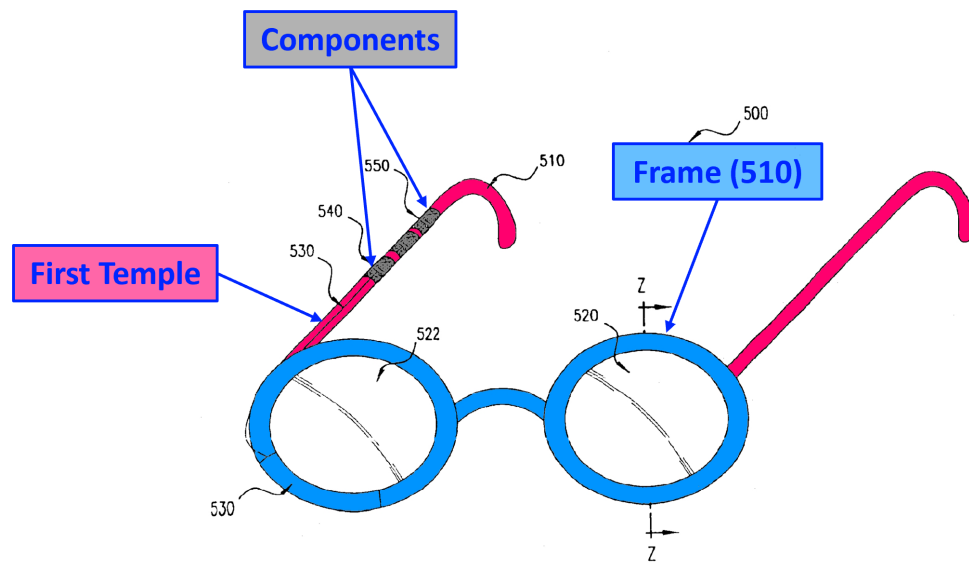


FIG.5

Ex.1005, Fig. 5; Ex.1002 ¶211.

Furthermore, Hattori-912 discloses that the sealed module is embedded in the eyewear frame (1-a, 1-b). Ex.1006, 64; *Supra* §XIII.B.2. Thus, Hattori-912 discloses that the module may be disposed within the eyewear frame. Ex.1002 ¶212. Thus, Blum-741 and Hattori-912 together disclose that the sealed module is disposed within the first temple. *Id.*

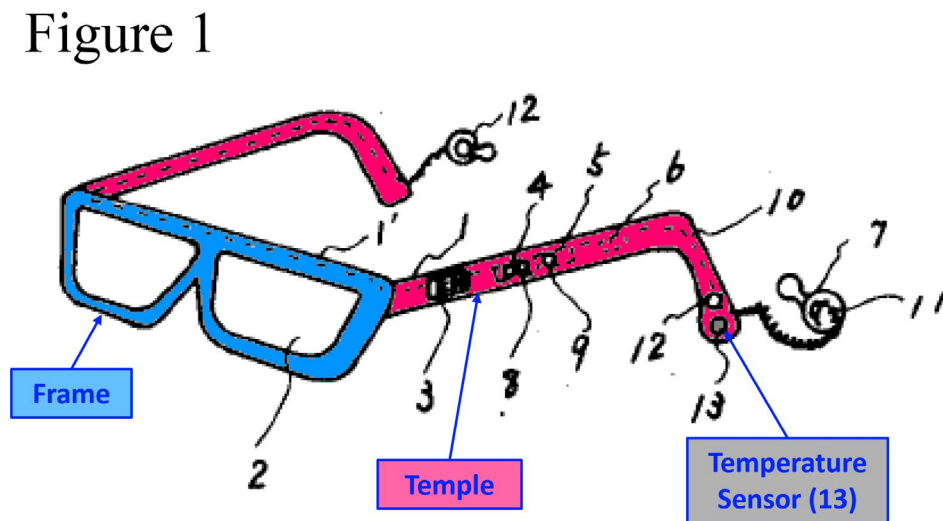
Accordingly, Blum-741 and/or Hattori-912 disclose each element of claim 1, and claim 1 would have been obvious to a POSITA in view of those references. Ex.1002 ¶¶175-213.

### C. Claim 19

Independent claim 19 recites many of the same limitations as claim 1. These limitations are disclosed by the prior art for the reasons discussed above. *Supra*

§XIII.B; Ex.1002 ¶214. Claim 19 also recites that “the 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.”

A POSITA would have been motivated to locate Hattori-912’s sealed module within Blum-741’s eyewear frame behind the ear of a wearer because Hattori-912 discloses that electronic components may be embedded in an eyewear frame in that location. Specifically, Hattori-912 discloses that “temperature sensing element 13,” which enables Hattori-912’s system to measure body and air temperature, is located within the eyewear frame and behind the ear of a wearer. Ex.1006, 64, Fig. 1. Figure 1 shows this:



*Id.*, Fig. 1; Ex.1002 ¶215. A POSITA would have recognized from Hattori-912’s disclosure that the sealed module could be located behind the wearer’s ear just like the temperature sensing element 13. Ex.1006, 64; Ex.1002 ¶215.

A POSITA would have been motivated to locate the sealed module there, and would have had a reasonable expectation of success in doing so, because such an arrangement was known in the art. *E.g.*, Ex.1004, 21:62-22:2, Fig. 10C; Ex.1002 ¶216. A POSITA would have been motivated to position the module at least partially behind the wearer's ear to reduce the visual impact on the eyewear's design. *Id.*

Moreover, such a modification represents nothing more than the simple addition of one known element (one or more components positioned behind the wearer's ear) to another known element (Hattori-912's sealed module) to obtain predictable results (a sealed module as in Hattori-912 positioned at least partially behind the ear of the wearer). Ex.1002 ¶217; *KSR*, 550 U.S. at 417.

The combination represents the use of a known technique (positioning components behind the wearer's ear) to improve a similar device and method (Blum-741's eyewear including Hattori-912's sealed module) in the same way. Ex.1002 ¶218; *KSR*, 550 U.S. at 417.

Additionally, the combination applies a known technique (positioning components behind the wearer's ear) to a known device and method (Blum-741's eyewear including Hattori-912's sealed module) that is ready for improvement and yields predictable results (a sealed module as in Hattori-912 positioned at least partially behind the ear of the wearer). Ex.1002 ¶219; *KSR*, 550 U.S. at 417.

Finally, the positioning of the module at least partially behind the wearer's ear represents a choice from a finite number of identified, predictable solutions (e.g., in front of or behind the wearer's ear), each of which would have been obvious to try. Ex.1002 ¶220; *KSR*, 550 U.S. at 421.

Accordingly, Blum-741 and Hattori-912 disclose each element of claim 19, and claim 19 would have been obvious to a POSITA in view of those references. Ex.1002 ¶¶214-21.

**D. Claim 31**

Claim 31 depends from claim 19 and further recites that “the module is disposed, at least partially, on a temple portion of the frame.”

As discussed above, Hattori-912 discloses that (or a POSITA would have been motivated in view of Hattori-912 and/or Blum-741 to configure a device such that) the sealed module is positioned at least partially behind the ear of the wearer and on a temple portion of the eyewear frame. *Supra* §XIII.C.

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claim 31, and claim 31 would have been obvious to a POSITA in view of those references. Ex.1002 ¶222.

**E. Claims 2 and 20**

Claims 2 and 20 depend from claims 1 and 19, respectively, and further recite that “the module includes an electrical connector configured to connect the any two

of switch, detector, processor, power source, drive circuit, transmitter, receiver, transceiver, and sensor with an external device.”

Blum-741 discloses that the device’s controller may be “reprogrammed, in situ, by the refractor without removal from the electro-active eyewear” and discloses that this requires “only an interface link to the refractor which issues the reprogramming commands” to the controller. Ex.1005, 8:18-37. Thus, Blum-741 discloses an electrical connector that connects at least the processor (e.g., controller) to an external device (e.g., reprogrammer). Ex.1002 ¶224. Blum-741 further discloses that the same connector may provide power to the device’s power source. Ex.1005, 8:34-37 (“Part of this link would include external AC power to the electro-active eyewear controller provided by an AC adapter”); *id.*, 30:9-13, 31:24-27; Ex.1002 ¶224.

Furthermore, as discussed above, Blum-741 also discloses that its eyewear includes electro-active lenses. *Supra* §IX.B. Blum-741 discloses that the “electro-active lenses 2120 ... are connected by connecting wires 2130 to controller 2140 ... and power source 2150.” Ex.1005, 32:58-33:6; *id.*, 7:52-58, Figs. 5, 21. Thus, Blum-741 discloses that at least the processor (e.g., controller) and power source are connected by an electrical connector (e.g., connecting wires 2130) to an external device (electro-active lenses 2120). Ex.1002 ¶225.

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 2 and 20, and those claims would have been obvious to a POSITA in view of those references. *Id.* ¶¶223-26.

**F. Claims 4 and 22**

Claims 4 and 22 depend from claims 2 and 20, respectively, and further recite that “the external device includes an electro-active lens mounted to the frame.”

As discussed above, Blum-741 discloses that its eyewear includes electro-active lenses mounted to the frame and connected via an electrical connection to the sealed module and the components inside. *Supra* §IX.B. Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 4 and 22, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶227.

**G. Claims 5 and 23**

Claims 5 and 23 depend from claims 4 and 22, respectively, and further recite that “the electro-active lenses are configured to change at least one of focus, tint, and a display.”

As discussed above, Blum-741 discloses that its electro-active lenses are configured to change focus, tint, and/or a display.<sup>2</sup> *Supra* §IX.C. Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 5 and 23, and those

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<sup>2</sup> A POSITA would have understood that Blum-741’s electro-active lenses interact exactly the same way with Hattori-912’s display as they do with Howell-596’s display, as discussed above. *Supra* §IX.C; Ex.1002 ¶228.

claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶228.

**H. Claims 6 and 24**

Claims 6 and 24 depend from claims 1 and 19, respectively, and further recite that “the module includes each of drive circuit, a sensor, and a power source.”

As discussed above, Blum-741 and Hattori-912 together disclose a module that may include each of a drive circuit, a sensor, and a power source. *See supra* §XIII.B.3. Accordingly, Blum-741 and Hattori-912 disclose each limitation of claims 6 and 24, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶229.

**I. Claims 7 and 25**

Claims 7 and 25 depend from claims 1 and 19, respectively, and further recite that “the module includes an antenna and at least one of a transmitter, a receiver or a transceiver.”

As discussed above, Blum-741 discloses that its device may include an antenna and a receiver or transceiver to communicate with an external switch device, and a POSITA would have been motivated to enclose those components in Hattori-912’s sealed module. *Supra* §XIII.B.3. Furthermore, as discussed above, Hattori-912 discloses a “radio receiving circuit” and an “antenna for radio reception.” Ex.1006, 64. Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of

claims 7 and 25, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶230.

**J. Claims 8 and 26**

Claims 8 and 26 depend from claims 1 and 19, respectively, and further recite that “the module includes a sensor” and “the sensor comprises a manual switch.”

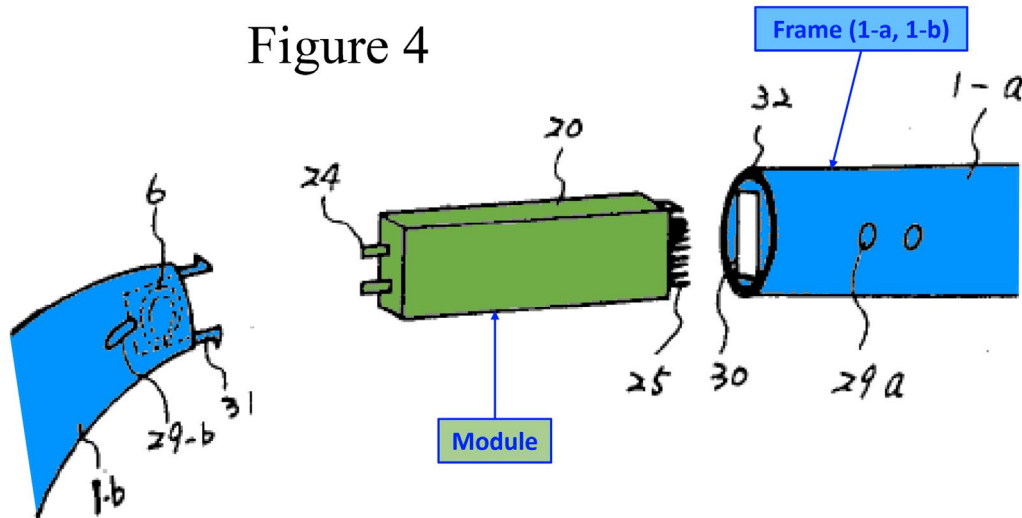
Blum-741 discloses that its system may include a sensor that controls the input of power to various components of Blum-741’s system (for example, a controller). Ex.1005, 35:39-37:2; Ex.1002 ¶231. In one embodiment, this sensor comprises “a combination of microgyroscope with a manual switch.” Ex.1005, 36:20-30. Blum-741 discloses that the manual switch may be used to manually control the output of the microgyroscope as desired by the user. *Id.* Thus, Blum-741 discloses that its system may include a sensor that comprises a manual switch. Ex.1002 ¶231. A POSITA would have been motivated to enclose those components in Hattori-912’s sealed module for the reasons discussed above. *Supra* §XIII.B.3.c.

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 8 and 26, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶231.

**K. Claims 9 and 27**

Claims 9 and 27 depend from claims 1 and 19, respectively, and further recite that “the module is removably attached to the frame.”

Hattori-912 discloses that components of the sealed module are “removably embedded in temple 1” of its eyewear frame. Ex.1006, 64. Furthermore, Hattori-912 shows the sealed module in a removed position with respect to the eyewear frame in Figure 4:



*Id.*, Fig. 4; Ex.1002 ¶232. Thus, Hattori-912 discloses that the sealed module is removably attached to the frame. Ex.1002 ¶232.

Even if Hattori-912 did not disclose this limitation, it suggests it for the reasons discussed above. A POSITA would have been motivated to configure Hattori-912 in this manner because it would have allowed for easy access to the sealed module to perform maintenance and repairs, reprogramming, and/or to swap out a depleted battery for a fully charged one, for example. *Id.* ¶233. Furthermore, a POSITA would have reasonably expected success because Hattori-912 already provides the structure required to make the sealed module removable (e.g., biting

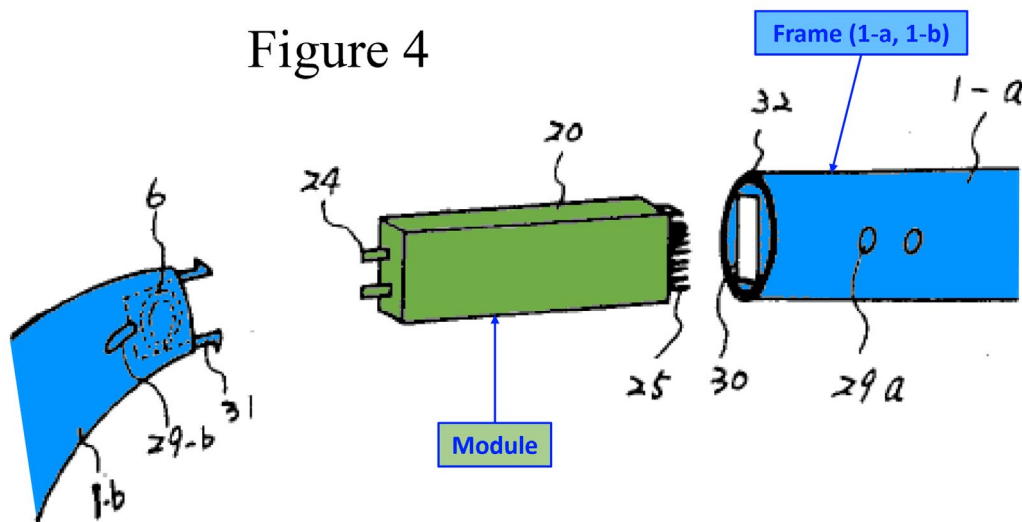
part 31, which removably connects the portions of the frame that surround the sealed module). Ex.1006, 64; Ex.1002 ¶233.

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 9 and 27, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶¶232-34.

**L. Claims 10 and 28**

Claims 10 and 28 depend from claims 1 and 19, respectively, and further recite that “the module is affixed directly to the frame.”

Hattori-912 discloses that the sealed module is contained in frames 1-a and 1-b, and shows this configuration in Figure 4:



Ex.1006, 64, Fig. 4; Ex.1002 ¶235. Because Hattori-912 discloses that the sealed module is contained directly within the frame, it discloses that the module is affixed directly to the frame. *Id.*

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 10 and 28, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶235.

**M. Claims 13-15 and 32-34**

Claims 13 and 32 depend from claims 1 and 19, respectively, and further recite that “the module is hermetically sealed.” Claims 14 and 33 also depend from claims 1 and 19, respectively, and further recite that “the module is substantially water-proof.” Claims 15 and 34 likewise depend from claims 1 and 19, respectively, and further recite that “the module is water-proof.”

Hattori-912 discloses that the module is sealed with “[w]aterproof ring 32,” which is located between the frame portions enclosing the sealed module. Ex.1006, 64. Additionally, Hattori-912 discloses that the module may be coated with “protective film 41,” which a POSITA would have understood to form a water-proof coating on the module. Ex.1006, 65; Ex.1002 ¶237 (citing Ex.1011). Thus, Hattori-912 discloses that the module is water-proof (and thus also substantially water-proof). Ex.1002 ¶237.

For the same reasons, a POSITA would have understood Hattori-912 to disclose that the module may be hermetically sealed. Something that is hermetically sealed is sealed so as to be air-tight. *Id.* ¶238 (citing Ex.1010). And something that

is sealed with a water-proof ring or coating is also air-tight. *Id.* Thus, Hattori-912 discloses, or at least suggests, that the module may be hermetically sealed.

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 13-15 and 32-34, and those claims would have been obvious to a POSITA in view of those references. *Id.* ¶¶236-39.

**N. Claims 16 and 35**

Claims 16 and 35 depend from claims 1 and 19, respectively, and further recite that “the module is substantially wear resistant.”

Hattori-912 discloses this limitation because it discloses that the module is embedded in frames 1-a and 1-b. Ex.1006, 64. A POSITA would have understood that eyewear frames are generally made from durable materials that are wear-resistant. Ex.1002 ¶240 (citing Ex.1018). Thus, if the sealed module is embedded within the eyewear frame, the module is protected from wear by the frame and is thus substantially wear resistant. *Id.*

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 16 and 35, and those claims would have been obvious to a POSITA in view of those references. *Id.*

**O. Claims 17 and 36**

Claims 17 and 36 depend from claims 1 and 19, respectively, and further recite that “the module includes a power source” and “the power source comprises an inductively rechargeable battery.”

As discussed above, Blum-741 discloses that its eyewear includes an inductively rechargeable battery to be used as a power source. *Supra* §IX.E. A POSITA would have been motivated to enclose Blum-741’s inductively rechargeable battery in Hattori-912’s sealed module, and would have reasonably expected success doing so, for the same reasons discussed above. *Supra* §§IX.E, XIII.B.3.c. Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 17 and 36, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶241.

**P. Claims 18 and 37**

Claims 18 and 37 depend from claims 1 and 19, respectively, and further recite that “the module includes electronic components configured to enable an electronic display.”

Hattori-912 discloses that the eyewear may include “display device 3 [which] may be placed on eyeglasses frame 1’ or lens 2 such that it will be possible to view the display details while wearing the eyeglasses.” Ex.1006, 64; *id.*, 63, 65. As discussed above, Hattori-912 further discloses electronic components, such as drive

circuitry, configured to enable use of the electronic display device 3 by the user, and discloses or suggests that those electronic components may be contained in the sealed module. *Supra* §XIII.B.3. A POSITA would have been motivated to include Hattori-912's electronic display with Blum-741's eyewear for the reasons discussed above. *Id.*; Ex.1002 ¶242.

Accordingly, Blum-741 and/or Hattori-912 disclose each limitation of claims 18 and 37, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶242.

**XIV. GROUND 9: BLUM-741, HATTORI-912, AND SPITZER RENDER CLAIMS 3 AND 21 OBVIOUS**

As discussed above, Spitzer discloses the additional limitations of claims 3 and 21. *Supra* §X. A POSITA would have been motivated to combine Spitzer with Blum-741 and Hattori-912, and would have had a reasonable expectation of success in doing so, for the same reasons discussed above. *Id.* Accordingly, Blum-741, Hattori-912, and Spitzer disclose each limitation of claims 3 and 21, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶243.

**XV. GROUND 10: BLUM-741, HATTORI-912, AND OGREN RENDER CLAIMS 11 AND 29 OBVIOUS**

As discussed above, Ogren discloses the additional limitations of claims 11 and 29. *Supra* §XI. A POSITA would have been motivated to combine Ogren with Blum-741 and Hattori-912, and would have had a reasonable expectation of success

in doing so, for the same reasons discussed above. *Id.* Accordingly, Blum-741, Hattori-912, and Ogren disclose each limitation of claims 11 and 29, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶244.

**XVI. GROUND 11: BLUM-741, HATTORI-912, AND JANNARD-868 RENDER CLAIMS 12 AND 30 OBVIOUS**

As discussed above, Jannard-868 discloses the additional limitations of claims 12 and 30. *Supra* §XII. A POSITA would have been motivated to combine Jannard-868 with Blum-741 and Hattori-912, and would have had a reasonable expectation of success in doing so, for the same reasons discussed above. *Id.* Accordingly, Blum-741, Hattori-912, and Jannard-868 disclose each limitation of claims 12 and 30, and those claims would have been obvious to a POSITA in view of those references. Ex.1002 ¶245.

**XVII. SECONDARY CONSIDERATIONS**

Secondary considerations should be considered but do not control the obviousness conclusion. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988). Where, as here, a strong *prima facie* obviousness showing exists, even relevant secondary considerations supported by substantial evidence may not dislodge obviousness conclusion. *Leapfrog Enters. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). Petitioner is aware of no evidence supporting a claim for secondary considerations.

**XVIII. DISCRETIONARY DENIAL UNDER §314(A) IS NOT APPROPRIATE**

The Board should decline to exercise its discretion under 35 U.S.C. §314(a). Efficiency, fairness, and the merits support institution despite the existence of co-pending litigation. *Apple v. Fintiv*, IPR2020-00019, Paper 11 (P.T.A.B. Mar. 20, 2020) (“*Fintiv*”). Each *Fintiv* factor is discussed below.

**A. Factor 1: Potential Stay**

Petitioner will move to stay the Litigation pending resolution of this IPR. The CDCA recognizes a “liberal policy” favoring stays pending USPTO proceedings and grants motions to stay pending IPR where, as here, “there is more work ahead of the parties and the Court than behind”; the stay “will simplify the issues in question and the trial of the case”; and there is no undue prejudice. *RJ Tech. LLC v. Apple Inc.*, No. 8:22-cv-01874, 2023 WL 8188475, at \*1 (C.D. Cal. Oct. 4, 2023); *Polaris PowerLED Techs., LLC v. LG Elecs., Inc.*, No. SACV-20-00125-JVS(DFMx), 2020 WL 6064964, at \*2-\*3 (C.D. Cal. Aug. 26, 2020). The CDCA routinely grants such a stay even before an IPR is instituted. *See, e.g., RJ Tech.*, 2023 WL 8188475, at \*3; *DataQuill Ltd. v. TCL Commc’n Tech. Holdings Ltd.*, No. 2:19-cv-03394, 2020 WL 3884436, at \*1-\*3 (C.D. Cal. Apr. 24, 2020). Accordingly, the likelihood of a stay is high, and this factor weighs against discretionary denial.

**B. Factor 2: Proximity of Trial to FWD**

The CDCA has set a trial date of July 21, 2025. As this Petition is being filed in June 2024, a final written decision would be expected in December 2025—within five months of trial. Furthermore, at this early stage of the co-pending litigation, the trial date may well be extended, and certainly will be extended if the case is stayed. Additionally, the Director’s June 2022 memorandum counsels against relying on scheduled trial dates. Memo,<sup>3</sup> 8.

In 2023, over 17,000 new cases were filed in the CDCA, resulting in 622 new cases per authorized judgeship, *not accounting for vacancies*. Ex.1021. In 2023, the median time to trial for civil cases in the CDCA was 29.7 months from filing. *Id.* Applying that median time to the Litigation, which was filed at the end of October 2023, would put trial in April 2026—four months *after* the expected final written decision in this case. Accordingly, this factor favors institution or is at worst neutral. *Fusion Orthopedics, LLC v. Extremity Med., LLC*, IPR2023-00894, Paper 15 at 30 (P.T.A.B. Nov. 17, 2023); *Samsung Elecs. Co. v. DoDots Licensing Sols. LLC*, IPR2023-00621, Paper 9 at 11 (P.T.A.B. Oct. 11, 2023).

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<sup>3</sup> [https://www.uspto.gov/sites/default/files/documents/interim\\_proc\\_discretionary\\_denials\\_aia\\_parallel\\_district\\_court\\_litigation\\_memo\\_20220621\\_.pdf](https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf).

**C. Factor 3: Investment in Parallel Proceeding**

PO filed its original complaint on Oct. 26, 2023 and an amended complaint on March 29, 2024. On June 13, 2024, the Court granted Petitioner’s motion to dismiss claims from the amended complaint. Aside from the pleadings, the parties have invested very little in the Litigation. Fact discovery remains in its infancy, as no depositions have been taken. The parties have not proposed claim constructions or submitted claim construction briefs. No expert reports have been served. Accordingly, the “remaining investment” outweighs any investments made and this factor weighs against discretionary denial. *Samsung Elecs. Am. Inc. v. Snik LLC*, IPR2020-01428, Paper 10 at 11 (P.T.A.B. Mar. 9, 2021); *Huawei Techs. Co. v. WSOU Invs., LLC*, IPR2021-00226, Paper 10 at 13-14 (P.T.A.B. June 10, 2021).

**D. Factor 4: Overlapping Issues**

Petitioner hereby stipulates that, if the Board institutes review, Petitioner will not pursue in the Litigation invalidity of the ’483 patent based on any ground Petitioner raised or reasonably could have raised in this petition. This stipulation resolves *Fintiv* factor 4 strongly in favor of institution. *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18-19 (Dec. 1, 2020) (precedential as to § II.A). The Director’s June 2022 memorandum states that, when a petitioner so stipulates, “the PTAB will not discretionarily deny institution” due to parallel litigation. Memo, 7.

**E. Factor 5: The Parties**

The parties are the same, but due to the likelihood of a stay, it is unlikely that the Litigation will go to trial before a final written decision is entered in this IPR. Thus, this factor is neutral. *See Google LLC v. Jawbone Innovations, LLC*, IPR2022-00630, Paper 10 at 14 (P.T.A.B. Sept. 13, 2022).

**F. Factor 6: Other Circumstances**

The prior art combinations asserted here have never been considered by the PTO, any court, or any jury. The petition’s merits are particularly compelling, which favors institution. *Fintiv*, IPR2020-00019, Paper 11 at 18; *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 3-4 (P.T.A.B. February 27, 2023) (precedential). Moreover, denying institution would negate Congress’s intent in providing a 1-year period to file petitions and would encourage forum shopping as patent owners look to shield their patents from PTAB scrutiny by seeking judges with aggressive trial schedules.

Accordingly, the *Fintiv* analysis favors institution.

**XIX. DISCRETIONARY DENIAL UNDER §325(D) IS NOT APPROPRIATE**

The Office has not previously considered “the same or substantially the same prior art or arguments.” 35 U.S.C. §325(d). Here, the PTO has never considered the combinations of prior art asserted. Nor has the PTO considered “substantially the same prior art or arguments.” In prosecution, PO alleged that the prior art did

not teach limitations regarding electronic components located within the temples of an eyewear frame, and the Examiner agreed. Ex.1019, 138-45, 184. However, the references herein clearly disclose those claim elements. Accordingly, they are not—and could not be—cumulative of previously-considered references. Thus, the Board should not deny institution under §325(d).

**XX. MANDATORY NOTICES, GROUNDS FOR STANDING, AND FEE PAYMENT**

**A. Real Parties-In-Interest (37 C.F.R. §42.8(b)(1))**

Luxottica of America Inc. and Luxottica Group S.p.A. are the real parties in interest for Petitioner. The parent company of each party identified above is EssilorLuxottica S.A.

**B. Related Matters (37 C.F.R. §42.8(b)(2))**

The parties are currently engaged in district court litigation in *e-Vision Optics, LLC et al. v. Luxottica Group S.p.A et al.*, No. 8:23-cv-02013 (C.D. Cal.). The '483 patent is asserted in the Litigation.

PO also asserted the '483 patent in the following case:

*e-Vision, LLC et al. v. Lenovo Group Ltd. et al.*, No. 8:23-cv-01860 (C.D. Cal.).

**C. Lead and Backup Counsel (37 C.F.R. §42.8(b)(3))**

Petitioner provides the following designation of counsel, all of whom are included in Customer No. 20,995 identified in Petitioner's Power of Attorney.

| Lead Counsel                                                                                                                                                                                                                                                | Back-up Counsel                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ali S. Razai (Reg. No. 60,771)<br>2AZR@knobbe.com<br><br>Knobbe, Martens, Olson, & Bear, LLP<br><u>Postal and Hand-Delivery Address:</u><br>2040 Main St., 14 <sup>th</sup> Floor<br>Irvine, CA 92614<br>Telephone: 949-760-0404<br>Facsimile: 949-760-9502 | Joseph F. Jennings (Reg. No. 40,664)<br>2JFJ@knobbe.com<br>Jacob L. Peterson (Reg. No. 65,096)<br>2JUP@knobbe.com<br>Nathan D. Reeves (Reg. No. 77,806)<br>2NDR@knobbe.com<br><br>Knobbe, Martens, Olson, & Bear, LLP<br><u>Postal and Hand-Delivery Address:</u><br>2040 Main St., 14 <sup>th</sup> Floor<br>Irvine, CA 92614<br>Telephone: 949-760-0404<br>Facsimile: 949-760-9502 |

**D. Service Information (37 C.F.R. §42.8(b)(4))**

Please direct all correspondence to lead counsel and back-up counsel at the addresses shown above. Petitioner also consents to electronic service by email to LuxotticaIPR-483@knobbe.com.

**E. Standing**

The '483 patent is available for IPR, and no bar or estoppel applies. PO filed the Litigation in October 2023 and served the complaint subsequently.

The Office may charge any fees due to Deposit Account 11-1410.

**XXI. CONCLUSION**

Petitioner respectfully requests that the Board institute IPR and cancel all challenged claims of the '483 patent.

Dated: June 20, 2024

By: /Ali S. Razai/

Ali S. Razai (Reg. No. 60,771)

KNOBBE, MARTENS, OLSON & BEAR, LLP

Attorney for Petitioner Luxottica of America Inc.

**CERTIFICATE OF COMPLIANCE**

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that this PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,708,483 contains 13,906 words according to the word-processing program used to prepare this paper. The foregoing word count complies with the 14,000-word type-volume limit specified by 37 C.F.R. § 42.24(a)(1).

Dated: June 20, 2024

By: /Ali S. Razai/  
Ali S. Razai (Reg. No. 60,771)  
KNOBBE, MARTENS, OLSON & BEAR, LLP

**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that on the date below copies of this PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,708,483, PETITIONER’S POWER OF ATTORNEY, and EXHIBITS 1001-1021 are being served by FedEx on the Patent Owner at the correspondence address of record for the subject patent as follows:

Smith Baluch LLP  
376 Boylston St. Suite 401  
Boston, MA 02116

A courtesy copy is being sent by email on this day to Patent Owner’s counsel of record in the Litigation as follows:

Christopher C. Campbell  
ccampbell@kslaw.com  
King & Spalding LLP  
1700 Pennsylvania Avenue, NW, Suite 200  
Washington, DC 20006-4707

Dated: June 21, 2024

By: /Ali S. Razai/  
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