

Filed: June 21, 2024

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LUXOTTICA OF AMERICA INC.,
Petitioner,

v.

E-VISION OPTICS, LLC,
Patent Owner.

Case IPR2024-01070
Patent 8,801,174

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 8,801,174**

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 8,801,174 (“174 patent”)
1002	Declaration of John Feland, Ph.D.
1003	U.S. Patent No. 2,915,598 to D.L. Brunton (“Brunton”)
1004	PCT Publication No. WO 2010/080999 to Kokonaski et al. (“Kokonaski-999”)
1005	U.S. Patent No. 2,207,705 to J.W. Cox (“Cox”)
1006	Japanese Patent Application Publication No. S58-113913 (“Hattori-913”)
1007	U.S. Patent No. 3,883,701 to Delorenzo (“Delorenzo”)
1008	G.B. Patent No. 799,294 to Carling (“Carling”)
1009	U.S. Patent No. 2,930,857 to Hollingsworth (“Hollingsworth”)
1010	U.S. Patent 4,290,052 (Eichelberger)
1011	Injection Molding Handbook, Ch. 17 (3d ed. 2000)
1012	U.S. Provisional Application 61/157,579 to Kokonaski et al. (“Kokonaski-579”)
1013	U.S. Publication No. 2008/0012832 to Li GuangHai (“GuangHai”)
1014	U.S. Publication No. 2007/0030254 to Robrecht et al. (“Robrecht”)
1015	U.S. Patent Publication No. 2005/0230596 A1 (“Howell-596”)
1016	Sikonowiz, Walter, DESIGNING AND CREATING PRINTED CIRCUITS (Hayden Book Co., 1981)
1017	U.S. Publication No. 2008/0088596 to Prest et al. (“Prest”)

Exhibit No.	Description
1018	U.S. Publication No. 2008/0136788 to Nishikawa et al. (“Nishikawa”)
1019	U.S. Provisional Patent Application No. 60/583,169 (“Howell-169”)
1020	U.S. Patent No. 5,049,090 to Johnson (“Johnson”)
1021	U.S. Patent No. 4,598,960 to DiSanto et al. (“DiSanto”)
1022	C.V. of John Feland, Ph.D.
1023	Federal Court Management Statistics (excerpt), <i>available at</i> https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf
1024	Declaration of Sylvia D. Hall-Ellis

ANNOTATED INDEPENDENT CLAIMS

Claim 1

- 1[pre] 1. A first device, comprising:
- 1[a] a lens housing adapted to support a first lens and a second lens;
- 1[b] a first temple movably coupled to the lens housing;
- 1[c] a second temple movably coupled to the lens housing;
- 1[d] an electronics module disposed at least partially within the first temple;
- 1[e] a first electrical conductor coupled to the first temple,
- 1[f] wherein a first conductive path is provided from the first temple to the lens housing at least in part by the first electrical conductor; and
- 1[g] a second electrical conductor coupled to the first temple,
- 1[h] wherein a second conductive path is provided from the first temple to the lens housing at least in part by the second electrical conductor;
- 1[i] wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module.

Claim 15

- 15[pre]** 15. A first method, comprising:
- 15[a]** providing a capacitive touch switch;
- 15[b]** disposing a plurality of electronic components on the capacitive
 switch; and
- 15[c]** coupling the capacitive touch switch to a partial enclosure to
 constrain the capacitive touch switch.

Petitioner Luxottica of America Inc. (“Luxottica” or “Petitioner”) requests *inter partes* review (“IPR”) of claims 1-19 of U.S. Patent No. 8,801,174 (“the ’174 patent,” Ex.1001) owned by e-Vision Optics, LLC (“Patent Owner” or “PO”).

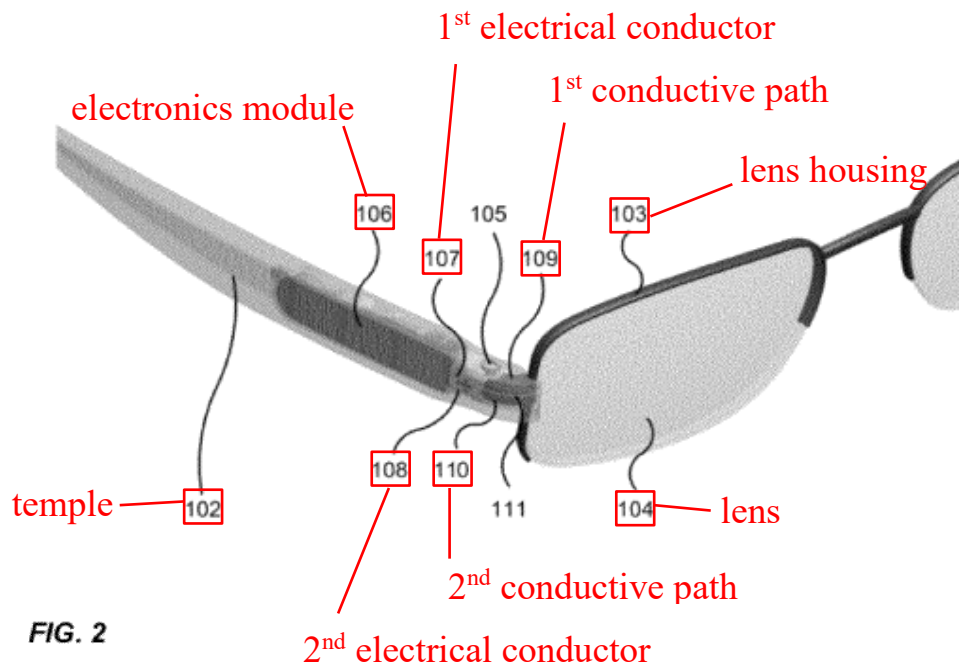
I. INTRODUCTION

The ’174 patent is generally directed to eyeglass frames with an electronics module in a temple with a conductive path to the lens housing. Ex.1001, 1:39-42. Specifically, claim 1 recites a device that comprises two electrical conductors coupled to the first temple, an electronics module disposed at least partially within the first temple, and “the first and second conductors are configured to couple the electronics module to the first temple to constrain the electronics module.” *Id.*, 32:28-30. But it has been well known since the 1930s to constrain electronic components in eyeglass temples using electrical conductors.

Claim 15—the only other independent claim—recites a method of providing a capacitive touch switch, disposing electronic components on the capacitive touch switch, and coupling the switch to a “partial enclosure to constrain the capacitive touch switch.” *Id.*, 33:13-14. It has been well known for decades to dispose electronic components on a capacitive touch switch and to constrain the switch in an enclosure, such as in an electronics module or in the temple of eyeglasses.

II. THE '174 PATENT

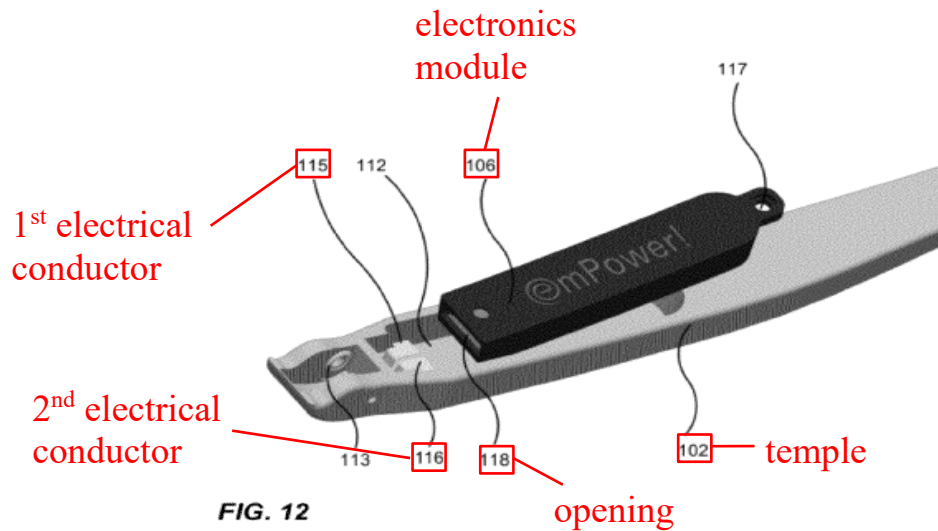
The '174 patent is directed to eyeglass frames “having one or more conductors that may be utilized to form part of a conductive path from the temple to the lens housing of the frames.” Ex.1001, 1:39-42. Figure 2 shows an embodiment:¹



Id., Fig. 2. The eyeglasses have a first temple 102 and a lens housing 103 with a lens 104, which may be an electronic lens. *Id.*, 15:23-33. An electronics module 106 is coupled to the temple 102 by first and second electrical conductors 107 and 108. *Id.*, 15:42-48. The electrical conductors are each coupled to the temple 102. *Id.*, 15:48-51. The electrical conductors form part of first and second conductive paths 109 and 110 to the lens housing 103. *Id.*, 15:51-61, 15:67-16:6; Ex.1002, ¶43.

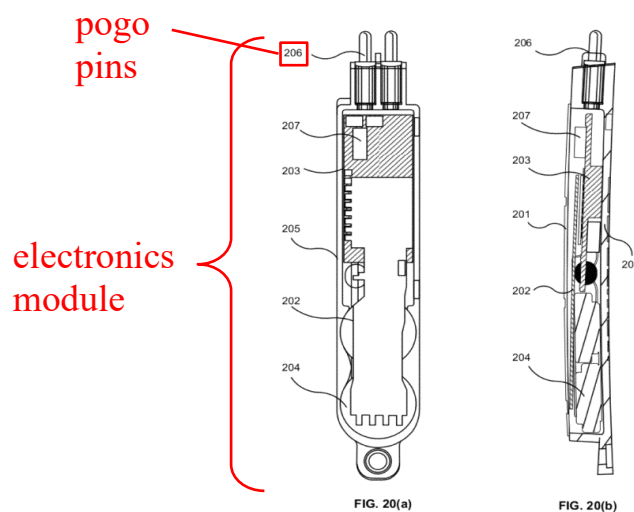
¹ Red annotations in the figures have been added by Petitioner.

Figure 12 shows an embodiment with an opening 118 for the first and second electrical conductors to be disposed into the electronics module 106. *Id.*, 18:56-59.



Id., Fig. 12; Ex.1002, ¶44.

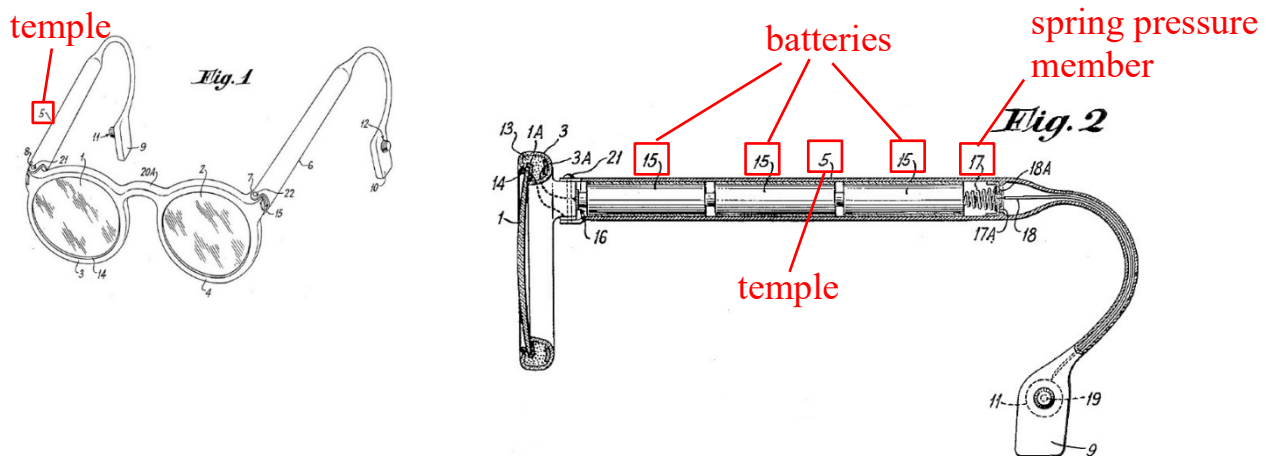
Figures 20(a) and 20(b) show another embodiment of the electronics module, which includes electrical conductors 206 (“pogo pins”) to connect to the electrical conductors in the temple:



Id., Figs. 20(a), 20(b), 3:33-35, 25:49-54, 27:35-45, 27:60-28:4; Ex.1002, ¶45.

III. STATE OF THE PRIOR ART

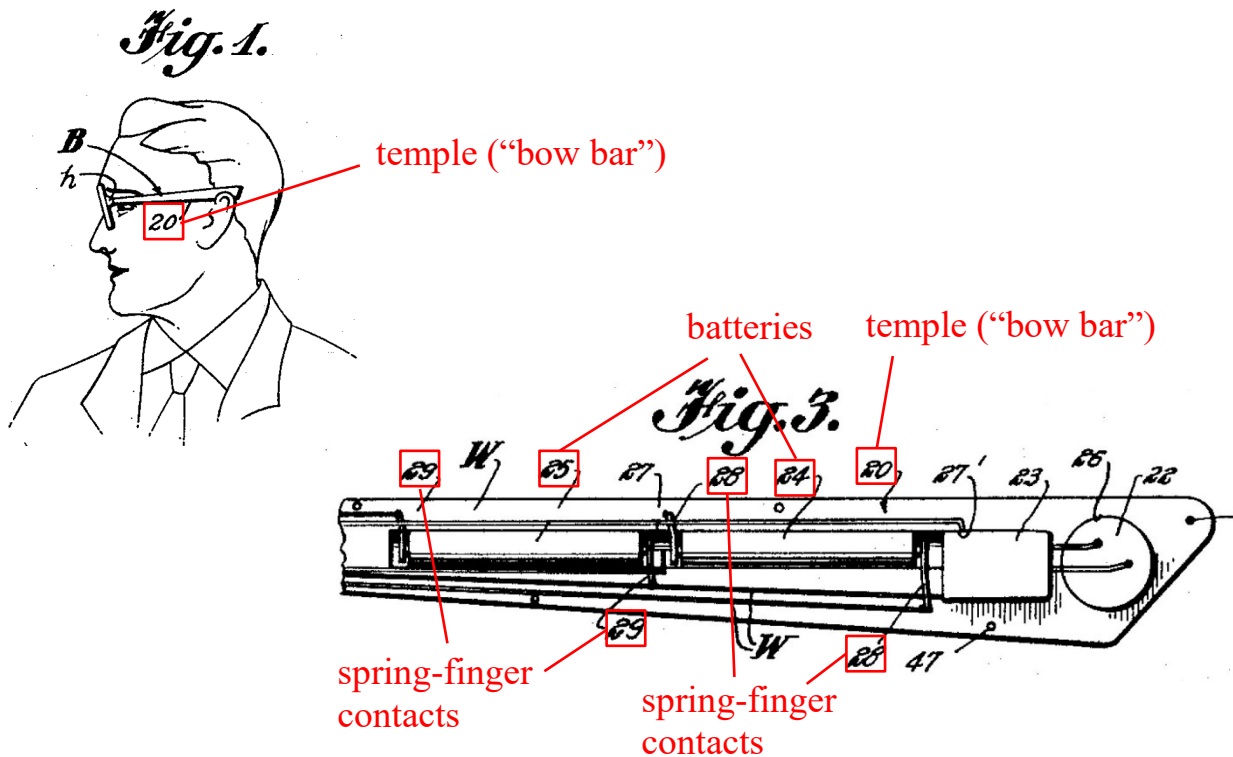
Incorporating electronic components in the temples of eyeglasses and constraining such components with electrical conductors has been known for decades. In 1936, Cox disclosed eyeglasses with electrical components, e.g., batteries disposed in the temple and constrained by an electrical contact, namely a spring pressure member.



Ex.1005, Figs. 1 and 2; *see id.*, 1:1-7, 2:23-26; Ex.1002, ¶32.

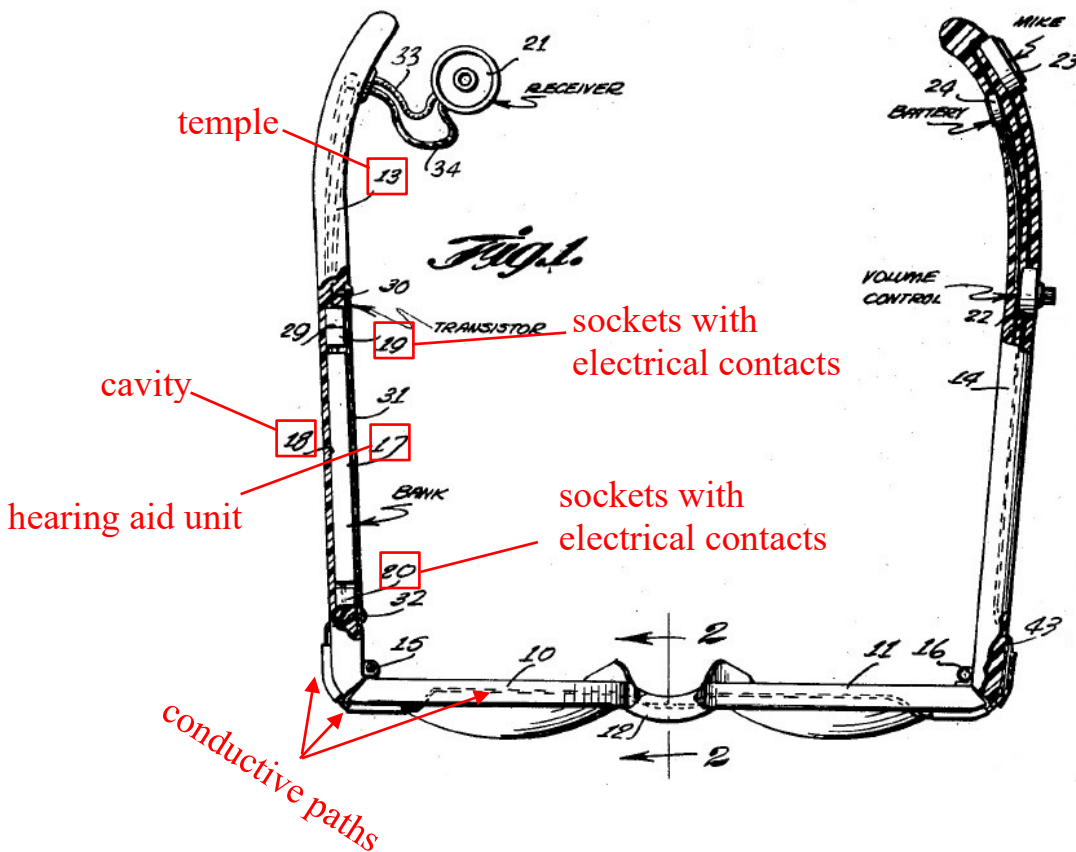
In 1953, Hollingsworth disclosed eyeglasses with hearing aids wherein electrical components (batteries) are incorporated into the temples and constrained by electrical contacts, namely spring-finger contacts, providing “improvements in hearing-aids wherein the component parts are inconspicuously and operatively incorporated within the frames of spectacles.” Ex.1009, 1:15-18. Figure 3 shows a temple (“bow bar”) that includes electrical conductors, namely “spring-finger

contacts 28 and 29,” which are “resiliently pressing against the terminals” of batteries 24 and 25 to constrain the batteries in the temple. *Id.*, 5:75-6:8.



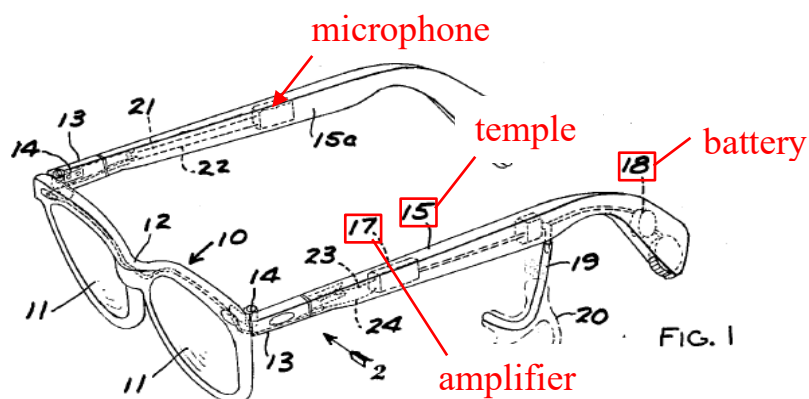
Id., Figs. 1 and 3; Ex.1002, ¶33.

In 1954, Brunton also disclosed eyeglasses with hearing aids. Ex.1003. Figure 1 shows the eyeglasses, including a temple 13 with a cavity 18 to house a hearing aid unit 17.

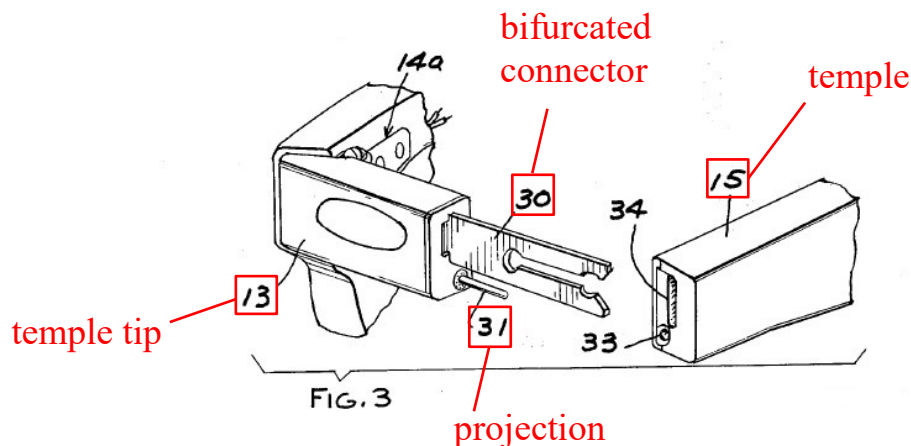


Id., Fig. 1, 3:34-44. Temple 13 includes electrical sockets 19 and 20 to constrain the hearing aid unit 17 in the temple (*id.*, 3:57-65) and form part of the conductive paths from the temple to the lens housing. *Id.*, 4:2-15; Ex.1002, ¶34.

In 1971, Delorenzo also disclosed eyeglasses with integrated hearing aid components, e.g., a microphone, amplifier, and battery, disposed in the frames. Ex.1007, Abstract, Fig. 1.

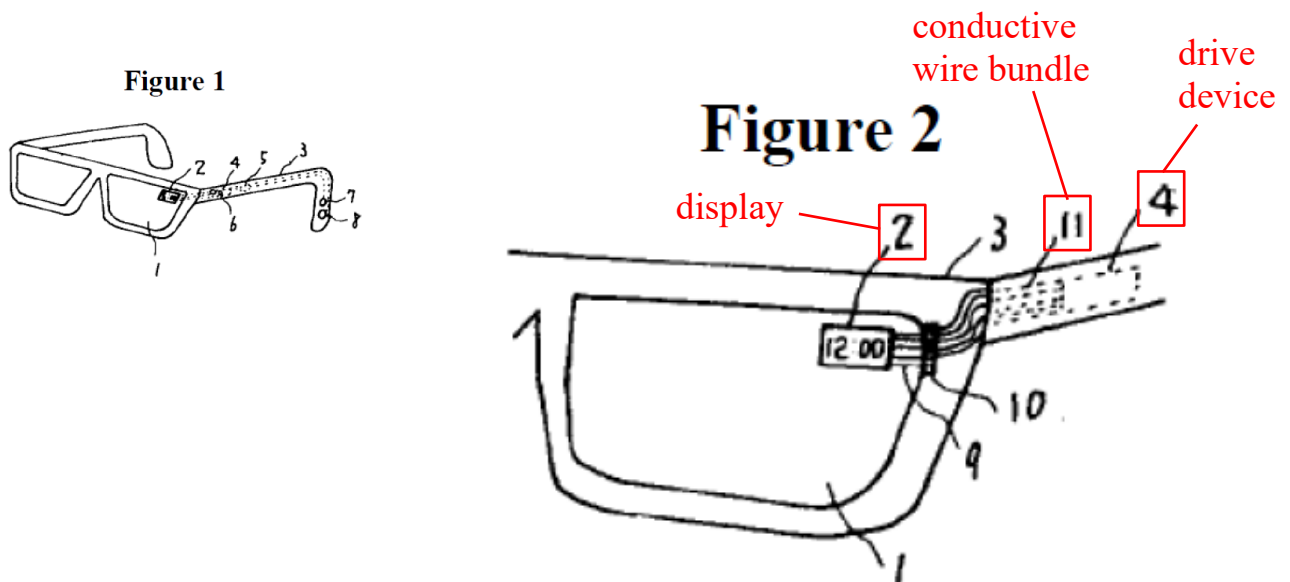


Id., Fig. 1. The temples include two electrical conductors: a “bifurcated connector 30” and a “projection or male element 31.”

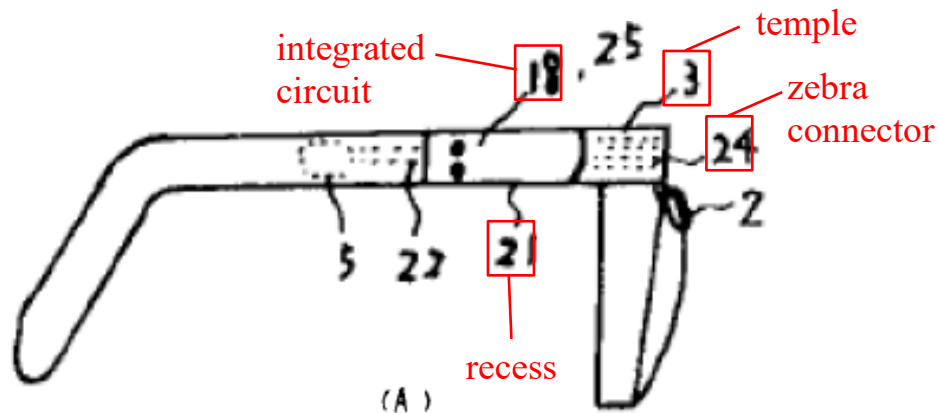


Id., Fig. 3. These two electrical conductors are used to electrically couple and mechanically constrain the components in the back portion of the temple 15. The electrical conductors also form part of the conductive paths that extend across the hinges to the lens housing of the eyeglasses. *Id.*, 2:46-56; Ex.1002, ¶36.

In 1983, Hattori-913 disclosed eyeglasses incorporating a drive device 4 in the temple to control a liquid crystal display 2 in the lens 1.

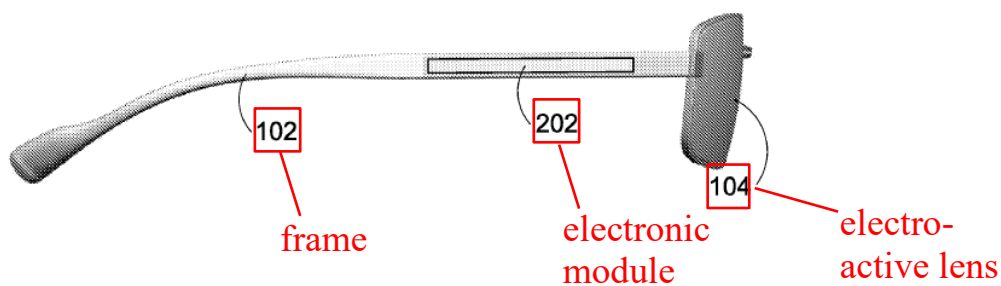


Ex.1006, Figs. 1, 2; *id.*, 68. The drive device 4, which can be an integrated circuit 18, is disposed in a recess 21 in the temple 3:



Id., Fig. 4A; *id.*, 68. The integrated circuit 18 is “connected to zebra connector 24 embedded in the temple,” which also constrains the integrated circuit 18 in the temple 3. *Id.*; Ex.1002, ¶38.

In 2010, Kokonaski-999 disclosed eyeglasses with an electronic module in the temple of frames for controlling electro-active lenses. Ex.1004. Figure 2 shows the eyeglass frames with the electronics module 202 in a temple:



Id., Fig. 2; *id.*, ¶[0033]. Figure 5 shows an electronic module having a housing 502 to hold the electrical components:

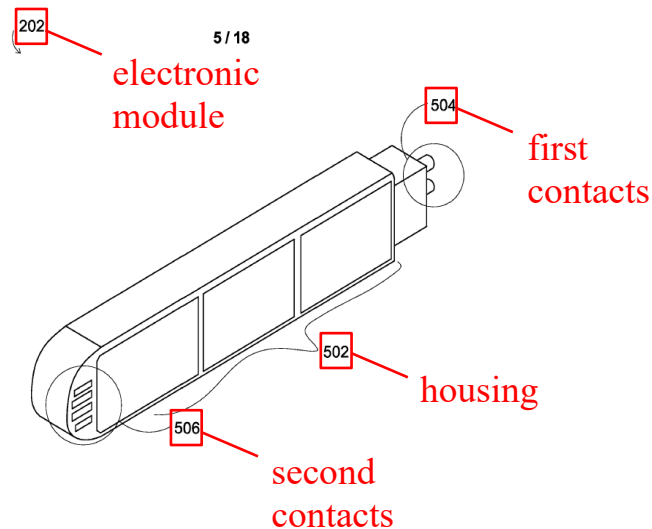


FIGURE 5

Id., Fig. 5. The first contacts 504 are pins that electrically connect to conductors in the temple, forming a conductive path to the electro-active lenses. *Id.*, ¶¶[0039], [0064]-[0067]; Ex.1002, ¶41.

IV. LEVEL OF ORDINARY SKILL

Under *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. Ex.1002, ¶¶28-31. A POSITA would have also had at least 2 years of experience designing consumer electronics, such as eyewear with electronics. *Id.* 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.*

V. CLAIM CONSTRUCTION

In October 2023, PO sued Petitioner for infringement of the '174 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 in the Litigation for purposes of determining infringement, no claim terms require an express construction to resolve the 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).

The specification of the '174 patent describes a number of claim terms, many in quotation marks, by what the terms refer to or may refer to: “electronics module” (Ex.1001, 8:8-10, 7:65-8:14); “electrical conductor” (*id.*, 11:15-20); “coupled” (*id.*, 6:52-60); “conductive path” (*id.*, 6:45-51); “constrain” (*id.*, 11:52-57, 2:13-14); “integrally coupled” (*id.*, 12:6-10); “insert molded” (*id.*, 12:11-21); “lug” (*id.*, 12:33-41); slip ring (*id.*, 13:18-20); and single structural element (*id.*, 14:38-45). These descriptions in the specification are consistent with the plain and ordinary meaning

of these claim terms. Ex.1002, ¶¶50-51. Petitioner has accorded all claim terms their plain and ordinary meaning herein.

VI. RELIEF REQUESTED

Petitioner requests that the Board cancel claims 1-19 of the '174 patent in view of the following prior art references:

Ex.	Reference	Date²	Art Type
1003	Brunton	Issued: December 1, 1959	§102(b)
1004	Kokonaski-999	Filed: January 10, 2010; Published: July 15, 2010	§§102(a), 102(e)
1006	Hattori-913	Published: July 7, 1983	§102(b)
1007	Delorenzo	Published: May 13, 1975	§102(b)
1008	Carling	Published: August 6, 1958	§102(b)
1010	Eichelberger	Issued: Sep. 15, 1981	§102(b)
1012	Kokanaski-579	Filed: March 5, 2009; Published: July 15, 2010	§§102(a), 102(e)
1015	Howell-596	Published: Oct. 20, 2005	§102(b)
1016	Sikonowiz	Published: 1981	§102(b)

² The '174 patent's earliest possible priority date is February 11, 2011. Ex.1001.

The Petition is also supported by the expert declaration of John Feland,
III, Ph.D. Ex.1002.

IPR is requested for the following grounds of unpatentability:

Ground	Reference(s)	Basis	Challenged Claims
1	Brunton	§102	1, 2, 4, 9, 12
2	Brunton	§103	1-4, 9, 12
3	Brunton, Carling	§103	7, 8, 13
4	Kokonaski-999, Brunton	§103	1, 2, 4-6, 9, 12, 14
5	Hattori-913	§103	1, 2, 5, 6, 12, 13
6	Delorenzo	§102	1, 2, 4, 9, 12, 13
7	Delorenzo	§103	1-4, 9-13
8	Kokonaski-999, Kokanski-579	§103	15-19
9	Howell-596, Eichelberger, Sikonowiz	§103	15, 16, 18

VII. GROUND 1: BRUNTON ANTICIPATES CLAIMS 1, 2, 4, 9, 12

A. Claim 1

1. Preamble and 1[a], 1[b], 1[c]: lens housing and first/second temples

The preamble and limitations 1[a], 1[b], and 1[c] recite:

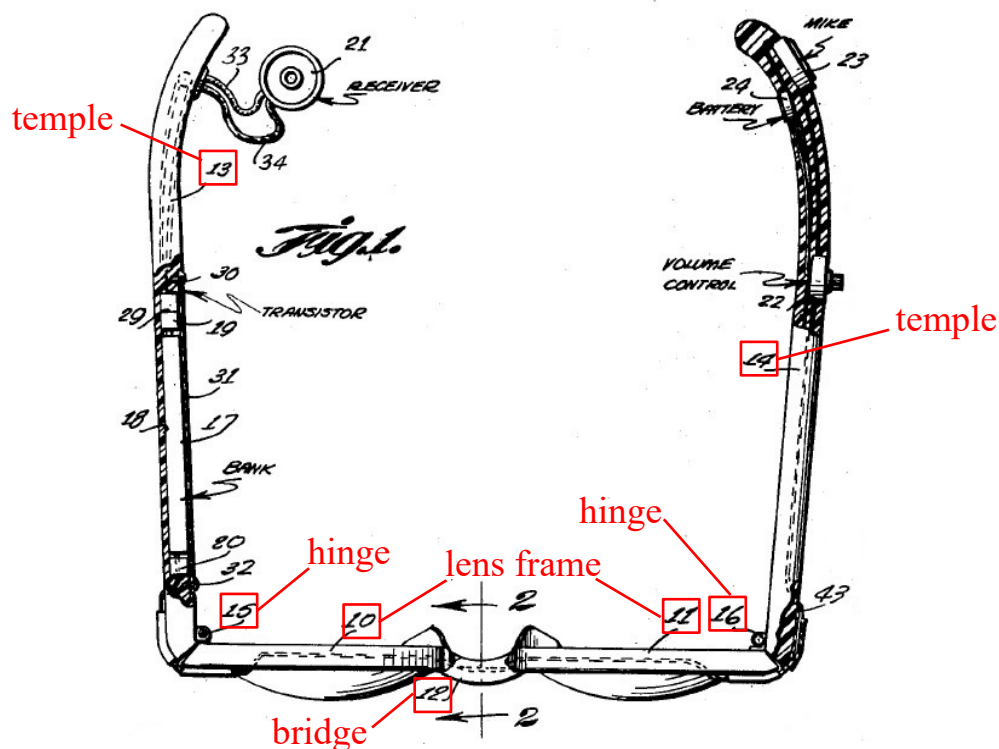
1. A first device, comprising:

a lens housing adapted to support a first lens and a second lens;

a first temple movably coupled to the lens housing;

a second temple movably coupled to the lens housing.

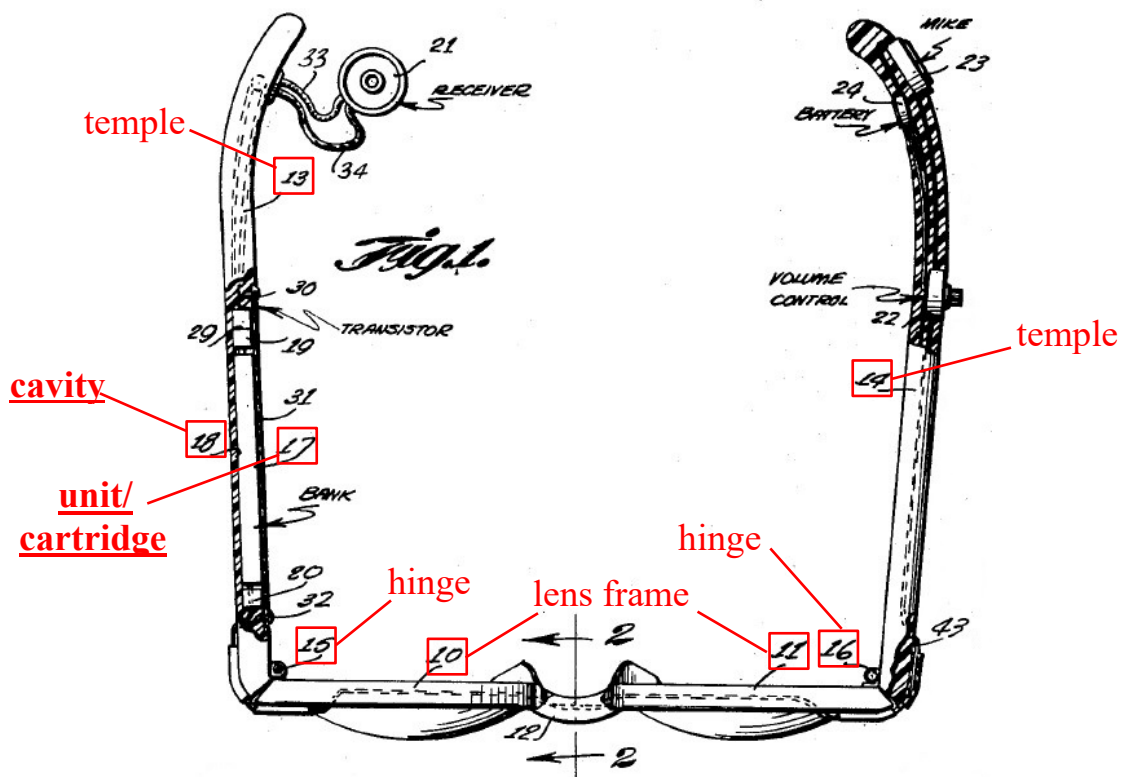
As shown, for example, in Figure 1, Brunton discloses these limitations:



Ex.1003, Fig.1; *id.*, 3:36-39; Ex.1002, ¶¶54-55.

2. **Limitation 1[d]: “an electronics module disposed at least partially within the first temple”**

Brunton discloses this limitation. Brunton discloses that the “hearing aid unit 17 [is] positioned in a cavity 18 in the temple 13.” Ex.1003, 3:39-40; *id.*, Figs. 1, 2, 6. Brunton discloses that the hearing aid unit includes electronic elements, “such as resistors, transistors, and capacitors.” Ex.1003, 3:32-33; *see also id.*, 2:55-63, 3:51-56. Brunton explains that the electronic elements are “installed in a unit, such as a cartridge, and the unit being adapted to be inserted in a cavity in one of the temples of a pair of spectacles.” *Id.*, 2:36-39. Figure 1 shows the hearing aid unit 17 in the temple cavity 18:

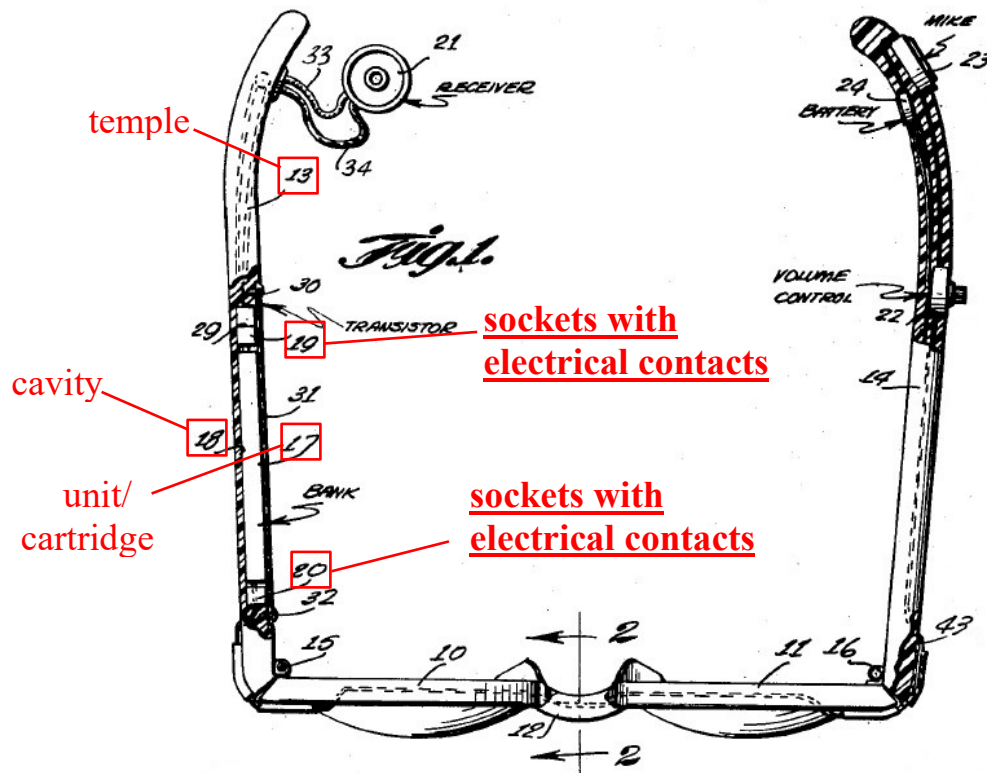


Id., Fig. 1. Thus, Brunton discloses an electronics module disposed at least partially within the first temple. Ex.1002, ¶56

3. **Limitations 1[e]/1[g]: “a [first/second] electrical conductor coupled to the first temple”**

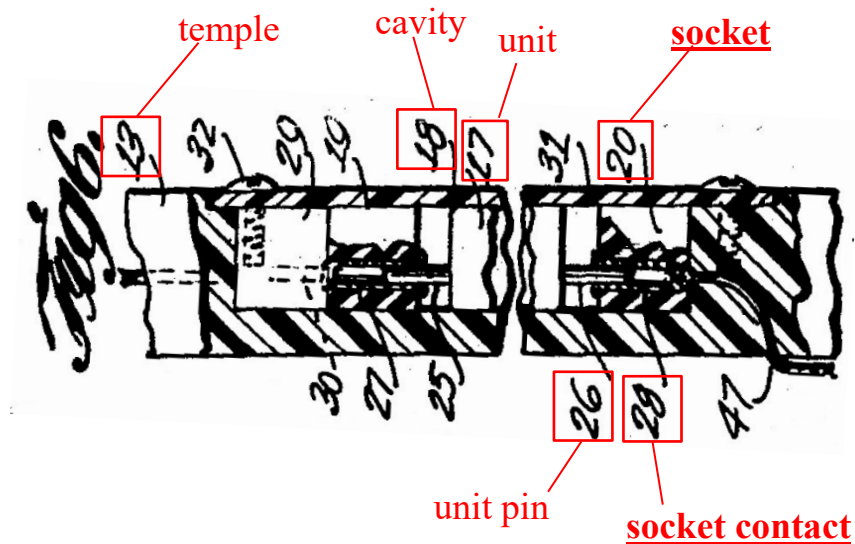
The '174 patent uses “electrical conductor” to encompass “any material that can be used to conduct electrical signals or power.” Ex.1001, 11:15-20. Brunton discloses first and second electrical conductors coupled to a temple. Brunton discloses that the eyeglasses include sockets embedded in the temple for receiving the hearing aid unit. Ex.1003, 3:71-74 (“The sockets for the transistor and unit, such as the sockets 19 and 20, may be *frictionally held* in the cavity or may be *embedded in the material of the temple*, as may be desired.”),³ 2:3-5 (“sockets for receiving hearing aid elements may or may not be embedded in material of the temples at the ends of cavities of the temples”); *id.*, 3:39-44, 3:57-61, Figs. 1, 6, 7. Figure 1 shows the sockets 19 and 20 coupled to temple 13:

³ Emphases added by Petitioner throughout unless otherwise noted.



Id., Fig. 1.

The temple sockets include electrical contacts or terminals. *Id.*, 3:57-61 (“The ends of the unit 17 are provided with contact pins, such as the pins 25 and 26, and these pins are adapted to be inserted in *tubular contacts, such as the contacts 27 and 28, in the sockets 19 and 20*, respectively, as shown in Figure 6.”), 4:2-4 (“The *terminals of the sockets* in which the hearing aid unit 17 and transistor 29 are positioned are connected by wires 33 and 34....”). Figure 6 “illustrat[es] the mounting of the hearing aid unit in a cavity of the temple”, with socket 20 embedded in cavity 18:



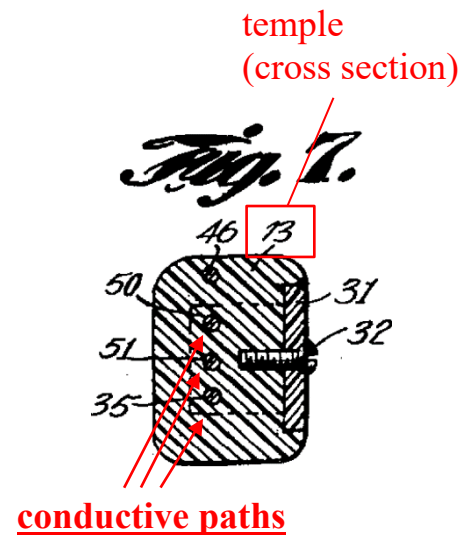
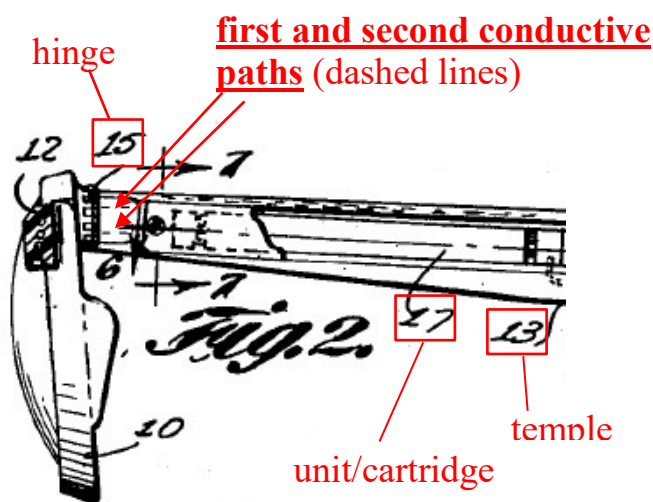
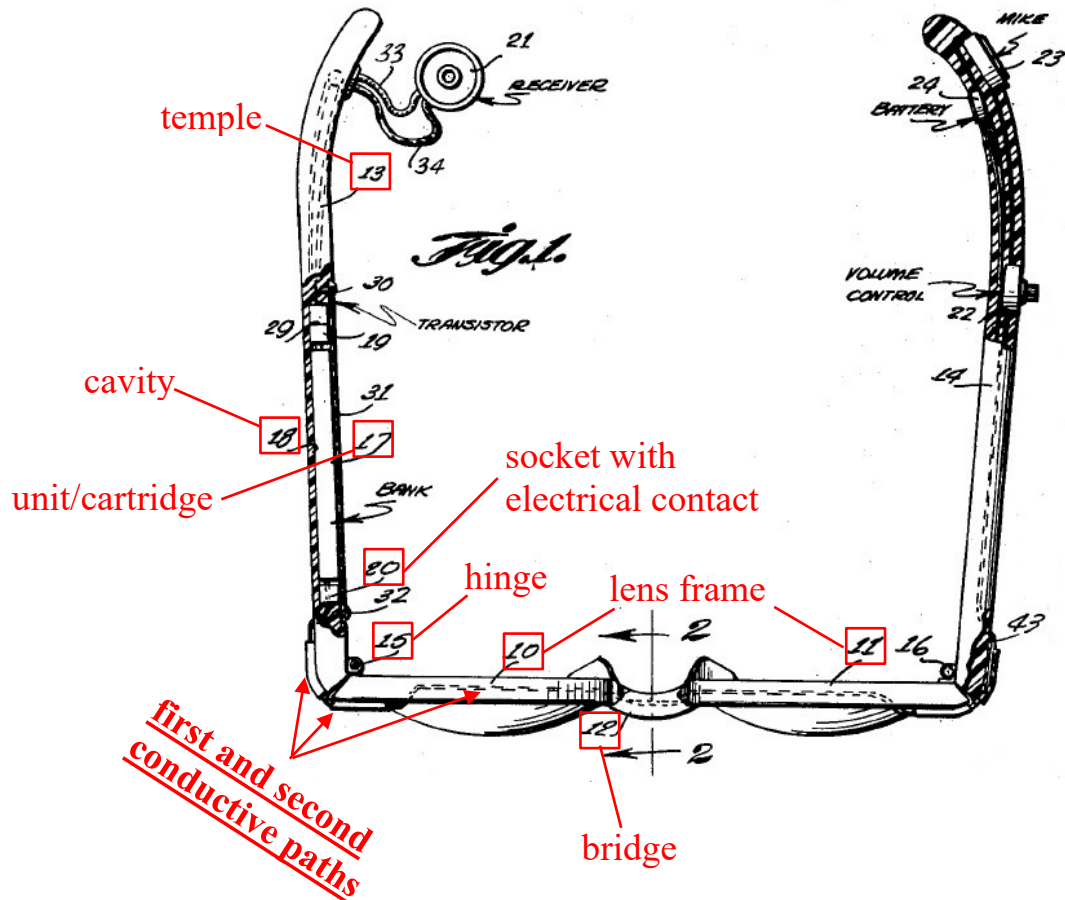
Id., Fig. 6.

Brunton discloses that each socket can include multiple electrical contacts corresponding to the number of contact pins on the hearing aid unit. *Id.*, 3:61-65. Thus, Brunton discloses a first electrical conductor coupled to the first temple and a second electrical conductor coupled to the first temple, as recited in limitations 1[e] and 1[g]. Ex.1002, ¶¶57-59.

4. **Limitations 1[f]/1[h]: “wherein a [first/second] conductive path is provided from the first temple to the lens housing at least in part by the [first/second] electrical conductor”**

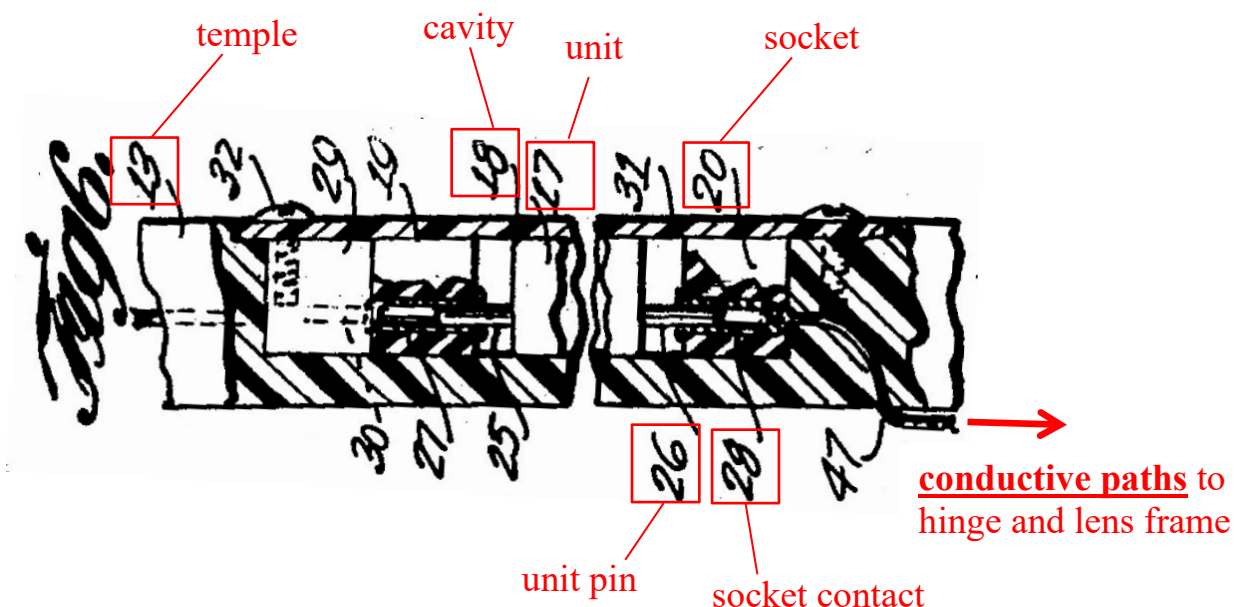
Brunton discloses these limitations. Brunton discloses the eyeglasses provide first and second conductive paths from the temple to the lens frame. As shown in Figures 1, 2, and 7, conducting wires create conductive paths that extend from the

socket 20 in temple 13, through temple 13, around hinge 15, and into lens frame sections 10 and 11 (and across bridge 12).



Ex.1003, Figs. 1, 2, 7; *id.*, 3:36-44 (temple sockets and elements are “connected by suitable conductors”), 4:6-7 (“the wires 35 and 36 being connected across the hinge 15”), 4:10-15 (“circuits connected across the hinges”), 4:16-21 (“wires connecting the elements may be embedded in the material of the temples as shown in Figure 1”).

Further, Brunton discloses that the first and second conductive paths are provided in part by the first and second electrical conductors, respectively. For example, Brunton explains that the sockets with electrical conductors/terminals in the cavity are connected to the wires in the temple that extend across the hinge to the lens frame. *Id.*, 4:2-9, Figs. 1 and 2. This is also shown in Figure 6, where the contact 28 for socket 20 in cavity 18 is connected to the electrical wire (labeled as 47 in Figure 6), establishing the conductive paths from the socket contacts to the hinge and the lens frame:



Id., Fig. 6; *see id.*, 3:57-65. Thus, socket contact 28 (also called a “terminal” in Brunton) is part of the conductive path leading from the temple to the lens frame. And, as discussed above, Brunton discloses that the cavity includes multiple socket contacts on each side of the cavity corresponding to the number of contact pins on the hearing aid unit. *Id.*, 3:61-65; Ex.1002, ¶61.

Thus, Brunton discloses limitations 1[f] and 1[h]. Ex.1002, ¶¶60-62.

5. **Limitation 1[i]: “wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module”**

Brunton discloses this limitation. The ’174 patent describes the term “constrain” as including “provid[ing] support (i.e. a restraining force)” and “retain[ing] the module in a fixed position within the temple.” Ex.1001, 11:52-55. Brunton discloses that the contact pins on the hearing aid unit are “frictionally retained” by the sockets in the temple cavity:

It will be understood that the units may be provided with any suitable number of contact pins and the sockets provided with a corresponding number of tubular contacts that are positioned to receive the pins and in which the pins are *frictionally retained*.

Ex.1003, 3:61-65; *id.*, 4:56-63 (claim 1 reciting contacts on the unit are “*frictionally retained in said sockets*, whereby the contacts and sockets provides means for removing and replacing the unit including component parts of the hearing aid.”). By

frictionally retaining the pins of the hearing aid unit in the cavity, the socket contacts are coupling the hearing aid unit to the temple and constraining the hearing aid unit.

Ex.1002, ¶64. In this manner, the socket contacts of Brunton (the claimed first and second electrical conductors) are configured to couple the hearing aid unit (the claimed electronics module) to the temple to constrain the hearing aid unit, thus meeting limitation 1[i]. Ex.1002, ¶¶63-65.

Accordingly, as detailed above, Brunton discloses all limitations of claim 1 and thereby anticipates the claim.

B. Claim 2

Claim 2 depends from claim 1 and recites “wherein the first electrical conductor is integrally coupled to the first temple.”

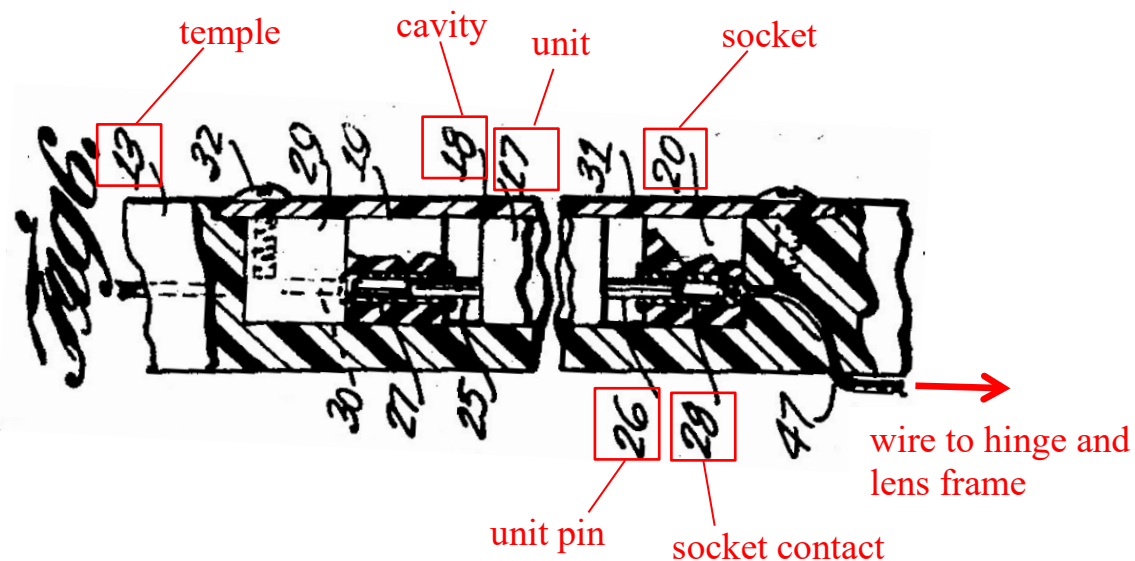
Brunton discloses this limitation. Brunton discloses that the sockets “may be embedded in the material of the temple,” which it distinguishes from the sockets being “frictionally held in the cavity.” Ex.1003, 3:71-74; *id.*, 2:1-5, 2:59-63. Thus, in this manner the sockets with socket contacts are integrally coupled to the first temple as recited in claim 2. Ex.1002, ¶66.

C. Claim 4

Claim 4 depends from claim 1 and recites “wherein the first electrical conductor comprises a lug.” The ’174 patent describes “lug” as encompassing any

conductive material that constitutes a fitting to which electrical wires or conductors may be electrically coupled to form a conductive path. Ex.1001, 12:33-41.

Brunton meets this limitation, as it discloses sockets that comprise a lug as described in the '174 patent. Brunton's socket contacts are electrical conductors (*see* limitation 1[e]/1[g]), and they satisfy the “lug” limitation because they constitute fittings of conductive material to which electrical wires are electrically coupled. Ex.1003, 3:57-65, 4:2-9; Ex.1002, ¶68. An example of the socket contacts acting as lugs is shown in Figure 6, where socket contacts 28 provide an electrical connection between pins 26 on hearing aid unit 17 and the wire extending through the temple frame (labeled as 47):



Ex.1003, Fig. 6; Ex.1002, ¶¶67-68.

D. Claim 9

Claim 9 depends from claim 1 and recites “wherein the electronics module is configured to be removably coupled to the first temple.” Brunton discloses that its “hearing aid unit is removable and replaceable.” Ex.1003, 3:32-33; *see also, id.*, 1:32-39, 2:58-59, 3:55-56, 4:61-63, 5:28-6:4. Thus, Brunton discloses this limitation. Ex.1002, ¶69

E. Claim 12

Claim 12 depends from claim 1 and recites “wherein the first electrical conductor comprises a single structural element.” The ’174 patent explains that “single structural element” may include a single contiguous piece of material, and it contrasts this with conductors that require additional components (e.g., springs on pogo pins that expand and contract) to establish connectivity with the electronics module. Ex.1001, 14:38-45.

Brunton discloses using “tubular contacts...in the sockets” to receive and retain the contact pins on the hearing aid unit. Ex.1003, 3:57-65. A POSITA, in reading Brunton, would understand that the tubular contacts form the tubular shape of the sockets to receive the pins of the hearing aid unit. In this way, the tubular contacts forming the sockets are a single structural element. Thus, Brunton discloses this limitation. Ex.1002, ¶¶70-71.

VIII. GROUND 2: BRUNTON RENDERS OBVIOUS CLAIMS 1-4, 9, 12

As described in Ground 1 above, Brunton anticipates claims 1, 2, 4, 9, and 12. To the extent any disclosures cited in Ground 1 are considered separate embodiments, it “does not require a leap of inventiveness” to combine them, and these claims also would have been obvious in view of Brunton. *Boston Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009); *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1373 (Fed. Cir. 2019) (“[I]t is well settled that a disclosure that anticipates under § 102 also renders the claim invalid under § 103, for anticipation is the epitome of obviousness.”).

Likewise, claims 3 and 12 would have been obvious in view of Brunton and the knowledge of a person of skill in the art, as explained below.

A. Claim 3

Claim 3 depends from claim 2 and recites “wherein the first electrical conductor is insert molded with the first temple.” The term “insert molded” includes injection molding the temple material around the first electrical conductor such that it is “*encapsulated by the material that comprises the temple.*” Ex.1001, 12:11-21; Ex.1002, ¶73.

Brunton does not expressly disclose the sockets are “insert molded,” however this would have been obvious to a person of skill in the art. Ex.1002, ¶¶74-76. Brunton discloses that its sockets are “*embedded in the material of the temple.*”

Ex.1003, 3:71-74; *id.*, 2:1-5, 2:59-63. Even before Brunton was filed in 1954, injection molding was known to desirably embed components in eyewear materials in a manner that is simple and easy to manufacture while also providing stability and durability to the eyeglasses. Indeed, the Injection Molding Handbook describes the history of injection molding dating back to the late 1800s (Ex.1011, 1350-54), and describes its use in “electrical and electronics” and “mechanical” markets. *Id.*, 1325.

Hollingsworth, filed in 1953, exemplifies the desirability of injection molding a conductor in eyeglasses. Hollingsworth discloses eyeglasses, like Brunton, having hearing aid components in the temples and discloses the “spring-finger contacts 23 and 29 are *fixedly supported* in the bow bar 20 [temple] to extend into the recess 27, *as by being molded in the block.*” Ex.1009, 5:75-6:3.

Thus, a POSITA would have been motivated to use injection molding to “insert mold” the sockets to embed the sockets in the temples as Brunton discloses with a reasonable expectation of success. Ex.1002, ¶¶73-76.

B. Claim 12

Claim 12 depends from claim 1 and recites “wherein the first electrical conductor comprises a single structural element.” To the extent the tubular contacts and sockets of Brunton were considered separate structural elements, a POSITA would have been motivated in view of Brunton’s disclosure to use a single structural element. For example, a POSITA understood that it would be advantageous for the

sockets to be shaped and formed from the metal tubular contacts to simplify manufacturing the eyeglasses by reducing the number of components required for assembly. These tubular metal contacts would be embedded in the material of the temple, as Brunton discloses, to receive the hearing aid unit pins. Ex.1003, 3:57-65, 3:71-74; Ex.1002, ¶77.

IX. GROUND 3: BRUNTON AND CARLING RENDER OBVIOUS
CLAIMS 7, 8, 13

A. Overview of Carling

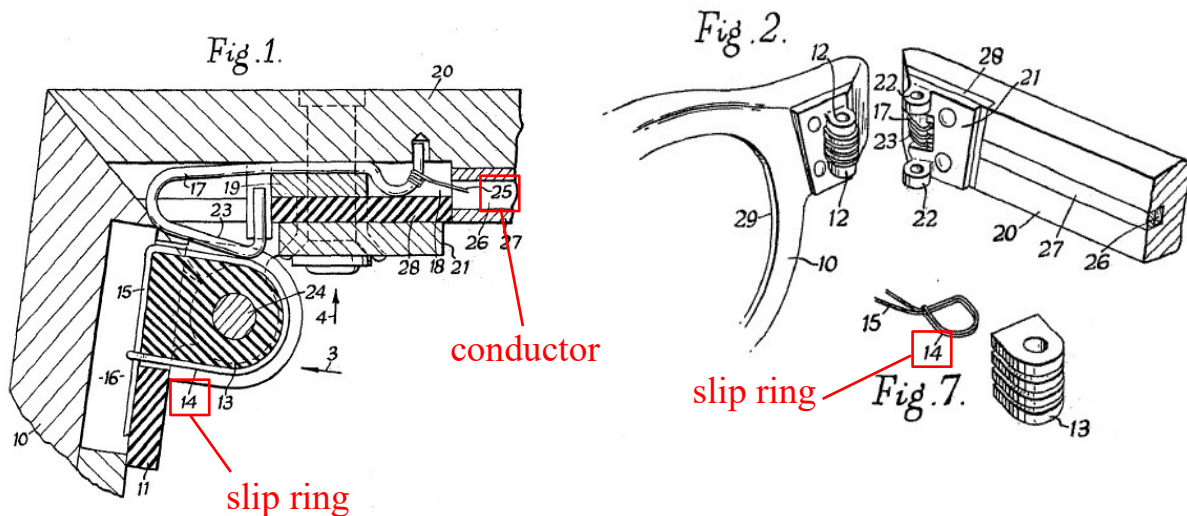
Carling (Ex.1008) is a British patent published in 1958 directed to hearing aid formed in eyeglasses. Ex.1008, 1:8-10, 4:41-45. Carling discloses that the temple (side arms) of the eyeglasses “may be hinged to the front hinges embodying slip rings and brushes and the present invention also provides a preferred form of such hinges.” *Id.*, 4:93-96.

B. Claims 7, 8, and 13

Claim 7 depends from claim 1 and recites, “wherein the first electrical conductor is electrically coupled to a slip ring.” Claim 8 depends from claim 7 and recites the device “further compris[es] a hinge, wherein the slip ring is disposed substantially within the hinge.”

The ’174 patent explains that the term “slip ring” can include “any device or combination of devices designed to make an electrical connection through a rotating assembly.” Ex.1001, 13:18-20; Ex.1002, ¶78.

Carling discloses the limitations of claims 7 and 8. For example, as shown in Figures 1, 2, and 7, Carling's eyeglasses includes slip rings 14 in the grooved insulating block 13, which forms part of the frame hinge.



Ex.1008, Figs. 1, 2, 7; *id.*, 2:5-43. Carling discloses that a conductor is connected to the ends 15 projecting from the slip rings 14 and passed through a groove 16 formed in the front 10 of the eyeglasses. *Id.*, 2:16-25. Brushes 17 engage the slip rings 14 and are formed of wires bent as shown in Figures 1 and 2. *Id.*, 2:26-29. Additional conductors 25 are connected to each brush and these conductors pass through slot 16 in the side arm 20 (temple). *Id.*, 2:37-41; Ex.1002, ¶79.

Regarding claim 8, a hinge pin 24 passes through apertures in the lugs 12 and 22, to secure the front portion 10 with side arm 20 at the hinge. Ex.1008, 2:30-37.

In this way, “the hinges embody[] slip rings and brushes.” *Id.*, 4:93-96; Ex.1002, ¶80.

Claim 13 depends from claim 1 and recites, “wherein the first electrical conductor is configured to maintain the first conductive path as the first temple is moved relative to the lens housing.” Carling discloses this limitation. For example, Carling discloses electrical conductors on either side of the hinges to maintain the conductive path through the hinge as the temples are moved relative to the front. Ex.1008, 2:11-16, 2:26-37, 2:16-25, 2:37-41; Ex.1002, ¶81.

It would have been obvious to combine the teachings of Carling with the teachings of Brunton to arrive at claims 7 and 8. Ex.1002, ¶¶82-84. Brunton and Carling are each directed to eyeglasses having hearing aid components in the temples, and each discloses using conductive wires through the temples and across hinges and the lens housing to connect the components. Ex.1003, 3:34-44; Ex.1008, 2:68-71.

Brunton, however, discloses that moving the temples at the hinges will break the circuit between the temples and the lens housing. Ex.1003, 4:10-15, Fig. 5. A POSITA would have been motivated to use Carling’s slip rings and hinges (or similar ones) in the spectacles of Brunton to maintain the electrical connections across the hinges. Ex.1002, ¶83. Brunton’s electrical contacts on the lens housing and the temples should precisely align each time the temples are opened and closed

to reestablish and maintain the electrical connections. *Id.* Structural distortion of the frames, or even repeated use of the hinges, could lead to misalignment of the electrical contacts, which could lead to disruption of the electrical connections between the temples and lens housing, potentially causing failure of the hearing aid unit (or other electronic circuitry). *Id.* A POSITA would have been motivated to use Carling's slip rings and hinges (or similar ones) in Brunton's spectacles to provide a more robust design that avoids such issues, as its electrical connections are maintained despite any eventual structural distortion of the spectacle frames or other misalignment created between the temple and lens housing that would occur over time. *Id.*

A POSITA would have a reasonable expectation of success in using Carling's slip rings and hinges (or similar ones) in Brunton. *Id.* at ¶84. For example, Carling discloses that its hinge design allows for straightforward assembly like normal eyeglasses frames. Ex.1008, 2:71-75.

Thus, it would have been obvious to combine the teachings of Carling with Brunton to arrive at the inventions of claims 7, 8, and 13. Ex.1002, ¶¶78-85.

**X. GROUND 4: KOKONASKI-999 AND BRUNTON RENDER
OBVIOUS CLAIMS 1, 2, 4-6, 9, 12, 14**

A. Claim 1

1. Preamble and 1[a], 1[b], 1[c]: lens housing and first/second temples

Kokonaski-999 discloses the preamble and limitations 1[a], 1[b], and 1[c]. For example, it discloses electro-active eyeglasses that may be “fully rimmed eyeglasses comprising left and right temples and a frame front.” Ex.1004, ¶[0026]; *id.*, ¶¶[0023]-[0036], Figs. 1, 2, 7-12.

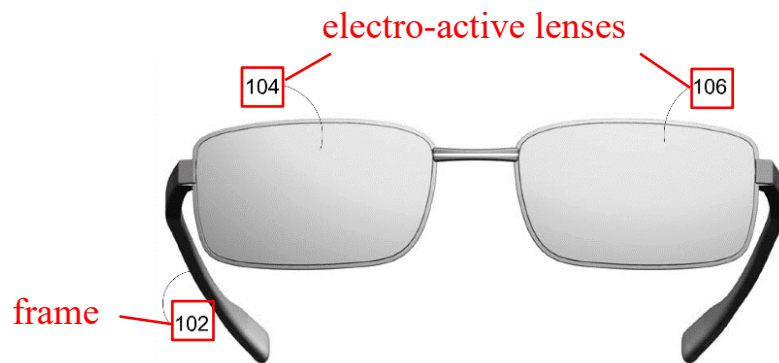


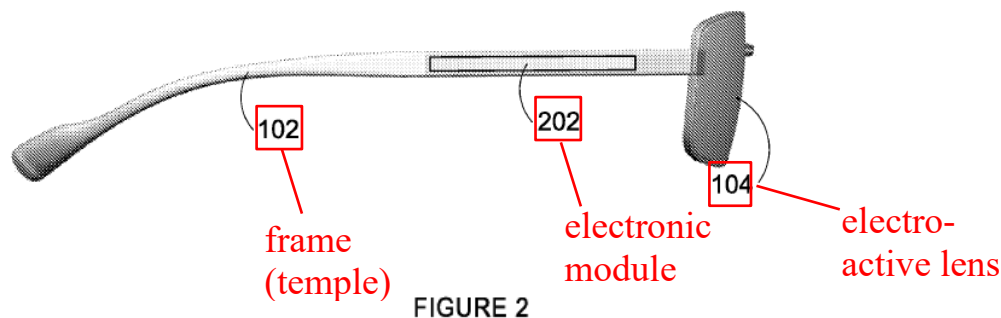
FIGURE 1

Id., Fig. 1.

Kokonaski-999 also discloses that temples are movable relative to the lens housing. *Id.*, ¶¶[0088]-[0091], Figs. 11 and 12. Thus, Kokonaski-999 discloses the preamble and limitations 1[a], 1[b], and 1[c]. Ex.1002, ¶¶87-88.

2. **Limitation 1[d]: “an electronics module disposed at least partially within the first temple”**

Kokonaski-999 discloses this limitation. For example, Kokonaski-999 discloses that “[t]he electronic module 202 can be positioned near the front temple of the frame 102...[and] can be positioned within the frame 102 (e.g., in an area or cavity of the frame 102) and can be removable and replaceable.” Ex.1004, ¶[0033].

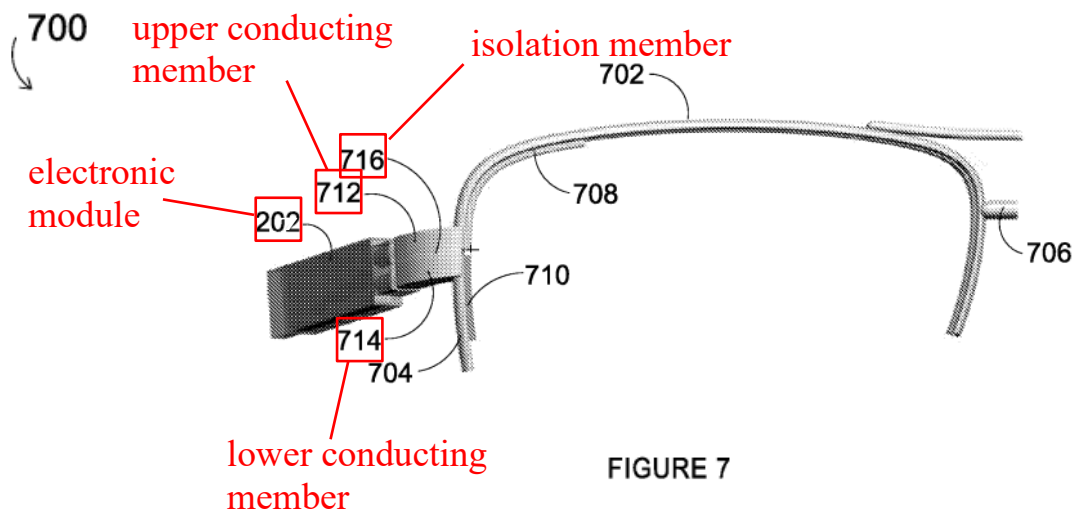


Id., Fig. 2.

Thus, Kokonaski-999 discloses an electronics module disposed at least partially within the first temple. Ex.1002, ¶89.

3. **Limitations 1[e]/1[g]: “a [first/second] electrical conductor coupled to the first temple”**

Kokonaski-999 discloses a first and second electrical conductor coupled to the first temple. For example, it discloses that “[t]he frame 700 can include an upper conducting member 712, a lower conducting member 714, and an isolation member 716.” Ex.1004, ¶[0065].



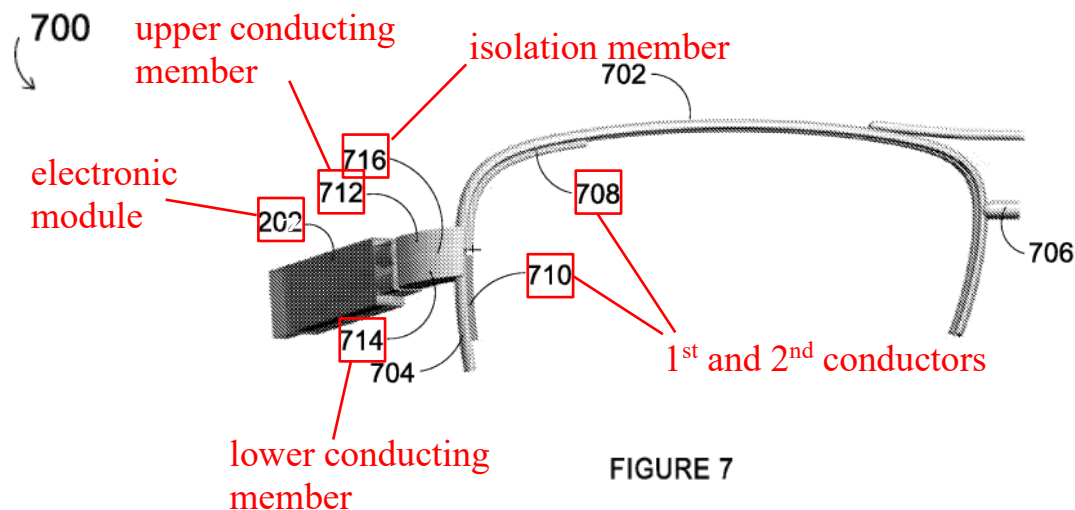
Id., Fig. 7. Kokonaski-999 discloses that “[t]he upper conducting member 712, the lower conducting member 714 and the insulating member 716 can ***physically couple the temple of the frame 700 to the eye-wire portion.***” *Id.*, ¶[0065].

Kokonaski-999 discloses other embodiments that also include first and second electrical conductors coupled to the first temple. *Id.*, ¶¶[0073]-[0076] (conducting members in Figure 9 embodiment), ¶¶[0088]-[0089] (conductor links in Figure 11 embodiment), ¶¶[0090]-[0093] (spring conductors and upper and lower conducting members in Figure 12 embodiment), Figs. 7-9, 11-12.

Thus, Kokonaski-999 discloses a first and a second electrical conductor coupled to the first temple, as recited in limitations 1[e] and 1[g]. Ex.1002, ¶¶90-92.

4. **Limitations 1[f]/1[h]: “wherein a [first/second] conductive path is provided from the first temple to the lens housing at least in part by the [first/second] electrical conductor”**

As discussed above, the embodiment in Figure 7 includes upper conducting member 712 and lower conducting member 714, which are coupled to the temple. Kokonaski-999 further explains that the “upper conducting member 712 can provide connectivity between the electronic module 202 and the first conductor 708,” which is located in the lens housing. Ex.1004, ¶[0066]. Likewise, “[t]he lower conducting member [714] can provide connectivity between the electronic module 202 and the second conductor 710,” which is located in the lens housing. *Id.*



Id., Fig. 7.

Kokonaski-999 discloses additional embodiments where the first and second conductors provide at least part of the first and second conductive paths from the

first temple to the lens housing. *See id.*, ¶¶[0073]-[0076] (describing conducting members in Figure 9 embodiment), ¶¶[0088]-[0089] (describing conductor links in Figure 11 embodiment), ¶¶[0090]-[0093] (describing spring conductors and upper and lower conducting members in Figure 12 embodiment), Figs. 7-9, 11-12.

Thus, Kokonaski-999 discloses, limitations 1[f] and 1[h]. Ex.1002, ¶¶93-95.

5. **Limitation 1[i]: “wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module”**

Limitation 1[i] would have been obvious in view of Brunton.

As discussed above, Brunton meets all limitations of claim 1. This includes limitation 1[i], where Brunton discloses sockets with electrical contacts in the temple cavity that couple the hearing aid unit to the temple to constrain it by “frictionally retain[ing]” the pins on the hearing aid unit. Ex.1003, 3:61-65, 4:56-63.

Kokonaski-999’s electronic module includes pins (“first contacts 504”) extending from one end, as shown below in Figure 5.

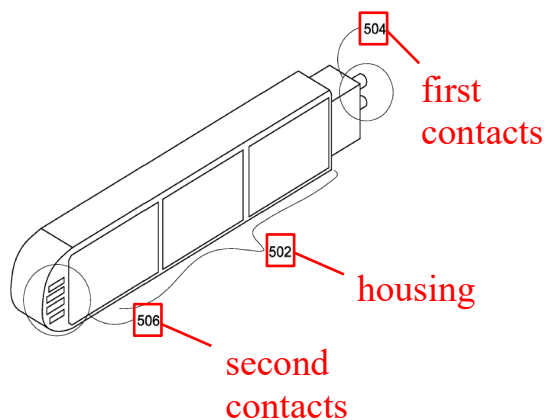


FIGURE 5

Ex.1004, Fig. 5, ¶¶[0039]-[0040].

It would have been obvious to use sockets, as disclosed in Brunton, to “frictionally retain[]” the electronic module in Kokonaski-999’s temple via at least the first contacts’ pins 504. A POSITA would have been motivated to use sockets as part of the electrical conductors in Kokonaski-999’s temples to constrain the electronic module.

First, a POSITA would have been motivated to use sockets, as disclosed in Brunton, to secure the electronic module in the temple and prevent it from inadvertently falling out. Ex.1002, ¶100. Kokonaski-999 discloses that “the electronic module 202 can be positioned within the frame 102 (e.g., in an area or cavity of the frame 102) and can be **removable and replaceable**.” Ex.1004, ¶[0033]. However, Kokonaski-999 does not expressly disclose a way to constrain electronic module in the cavity until the user decides to remove it.

Like Kokonaski-999, Brunton discloses that its hearing aid unit is “**removable and replaceable**.” Ex.1003, 3:30-33; *id.*, 3:51-56. Brunton additionally discloses a mechanism to constrain the hearing aid unit in the cavity: the pins are “snapped into sockets” embedded in the temples. *Id.*, 2:55-63. The sockets provide a way to “frictionally retain[]” the hearing aid unit in the temple to secure it in place until the user decides to remove it. *Id.*, 3:59-65, 4:55-63. A POSITA would have been motivated to do the same to secure Kokonaski-999’s electronic module in the temple until the user decides to remove it. Ex.1002, ¶101

Second, a POSITA would have been motivated by Kokonaski-999's disclosure of pins as the electronic module's "first contacts" because they provide a basis for constraining the electronics module in the temple via sockets. *Id.*, ¶102. For example, given the fact that the first contacts 504 are tubular pins that protrude from the end of the housing 502 suggests to a POSITA that their purpose is to be received into the temple in, e.g., tubular sockets such as Brunton's. Ex.1004, Fig. 5; Ex.1002, ¶102.

A POSITA also would have reasonably expected success in such a combination. Ex.1002, ¶103. A POSITA would have readily understood that a portion of the upper and lower conducting members 712, 714 could, for example, be shaped to include sockets that receive the pins on Kokonaski-999's electronic module. *Id.* Indeed, Figure 7 shows that a portion of the temple is narrowed where the pins on the electronic module extend towards and physically contact the upper and lower conducting members 712, 714. A POSITA would have an expectation of success in forming sockets similar to the narrowed region for the pins on the electronic module to be retained by the upper and lower conducting members 712, 714. Ex.1002, ¶103.

Thus, for the reasons explained above, claim 1 would have been obvious over Kokonaski-999 in view of Brunton. *Id.*, ¶104.

B. Claim 2

Claim 2 depends from claim 1 and recites “wherein the first electrical conductor is integrally coupled to the first temple.” As noted above, the ’174 patent explains that “integrally coupled” includes coupling such that the conductor “cannot be readily removed without damaging or otherwise affecting the structure of the temple.” Ex.1001, 12:6-10.

Kokonaski-999 discloses this limitation. For example, Kokonaski-999 discloses that “[t]he upper conducting member 712, the lower conducting member 714 and the insulating member 716 can *physically couple the temple of the frame 700 to the eye-wire portion.*” Ex.1004, ¶[0065]. This arrangement is shown in Figure 7 below:

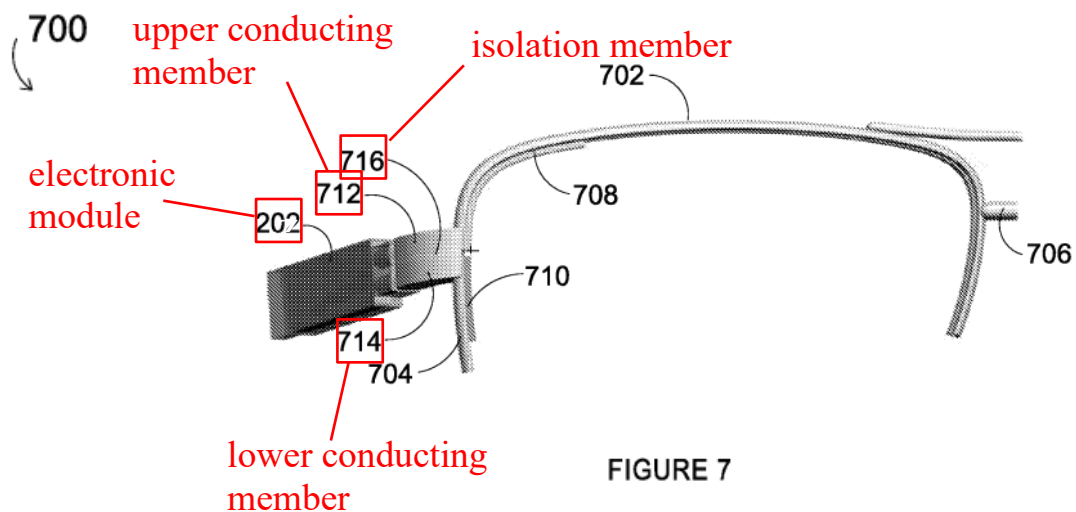


FIGURE 7

Id., Fig. 7.

Thus, claim 2 would have been obvious over Kokonaski-999 in view of Brunton. Ex.1002, ¶¶105-107.

C. Claim 4

Claim 4 depends from claim 1 and recites “wherein the first electrical conductor comprises a lug.” As noted above, the ’174 patent describes “lug” as encompassing any conductive material that constitutes a fitting to which electrical wires or conductors may be electrically coupled to form a conductive path. Ex.1001, 12:33-41.

Kokonaski-999 discloses this limitation. Kokonaski-999 discloses the upper and lower conductive members 712 and 714 “can be conductive (e.g., made of metal and coated with a non-conductive material) or a portion of the upper and lower conducting members 712 and 714 can be conductive (e.g., an internal portion that is encapsulated by non-conductive material).” Ex.1004, ¶[0067]. Kokonaski-999 also discloses that the upper and lower conductive members 712 and 714 constitute fittings to couple electrical wires or conductors to form a conductive path. *Id.*, ¶[0066] (describing conductive member 712 connectivity to electronics module 202 and first conductor 708).

Thus, claim 4 would have been obvious over Kokonaski-999 in view of Brunton. Ex.1002, ¶¶108-110.

D. Claims 5 and 6

Claim 5 depends from claim 1 and recites, “wherein the electronics module comprises any two of a power source, a controller, and a sensor.” Regarding a controller, the ’174 patent states that “[a] controller could include, by way of example, a micro-processor or an ASIC.” Ex.1001, 13:8-9. Regarding a sensor, the ’174 patent explains that “any suitable sensor may be utilized” and includes as examples, “a membrane switch, an analog switch, a gyroscope, or an accelerometer.” *Id.*, 13:13-15.

Kokonaski-999 meets this limitation, as it discloses an electronics module having a power source, a controller, and a sensor. For example, Kokonaski-999 discloses that the electronics of the electro-active spectacles “can include *a processor, memory, a power source (e.g., a battery) and a gyroscope or accelerometer*” and discloses that “these components can be grouped together to form a self-contained electronic module.” Ex.1004, ¶[0032]; *id.*, ¶[0047].

Claim 6 depends from claim 5 and recites, “wherein the sensor comprises a touch switch.” The ’174 patent explains, “where the electronics module comprises a sensor, the sensor may comprise a touch switch” and “the touch switch is any one of a membrane switch or a capacitive touch switch.” Ex.1001, 13:10-13.

Kokonaski-999 meets this limitation, as it discloses a sensor in the electronics module that comprises a capacitive touch switch. For example, Kokonaski-999

discloses that “the electronic module 202 can include a switch or device to enable a user to interact with the electronic module 202” and “[t]he switch or device can be a press button switch, **a capacitive switch** (e.g., comprising a capacitive sense pad), a toggle switch or other manual switch.” Ex.1004, ¶[0047].

Thus, claims 5 and 6 would have been obvious over Kokonaski-999 in view of Brunton. Ex.1002, ¶¶111-115.

E. Claim 9

Claim 9 depends from claim 1 and recites, “wherein the electronics module is configured to be removably coupled to the first temple.”

Kokonaski-999 discloses this limitation. For example, Kokonaski-999 discloses that “the electronic module 202 can be positioned within the frame 102 (e.g., in an area or cavity of the frame 102) and can be **removable and replaceable**.” Ex.1004, ¶[0033]; *id.*, ¶¶[0023], [0041], Figs. 2, 5, 7, 9.

Thus, claim 9 would have been obvious over Kokonaski-999 in view of Brunton. Ex.1002, ¶¶116-117.

F. Claim 12

Claim 12 depends from claim 1 and recites “wherein the first electrical conductor comprises a single structural element.”

Kokonaski-999 discloses that the upper and lower conducting members 712 and 714 are single structural elements. *See* Ex.1004, ¶¶[0065]-[0071], Figs. 7-9.

Thus, claim 12 would have been obvious over Kokonaski-999 in view of Brunton. Ex.1002, ¶¶118-119.

G. Claim 14

Claim 14 depends from claim 1 and recites that the device further “compris[es] a first lens and a second lens coupled to the lens housing:

wherein the first lens has a first electrical contact; and

wherein the first conductive path is electrically coupled to the first electrical contact.”

Kokonaski-999 discloses these limitations. Kokonaski-999 discloses eyeglasses that comprise a first lens and a second lens coupled to the lens housing. Ex.1004, Abstract, ¶¶[0026]-[0027], [0077]-[0079], [0094]-[0096], Figs., 1, 10, 13.

Kokonaski-999 also discloses that the first lens has a first electrical contact. *Id.*, ¶¶[0058]-[0061]. As an example, Figure 6 shows that the “electro-active lens 600 can comprise a first electrical lead or connector 608 and a second electrical lead or connector 610.” *Id.*, ¶[0060].

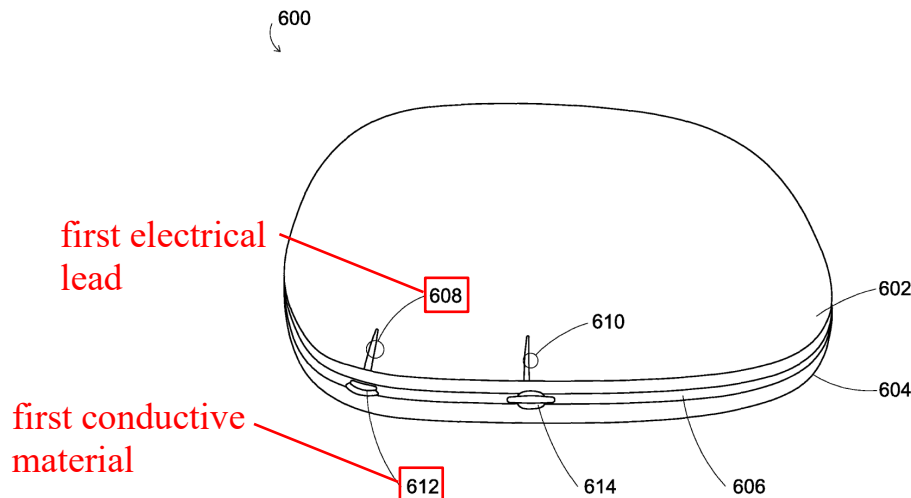


FIGURE 6

Id., Fig. 6. The lens 600 also includes “a first conductive material 612...placed in the groove 604 on top of the first electrical lead 608.” *Id.*, ¶[0061].

Kokonaski-999 further discloses that the first conductive path is electrically coupled to the first electrical contact. Kokonaski-999 explains that the frame “can provide electrical connectivity between the electro-active lenses...and the electrical components used to operate electro-active lenses.” *Id.*, ¶[0062]. An example of this conductive path is shown in Figure 7:

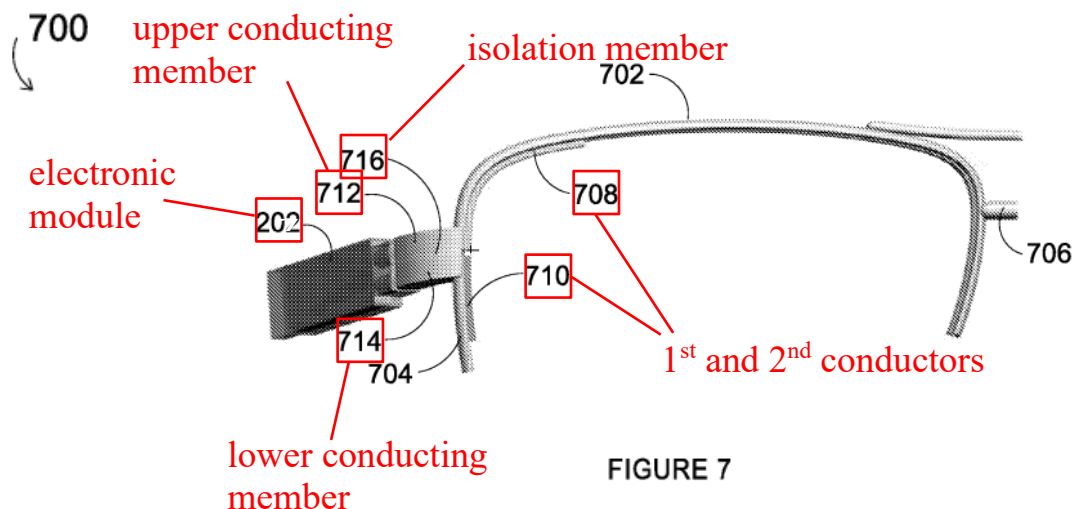


FIGURE 7

Id., Fig. 7. Related to Figure 7, Kokonaski-999 explains that the upper conducting member 712 is electrically connected to the first conductor 708 in the eyeglass frame. *Id.*, ¶[0066]. Kokonaski-999 further discloses that “[t]he first conductor 708 can provide connectivity to the first conductive material 612 (and, as a result, connectivity to the first electrical lead 608) depicted in FIG. 6.” *Id.* Thus, the first conductive path is electrically coupled to the first electrical contact in the lens.

Thus, claim 14 would have been obvious based on the combination of Brunton and Kokonaski-999. Ex.1002, ¶¶120-124.

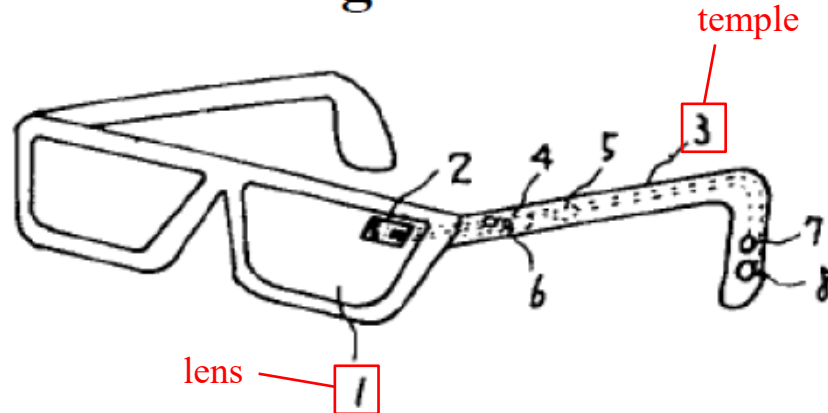
XI. GROUND 5: HATTORI-913 RENDERS OBVIOUS CLAIMS 1, 2, 5, 6, 12, AND 13

A. Claim 1

1. Preamble and 1[a], 1[b], 1[c]: lens housing and [first/second] temples

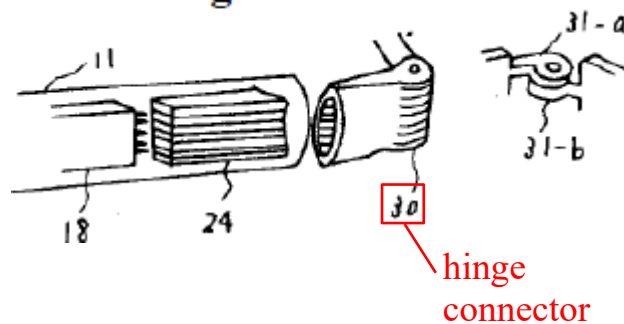
Hattori-913 discloses the preamble and limitations 1[a], 1[b], and 1[c]. For example, Hattori-913 discloses eyeglasses having temples 3 and lenses 1 in a lens housing.

Figure 1



Ex.1006, Fig. 1; *id.*, Figs. 2 and 4; *id.*, 68-69. The temples 3 are movably coupled to the lens holder by hinge connectors 30.

Figure 6



Id., Fig. 6; *id.*, 68.

Thus, Hattori-913 discloses the preamble and limitations 1[a], 1[b], and 1[c].

Ex.1002, ¶¶125-127.

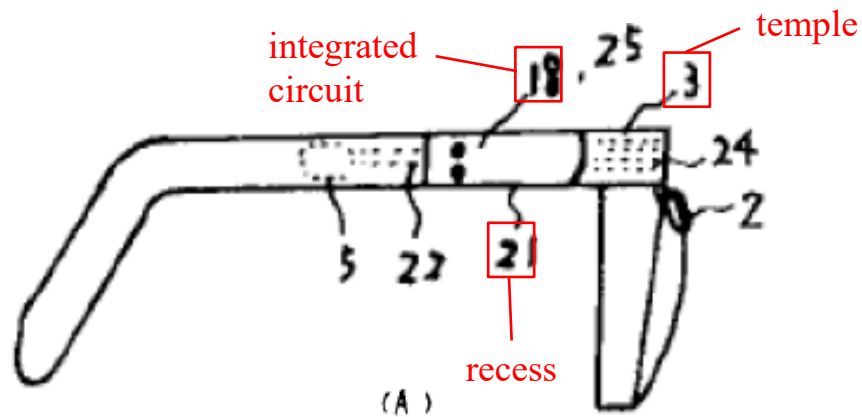
2. Limitation 1[d]: “an electronics module disposed at least partially within the first temple”

Hattori-913 discloses this limitation. For example, Hattori-913 discloses that the eyeglasses include a drive device 4 in the temple 3, which serves as the claimed electronics module. Ex.1006, 68 (“The drive control of these display contents is

performed by electronic circuits such as CMOS provided in the drive device 4.”),

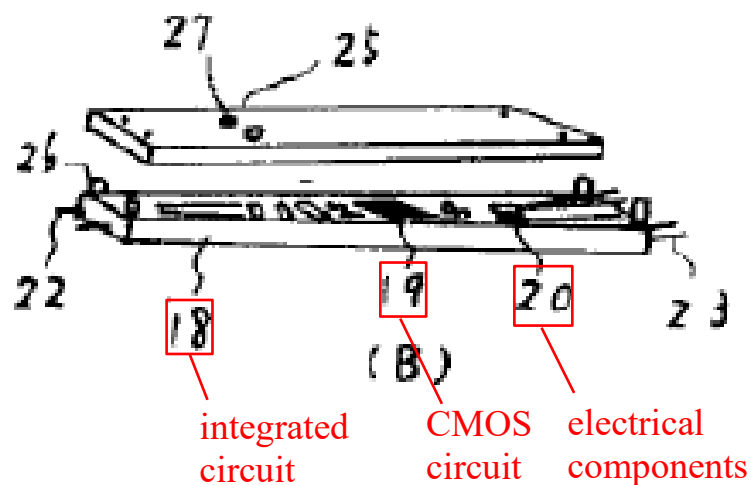
Figs. 1, 2.

Figure 4(A) shows the drive device as an integrated circuit 18 “embedded in recess 21 processed in temple [3]”:



Id., Fig. 4(A).

Figure 4(B) shows integrated circuit 18 “incorporating individual electronic components 20 such as capacitors and transistors” and a CMOS circuit 19:



Id., Fig. 4(B); *id.*, 68. Thus, Hattori-913 discloses an electronics module disposed at least partially within the first temple. Ex.1002, ¶¶128-130.

3. **Limitations 1[e]/1[g]: “a first/second electrical conductor coupled to the first temple”**

Hattori-913 discloses a first and second electrical conductor coupled to the first temple. For example, Hattori-913 discloses a “zebra connector 24 embedded in the temple.” Ex.1006, 68. This is shown in Figure 4(A) and Figure 6:

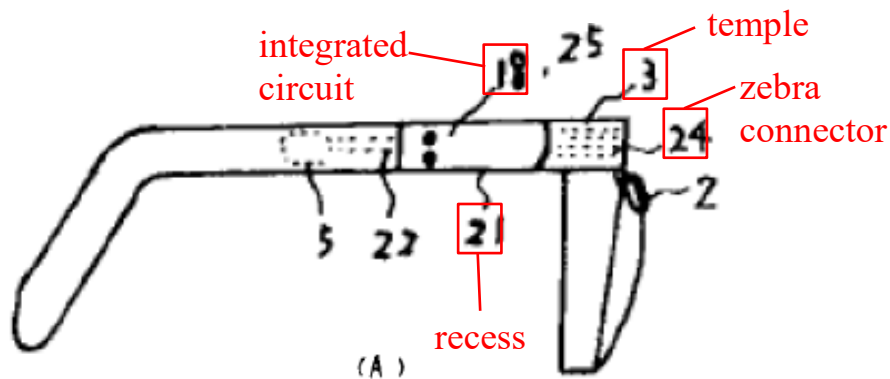
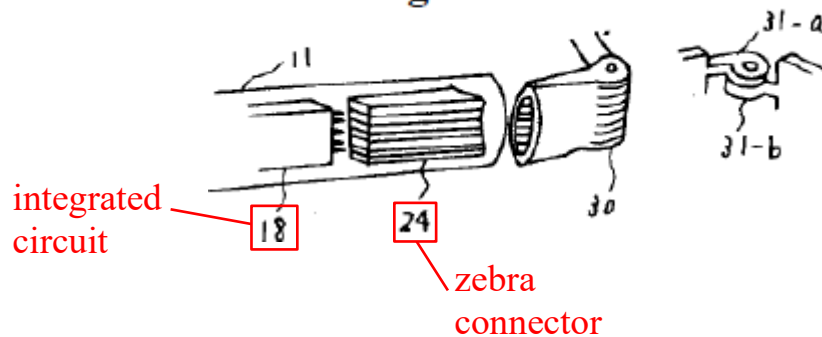


Figure 6



Id., Figs. 4(A), 6.

A zebra connector is a well-known electrical connector composed of alternating layers of conductive and insulating materials, usually rubber or

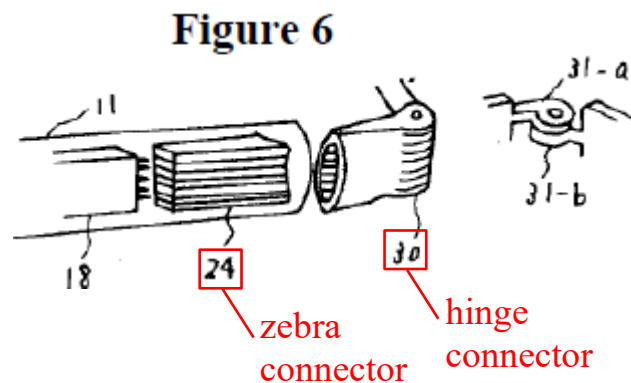
elastomeric matrix, which allows the connector to transmit multiple electrical signals while maintaining excellent electrical conductivity and mechanical stability. Ex.1020, 3:37-41; Ex.1021, 6:45-62; Ex.1002, ¶¶133-134. Hattori-913 discloses the zebra connector is “embedded in the temple,” and thus is coupled to the temple. Ex.1006, 68; Ex.1002, ¶135.

Thus, Hattori-913 discloses a first electrical conductor coupled to the first temple and a second electrical conductor coupled to the first temple, as recited in limitations 1[e] and 1[g]. Ex.1002, ¶¶131-136.

4. Limitations 1[f]/1[h]: “wherein a first/second conductive path is provided from the first temple to the lens housing at least in part by the first/second electrical conductor”

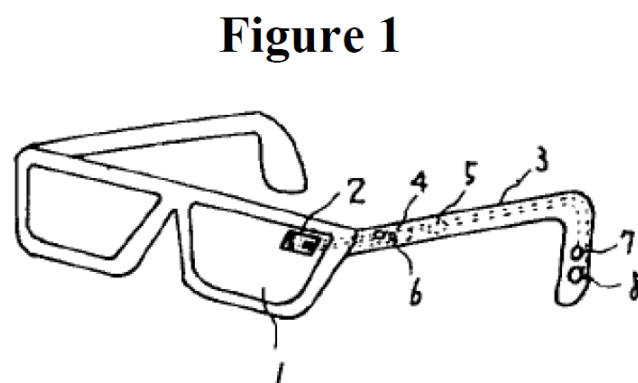
Hattori-913 discloses these limitations. Hattori-913 discloses that first and conductive paths are provided at least in part by the zebra connector, which includes multiple conductive layers. Ex.1002, ¶133. Hattori-913 discloses the zebra connector 24 is part of the conductive path leading from the drive circuit 4 (e.g., integrated circuit 18) to the hinge connector 30 and the lens housing. Ex.1006, 68, Figs. 1, 2, 4, 6; Ex.1002, ¶138. Hattori-913 states integrated circuit’s “output terminal group 23” is “connected to zebra connector 24.” Ex.1006, 68. It then states the “hinge connector 30 and the semiconductor integrated circuit 18 are connected by a zebra-type connector 24, and the hinge connector 30 is formed by a plurality of

paired lead electrodes 31-a, 31-b contacting each other.” *Id.* The conductive path is shown in Figure 6:



Id., Fig. 6.

From the hinge connector, the conductive paths continue through the lens housing to the lens: “the transparent lead 9 from the display device 2 is connected to the lead rubber 10 at the edge of the lens 1” and the leads are connected to the drive circuit 4 in the temple. *Id.*, 68. This is shown in Figure 1:



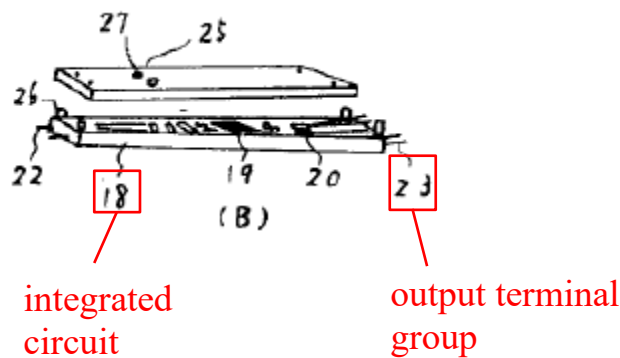
Id., Fig. 1; *id.*, Fig. 4(A).

Thus, Hattori-913 discloses that the eyeglasses provide first and second conductive paths from the temple to the lens frame, which are provided at least in part by the first and second electrical conductors (the zebra connector). Ex.1002, ¶¶137-140.

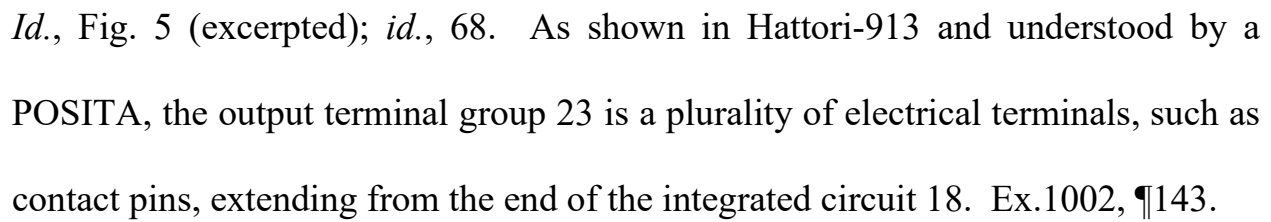
5. **Limitation 1[i]: “wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module”**

Hattori-913 discloses this limitation or it would have been obvious in view of Hattori-913’s disclosure and a POSITA’s knowledge. The ’174 patent describes the term “constrain” as including “provid[ing] support (i.e. a restraining force)” and “retain[ing] the module in a fixed position within the temple.” Ex.1001, 11:52-55.

Figure 4(B) shows the integrated circuit 18 with an output terminal group 23 extending from the end:



Id., Fig. 4(B); *id.*, 68. Similarly, Figure 5 shows an embodiment where the integrated circuit 18 includes the output terminal group 23:



(A)

50

pressure to the output terminal group 23 by compressing against it, establishing a secure electrical connection and also coupling the integrated circuit to the temple to retain it in a fixed position. *See* Ex.1021, 6:50-53 (Zebra connectors “make reliable connections by exerting pressure between contacting surfaces.”). Thus, a POSITA would have understood that Hattori-913’s zebra connector is configured, as recited in limitation 1[i], to couple the electronics module to the temple to constrain the electronics module. Ex.1002, ¶¶143-145.

Accordingly, as detailed above, Hattori-913 discloses or renders obvious all limitations of claim 1 and thereby renders the claim obvious. Ex.1002, ¶146.

B. Claim 2

Claim 2 depends from claim 1 and recites “wherein the first electrical conductor is integrally coupled to the first temple.”

Hattori-913 discloses this limitation. Hattori-913 discloses that the zebra connector is “embedded in the temple.” Ex.1006, 68. In this manner, the zebra connector is integrally coupled to the first temple as recited in claim 2, rendering the claim obvious. Ex.1002, ¶147.

C. Claims 5 and 6

Claim 5 depends from claim 1 and recites, “wherein the electronics module comprises any two of a power source, a controller, and a sensor.”

Hattori-913 satisfies claim 5, as it discloses an electronics module having a controller and a sensor. The drive device 4 and integrated circuit 18 disclosed in Hattori-913 are controllers. For example, Hattori-913 discloses that “[t]he *drive control* of these display contents is performed by *electronic circuits such as CMOS provided in the drive device 4.*” Ex.1006, 68. Hattori-913 discloses that the integrated circuit 18 (along with CMOS circuit 19) is an example of the drive device 4 that controls the electronic components in the eyeglasses. *Id.*, 68, Fig. 1; Ex.1002, ¶149.

Hattori-913 also discloses that the electronics module comprises a sensor, as it discloses that “a switch 6 is provided to turn the power on and off and control the display as necessary.” Ex.1006, 68. Hattori-913 further discloses a switch 27 is provided on protective plate 25 of the integrated circuit 18. *Id.*, 68, Fig. 4(B); Ex.1002, ¶150.

Claim 6 depends from claim 5 and recites, “wherein the sensor comprises a touch switch.” Hattori-913 satisfies claim 6, as it discloses “[t]he switch 6 can be like a touch switch.” Ex.1006, 68.

Thus, Hattori-913 satisfies the limitations of claims 5 and 6, thereby rendering them obvious. Ex.1002, ¶¶148-153.

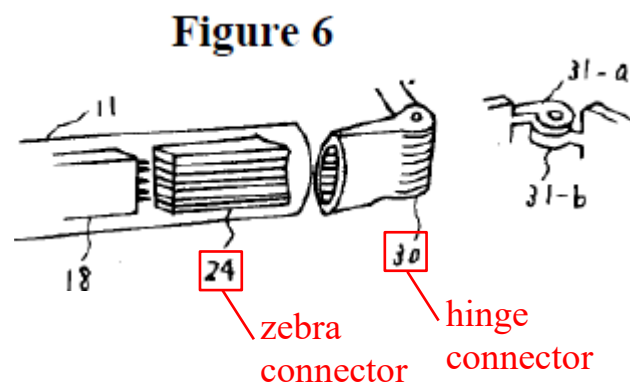
D. Claim 12

Claim 12 depends from claim 1 and recites “wherein the first electrical conductor comprises a single structural element.” Hattori-913 discloses a zebra connector 24, which comprises a single discrete structural element of Hattori-913’s eyeglasses. Ex.1006, Fig. 6; *id.*, 68.

Thus, Hattori-913 satisfies this claim and renders it obvious. Ex.1002, ¶¶154-155.

E. Claim 13

Claim 13 depends from claim 1 and recites “wherein the first electrical conductor is configured to maintain the first conductive path as the first temple is moved relative to the lens housing.” Hattori-913 discloses “the hinge connector 30 and the semiconductor integrated circuit 18 are connected by a zebra-type connector 24, and the hinge connector 30 is formed by a plurality of paired lead electrodes 31-a, 31-b contacting each other.” Ex.1006, 68. This electrical connection through the hinge is shown in Figure 6:



Id., Fig. 6. Figures 1 and 2 also show that the electrical path is maintained through the hinges, and thus is maintained as the temple is moved relative to the lens housing:

Figure 1

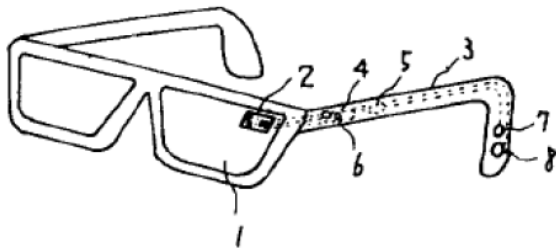
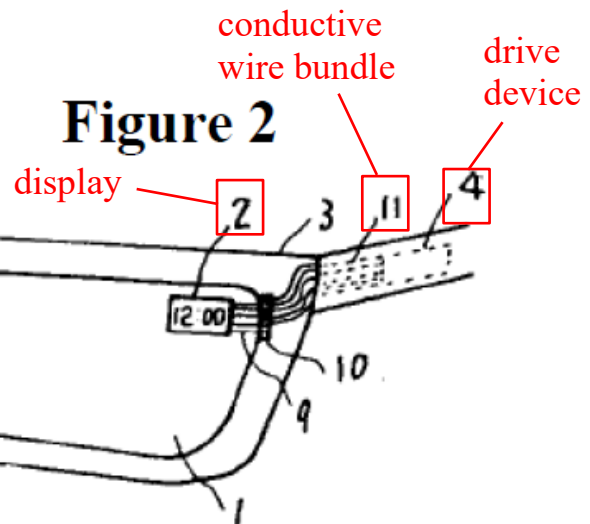


Figure 2



Id., Figs. 1, 2. Thus, Hattori-913 renders obvious claim 13. Ex.1002, ¶156.

XII. GROUND 6: DELORENZO ANTICIPATES CLAIMS 1, 2, 4, 9, 12, 13

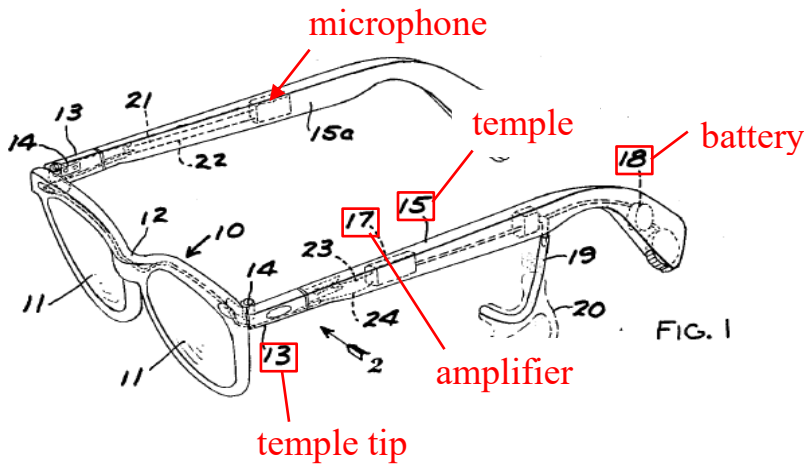
A. Claim 1

1. Preamble and 1[a], 1[b], 1[c]: lens housing and first/second temples

The preamble and limitations 1[a], 1[b], and 1[c] recite:

1. A first device, comprising:
 - a lens housing adapted to support a first lens and a second lens;
 - a first temple movably coupled to the lens housing;
 - a second temple movably coupled to the lens housing.

Figs. 1, 4.



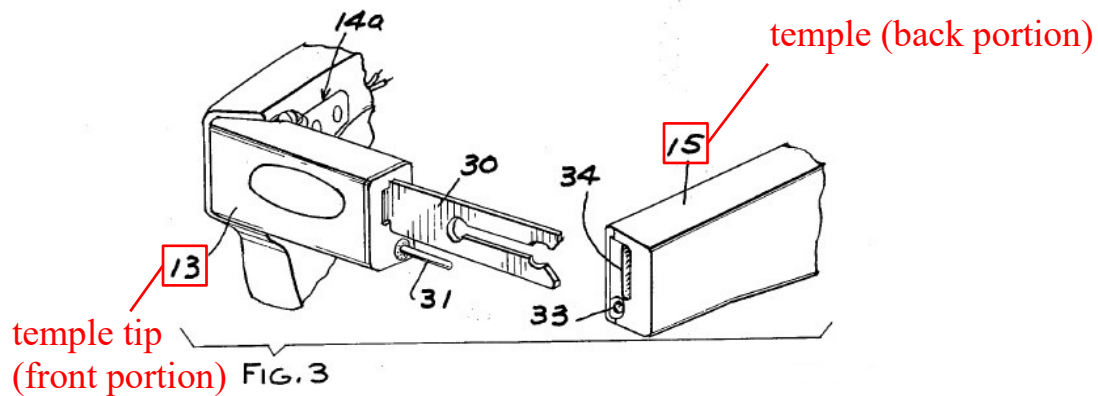
hinged to the frame front....”).

Ex.1002, ¶¶157-159.

2. **Limitation 1[d]: “an electronics module disposed at least partially within the first temple”**

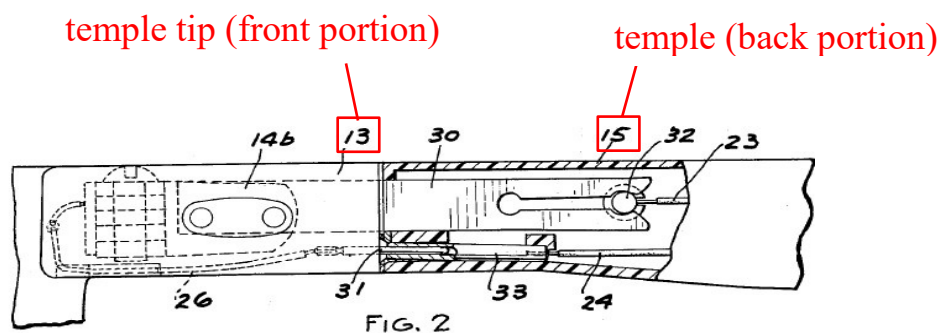
Delorenzo discloses this limitation.

Delorenzo discloses that electronic components are housed in temple 15 of its eyewear, as shown in Figure 3 below:



Ex.1007, Fig. 3.

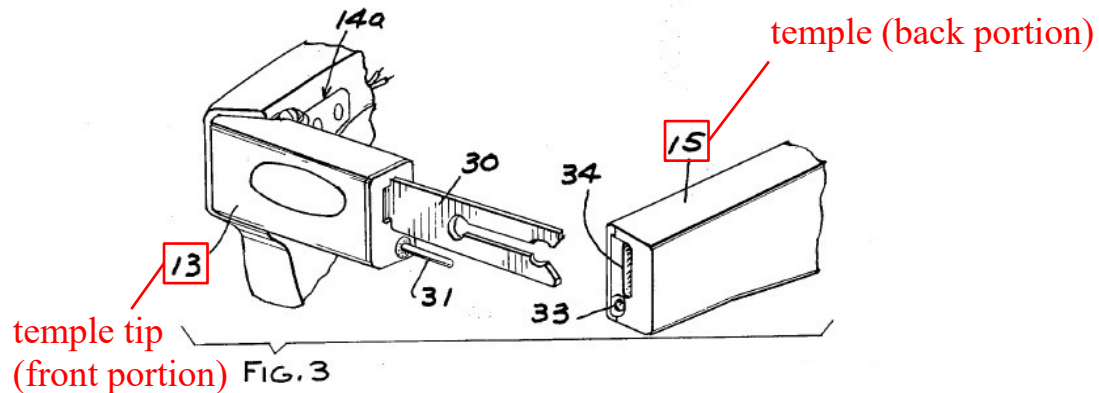
Delorenzo discloses that the front portion of the temple and the back portion of the temple can be mechanically and electrically connected. Ex.1007, 1:44:51, 2:44-54.



Id., Fig. 2.

Delorenzo also discloses that one can mechanically and electrically separate the back portion of the temple (temple 15) from the front portion (temple tip 13),

and this “permit[s] ready removal and replacement of the temple with the electrical element therein.” *Id.*, 1:44-51.



Id., Fig. 3.

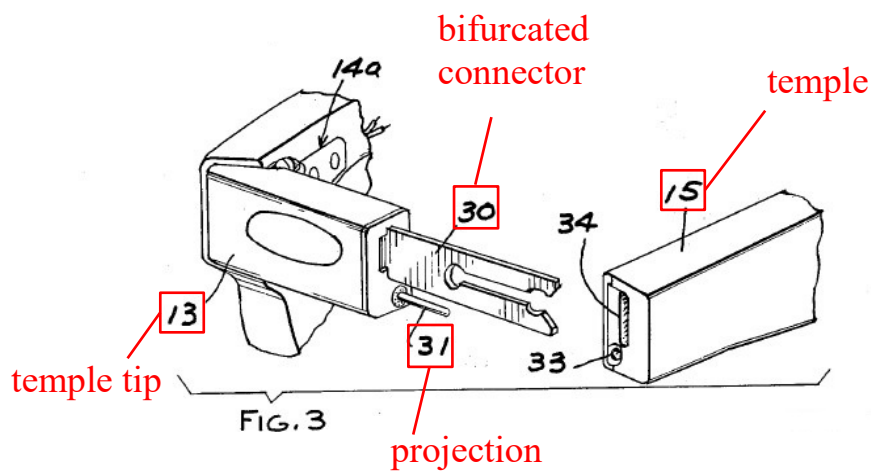
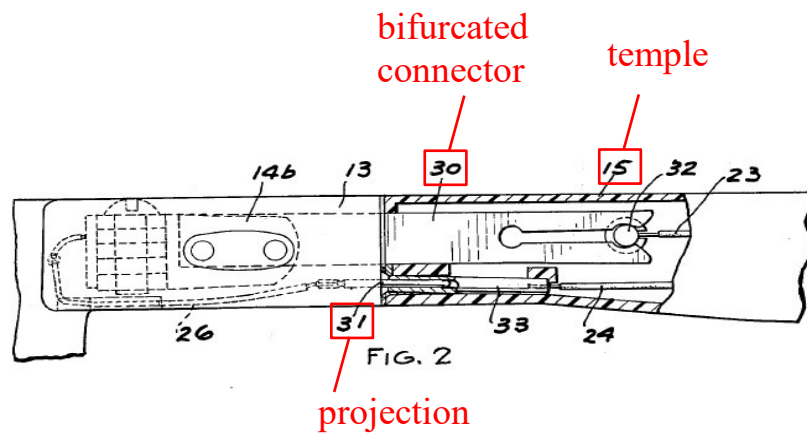
Delorenzo discloses that “[o]ne of the temples 15a is provided with a microphone element 16 while the other has an amplifier element 17 removably embedded therein.” Ex.1007, 2:9-11; *id.*, Abstract, 1:41-44, Fig. 1. Accordingly, temple 15 is an electronics module disposed at least partially within the fully assembled temple of the eyewear (temple tip 13 plus temple 15).

Thus, Delorenzo discloses an electronics module disposed at least partially within the first temple. Ex.1002, ¶¶160-164.

3. Limitations 1[e]/1[g]: “a [first/second] electrical conductor coupled to the first temple”

Delorenzo discloses these limitations. Delorenzo discloses a “bifurcated connector 30” as a first electrical conductor and a “projection or male element 31” as a second electrical conductor. Ex.1007, 2:31-35. The bifurcated connector 30

and projection 31 are coupled to the first temple. *Id.*, 2:31-33, 2:44-46 (bifurcated connector 30 is “fixed in the associated temple tip 13” and “extends through passage 34 and mechanically connects onto post 32”), 2:49-53 (projection 31 “establishes a connection” with female connector 33). Figures 2 and 3 show the bifurcated connector 30 and the projection 31 coupled to the first temple:



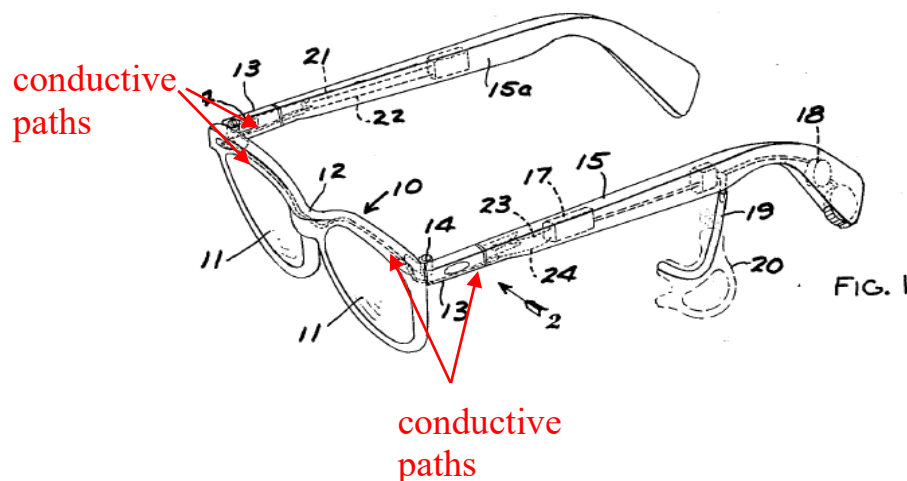
Id., Figs. 2 and 3.

Thus, Delorenzo discloses a first and second electrical conductor coupled to the first temple. Ex.1002, ¶¶165-167.

4. **Limitations 1[f]/1[h]: “wherein a [first/second] conductive path is provided from the first temple to the lens housing at least in part by the [first/second] electrical conductor”**

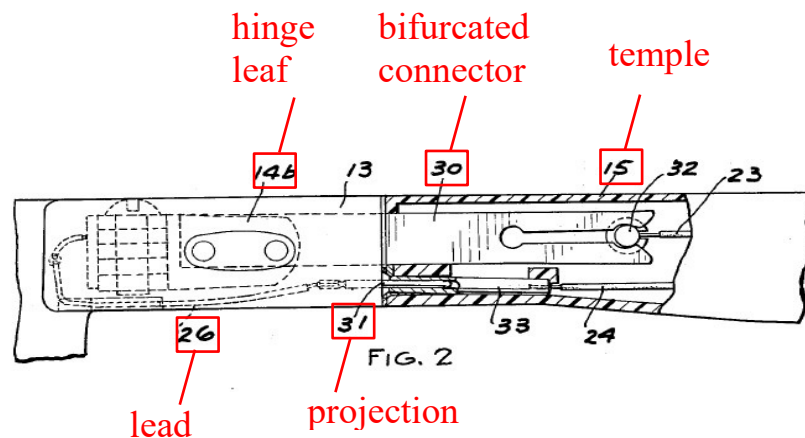
Delorenzo discloses that “each temple is mechanically and *electrically interconnected* to the other through the eyeglass frame front.” Ex.1007, 2:54-56.

Figure 1 shows the conductive paths connecting each the temples and the eyeglass front:



Id., Fig. 1.

Specifically, the conductive paths extend from the bifurcated connector 30 and projection 31 in the temples to leads 25 and 26 in the temple; then, “leads 25, 26 are electrically connected to the leaf of hinge 14b.” *Id.*, 2:28-31.



Id., Fig. 2. The conductive path then continues from the leaf hinge 14b, through the hinge 14, to the frame front 10. *Id.*, 2:18-35, Figs. 1, 2, 4, 7 (showing conductive path through the hinge); Ex.1002, ¶169.

Thus, Delorenzo discloses, limitations 1[f] and 1[h]. Ex.1002, ¶¶168-170.

5. **Limitation 1[i]: “wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module”**

Delorenzo discloses this limitation. Delorenzo discloses that “each temple is *mechanically* and electrically *interconnected* to the other through the eyeglass frame front.” Ex.1007, 2:54-56. The electrical conductors at the front portion of the temple (temple tip 13) extend into and mechanically constrain the electronics module (temple 15) containing the electronic components. *Id.*, 2:44-46 (“[T]he bifurcated element 30 extends through passage 34 and mechanically connects onto post 32.”), 2:49-54 (describing “connection between connectors 31, 33”), Figs. 1-3.

Thus, as recited in limitation 1[i], Delorenzo discloses that the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module. Ex.1002, ¶¶171-172.

Accordingly, as detailed above, Delorenzo discloses all limitations of claim 1 and thereby anticipates the claim.

B. Claim 2

Claim 2 depends from claim 1 and recites “wherein the first electrical conductor is integrally coupled to the first temple.”

For example, Delorenzo discloses the bifurcated connector 30 is “*fixed in* the associated temple tip 13.” Ex.1007, 2:31-33. Therefore, Delorenzo’s bifurcated connector is “integrally coupled” to the first temple, and therefore anticipates claim 2. Ex.1002, ¶174.

C. Claim 4

Claim 4 depends from claim 1 and recites “wherein the first electrical conductor comprises a lug.”

Delorenzo meets this limitation because the bifurcated connector is comprised of a conductive material and it constitutes a fitting to which conductors (e.g., hinge leaf 14b and transversely extending post 32) are coupled to form a conductive path. Ex.1007, 2:31-34 (“Each hinge leaf 14b is electrically connected to a bifurcated connector 30”), 2:44-48 (“bifurcated element 30 extends through passage 34 and

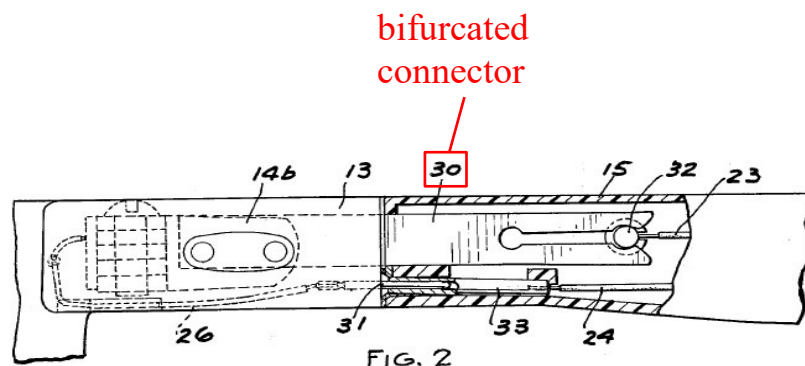
mechanically connects onto post 32. This also provides an electrical connection....”); *id.*, Figs. 2, 3. Delorenzo anticipates claim 4. Ex.1002, ¶¶175-176.

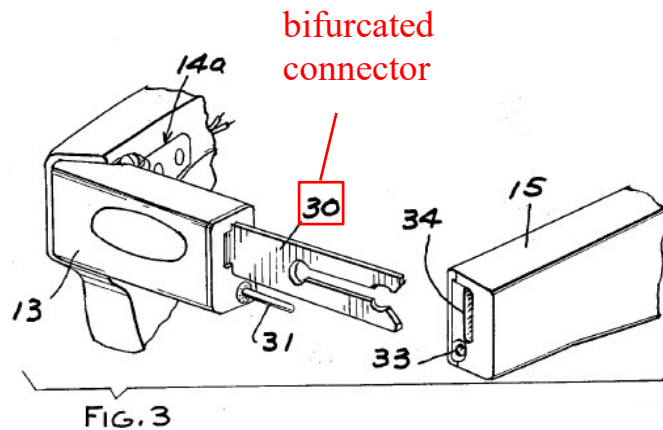
D. Claim 9

Claim 9 depends from claim 1 and recites “wherein the electronics module is configured to be removably coupled to the first temple.” Delorenzo discloses that the mechanical and electrical connections between the electronics module (temple 15) and temple 13 of the eyewear can be broken, “permitting ready removal and replacement of the temple with the electrical element therein.” Ex.1007, 1:44-51. *id.*, Figs. 1, 3. Thus, Delorenzo discloses that the electronics module is configured to be removably coupled to the first temple, and thereby anticipates claim 9. Ex.1002, ¶177.

E. Claim 12

Claim 12 depends from claim 1 and recites “wherein the first electrical conductor comprises a single structural element.” Delorenzo discloses that the bifurcated connector 30 is a single structural element. This is shown in Figures 2 and 3:

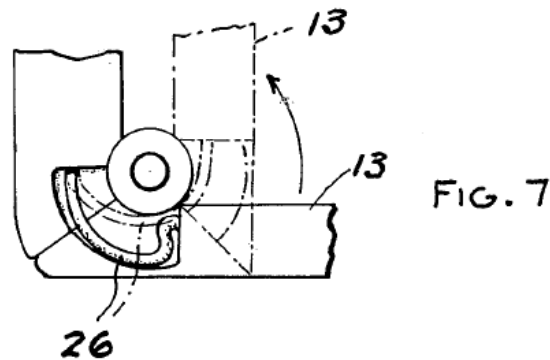




Ex.1007, Figs. 2, 3; *id.*, 2:31-33. Thus, Delorenzo anticipates claim 12. Ex.1002, ¶¶178-179.

F. Claim 13

Claim 13 depends from claim 1 and recites “wherein the first electrical conductor is configured to maintain the first conductive path as the first temple is moved relative to the lens housing.” Delorenzo discloses that “each temple is mechanically and *electrically interconnected* to the other through the eyeglass frame front.” Ex.1007, 2:54-56. The conductive paths extend from the bifurcated connector 30 and projection 31, through the hinges 14 via leads 25 and 26, to the frame front 10. *Id.*, 2:26-36, Figs. 4, 7. Figure 7 shows that the conductive path is maintained as the temple is moved relative to the frame front 10:



Id., Fig. 7. Thus, Delorenzo anticipates claim 13. Ex.1002, ¶¶180-181.

XIII. GROUND 7: DELORENZO RENDERS OBVIOUS CLAIMS 1-4, 9-13

As described in Ground 6 above, Delorenzo anticipates claims 1, 2, 4, 9, 12, and 13. To the extent any of the referenced disclosures in Ground 6 are considered separate embodiments, these claims would have been obvious in view of Delorenzo.

Boston Sci., 554 F.3d at 991; *Realtime Data*, 912 F.3d at 1373.

Additionally, claims 3, 10, and 11 would have been obvious in view of Delorenzo and the knowledge of a person of skill in the art, as explained below.

A. Claim 3

Claim 3 depends from claim 2 and recites “wherein the first electrical conductor is insert molded with the first temple.” As noted above, the term “insert molded” includes injection molding the temple material around the first electrical conductor such that it is “encapsulated by the material that comprises the temple.”

Ex.1001, 12:11-21.

Delorenzo does not expressly disclose the bifurcated connector is “insert molded” within the temple, however this would have been obvious to a person of skill in the art. Ex.1002, ¶184. Just as the ’174 patent describes an electrical conductor encapsulated by the temple material, Delorenzo discloses that its bifurcated connector 30 is “*fixed in the associated temple tip 13* and extending externally therefrom.” Ex.1007, 2:31-33, Figs. 1-3.

A POSITA would have understood that the bifurcated connector would have been readily “fixed” in the temple tip using injection molding. Ex.1002, ¶185. As discussed above, injection molding has long been known as a desirable method for embedding components in materials, including in eyeglasses with electronic components, to provide enhanced stability and durability. *Supra* Section VIII.A.

Thus, it would have been obvious to a POSITA to use injection molding to “insert mold” the bifurcated connector within Delorenzo’s temple tip, and thereby “fix” the bifurcated connector as Delorenzo discloses. Ex.1002, ¶¶183-186.

B. Claims 10 and 11

Claim 10 depends from claim 1 and recites:

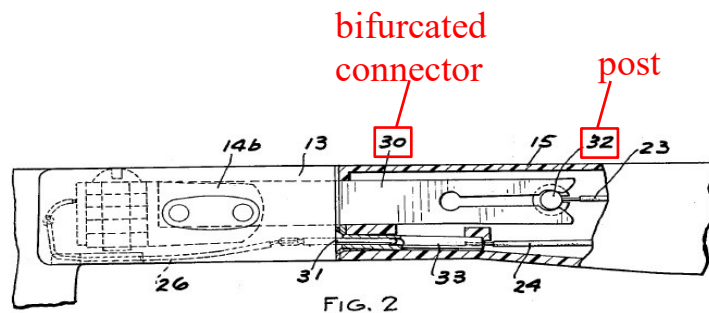
10. The first device of claim 1, wherein the electronics module comprises an opening;

wherein the first electrical conductor has a first portion that extends a first distance of at least approximately 1 cm into the electronic module through the opening, and

wherein the first electrical conductor has a second portion that extends [a] second distance of at least approximately 1 cm outside of the electronics module away from the opening.

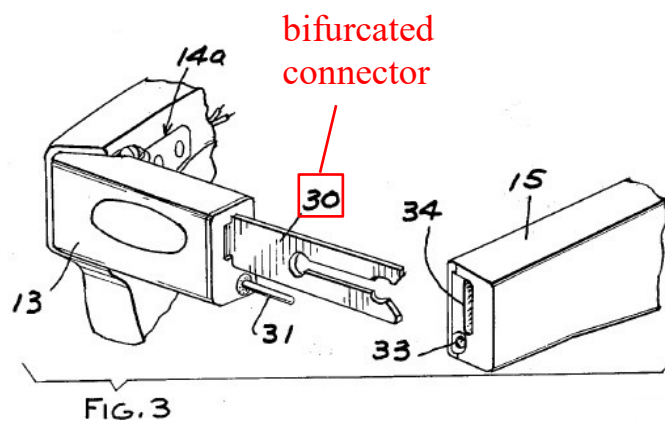
Claim 11 depends from claim 10 and recites that the first and second distances are each at least 2 cm rather than 1 cm.

Claims 10 and 11 would have been obvious in view of Delorenzo and the knowledge of a person of skill in the art. A POSITA would recognize that the width of a temple having electronic components such as Delorenzo's is approximately 1-2 cm. For example, Hollingsworth discloses that temples having electronic components can range in width between $\frac{1}{2}$ to 1 inch, which is roughly 1.25 to 2.5 cm. Ex.1009, 5:26-33. And Delorenzo, like Hollingsworth, includes hearing aid components in the temples. Ex.1007, 2:9-17; Ex.1009, 5:60-6:24; Ex.1002, ¶188. Further, Delorenzo's temple requires a width to accommodate the "transversely extending post 32" that couples with the bifurcated connector 30. Ex.1007, 2:36-38.



Id., Fig. 2.

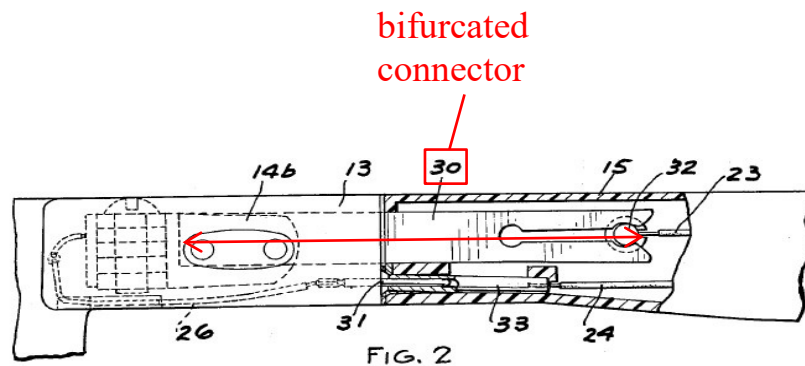
A POSITA would understand from Delorenzo's disclosure that the bifurcated connector 30 extending from the front portion of the temple (temple tip 13) is three to four times as long as the temple is wide:



Ex.1007, Fig. 3.

Thus, a POSITA would understand that if the temple is 1 cm wide, the bifurcated connector 30 extends 3-4 cm from the front portion of the temple (temple tip 13) and into the opening (passage 34) in the rear portion of the temple (temple

15) to provide appropriate structural support and a sturdy connection of temple 15 to tip 13. Ex.1002, ¶189. Figure 2 also shows that the bifurcated connector 30 also extends a distance into the front portion of the temple (temple tip 13), which is, as recited in claims 10 and 11, outside of the electronics module away from the opening (passage 34). A POSITA would understand that this second distance is slightly less than the distance into the opening (passage 34) but still greater than 2 cm to beneficially provide structural integrity to the eyeglass connections.



Ex.1007, Fig. 2.

Thus, a POSITA, in evaluating Delorenzo's disclosure and figures, would find it obvious that the bifurcated connector 30 extends at least 2 cm into the opening in the back portion of the temple (temple 15) and at least 2 cm into the front portion of the temple (temple tip 13). Ex.1002, ¶¶187-189.

Moreover, irrespective of Delorenzo's figures, a POSA would have been motivated to use an electrical conductor of at least 4 cm (2 cm into the electronics module and 2 cm away from it) to provide stability in holding the electronics module

securely in the eyeglasses’ temple. A POSA understood that the electrical conductor provides greater stability the more it extends into the electronics module, and likewise the more it extends away from the electronics module to be secured by the temple. Thus, developing an electrical conductor extending 2 cm in each direction would have been within the skill of the art and required no more than routine optimization to establish the stability to secure the electronics module in the temple. Ex.1002, ¶190.

For these reasons, claims 10 and 11 would have been obvious over Delorenzo. *Id.*, ¶¶188-191.

XIV. GROUND 8: KOKONASKI-999 AND KOKONASKI-579 RENDER OBVIOUS CLAIMS 15-19

A. Overview of Kokonaski-579

Kokonaski-999 is a PCT publication claiming priority to seven U.S. provisional applications. Ex.1004, field (30). Kokonaski-999 incorporates these provisional applications by reference in their entirety. Ex.1004, ¶[0001]. The provisional applications became available as prior art when Kokonaski-999 published on July 15, 2010. *See, e.g., Konda v. Flex Logix Techs., Inc.*, No. 2022-1162, 2022 WL 1436144, at *3 (Fed. Cir. May 6, 2022) (unpublished) (citing 37 C.F.R. § 1.14(a) and M.P.E.P. § 103(VII) to hold that “the ’394 provisional application became publicly available when the ’756 PCT was published.”).

Kokonaski-579 is one provisional application to which Kokonaski-999 claims priority and discloses methods of assembling electro-active eyeglasses, including incorporating capacitive touch switches into the temples of the eyeglasses. *See* Ex.1012, pp. 9-11.

Claims 15-19 would have been obvious over Kokonaski-999 in view of Kokonaski-579.

B. Claim 15

1. Preamble and 15[a]: “providing a capacitive touch switch”

Kokonaski-999 discloses a method that involves providing a capacitive touch switch. For example, Kokonaski-999 discloses that “the electronic module 202 can include a switch or device to enable a user to interact with the electronic module 202. The switch or device can be a press button switch, a *capacitive switch* (e.g., comprising a capacitive sense pad), a toggle switch or other manual switch.” Ex.1004, ¶[0047]; *id.*, pp. 3637 (claims 24 and 28 reciting an electronic module with a capacitive switch and a user touching a capacitive switch.) Thus, Kokonaski-999 discloses providing a capacitive touch switch. Ex.1002, ¶¶192-193.

2. Limitation 15[b]: “disposing a plurality of electronic components on the capacitive switch”

Regarding this limitation, the '174 patent explains: “As used in this context ‘disposing the electronic components’ may comprise any suitable manner of coupling the electronic components to the capacitive touch switch.” Ex.1001, 23:55-

57. It further explains that “disposed” encompasses both direct and indirect connections between the electronic components and the capacitive switch. *Id.*, 23:60-24:1 (“Such indirect connections through one or more other electronic components (such as electrical connectors) may also be considered as being ‘disposed’ on the capacitive touch switch, as used in this context.”); *id.*, 24:54-56 (“This may comprise any suitable technique for electrically coupling the components” to the capacitive touch switch.)

Kokonaski-999 discloses disposing a plurality of electronic components on the capacitive switch because, as explained below, the electronic components are directly or indirectly connected to the capacitive switch as part of the electronic module.

Kokonaski-999 discloses the electronic module “contain[s] all or a portion of the electronic components that govern operation” of the electro-active lenses, including the power source, processor, memory, and sensors, such as a gyroscope or accelerometer. Ex.1004, ¶[0039]. Kokonaski-999 also discloses that the electronic module contains the capacitive switch, which provides a “mechanism by which a user can interact with the electronic module to adjust operation of the electro-active spectacles.” *Id.*, ¶[0047]. The capacitive switch enables a user to control functions within the electronic module: activating the electro-active lenses, selecting modes of operation, and activating sensors. *Id.*; see *id.*, ¶¶[0049]-[0052].

A POSITA would have understood that the capacitive switch controls these various functions within the electronic module because it is directly or indirectly coupled to the electronic components in the electronic module. Ex.1002, ¶197. For example, the capacitive touch switch is coupled to the battery in the electronic module to receive power, coupled to the processor to send and receive information about the modes of operation, and coupled to sensors to place them in standby or active mode. Ex.1002, ¶197.

Figure 13 and its description further confirm that Kokonaski-999's capacitive switch is directly or indirectly connected to electronic components in the electronic module. Figure 13 is a block diagram showing left and right control units (1306 and 1308) in the electro-active spectacles, where each control unit represents an electronic module. Ex.1004, ¶[0094].

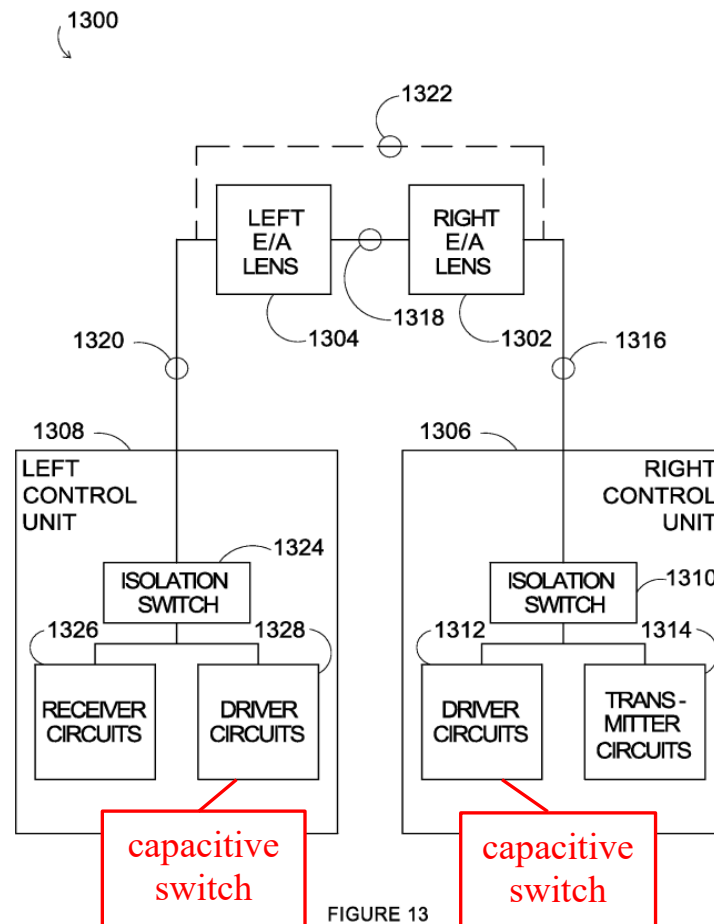


FIGURE 13

Id., Fig. 13; Ex.1002, ¶198. Kokonaski-999 explains that the driver circuits 1312 “generate a driver signal for operating (e.g., activating) the right electro-active lens 1302.” Ex.1004, ¶[0095]. And as explained above, the capacitive switch enables a user to “activate or deactivate the associated electro-active lens or lenses.” *Id.*, ¶[0047]. Thus, the capacitive switch is directly or indirectly connected to the driver circuits to generate the signal for “operating (e.g., activating)” the electro-active lens. *See id.*, ¶¶[0095], [0047]. Figure 13 also shows the driver circuits are

connected to the transmitter circuits, isolation switches, and receiver circuits, thus the capacitive switch is also coupled to these circuits. *See id.*, ¶¶[0094]-[0104].

To the extent that Kokonaski-999 does not expressly disclose disposing a plurality of electronic components on the capacitive switch, doing so would have been obvious as it was readily known in the art. *See, e.g.*, Ex.1013, ¶¶[0086]-[0087] (describing attaching processing device with electrical components “directly to the sensing PCB”); Ex.1014, ¶[0020] (disclosing “integrated touch sensor assemblies that include a touch sensor and electronic components directly mounted on the touch sensor.”); Ex.1010, 3:20–25, 3:43–47, 3:53–58, Figs. 1(a)-1(b); Ex.1002, ¶199.

Thus, Kokonaski-999 discloses and/or renders obvious disposing a plurality of electronic components on the capacitive switch. Ex.1002, ¶¶194-200.

3. Limitation 15[c]: “coupling the capacitive touch switch to a partial enclosure to constrain the capacitive touch switch”

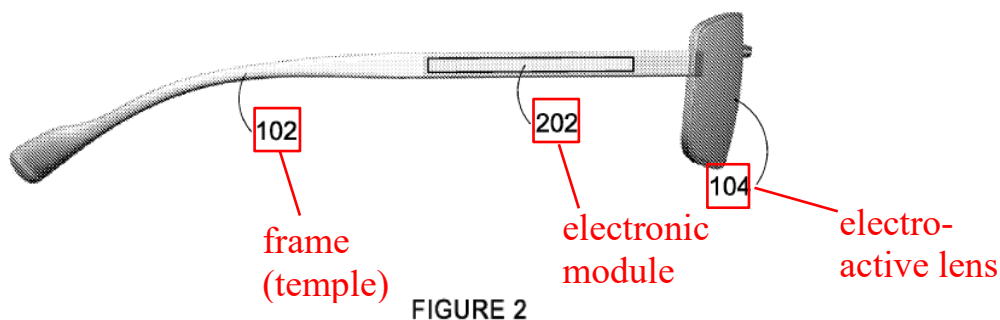
Regarding this limitation, the ’174 patent explains that the enclosure may be an electronics module or the temple of the eyeglasses:

In some embodiments, in the first method as described above, the enclosure may comprise *an electronics module*. In some embodiments, the enclosure may comprise *a temple of an eyeglass frame*.

Ex.1001, 26:3-6. With respect to the electronics module, the partial enclosure may be “an electronics module outer casing.” *Id.*, 23:26-29; *see id.*, 23:43-54, 24:18-19, 31:20-24.

Kokonaski-999 discloses this limitation. Kokonaski-999’s electronic module is a partial enclosure, as it substantially surrounds the electronic components. For example, the electronic module includes a housing to constrain the electronic components, including the capacitive switch. Ex.1004, ¶[0039] (describing housing 502 that “can contain the electrical components of the electronic module 202”); Ex.1002, ¶¶202-203.

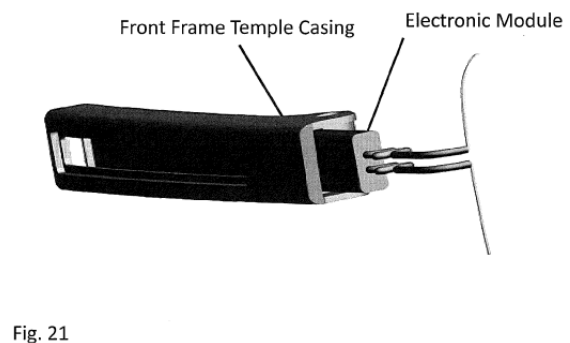
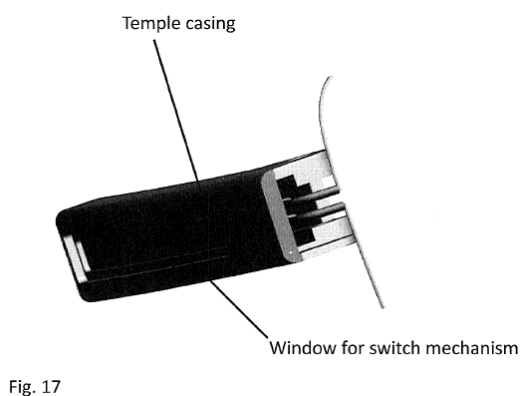
Kokonaski-999 also discloses: “A capacitive switch can be located on a surface of the electronic module 202 that is exposed or accessible when positioned in the frame 102.” *Id.*, ¶[0047]. The electronic module (with capacitive switch coupled thereto) are constrained in temple cavity 202 (frame):



Id., Fig. 2; *id.*, ¶[0033]; Ex.1002, ¶204.

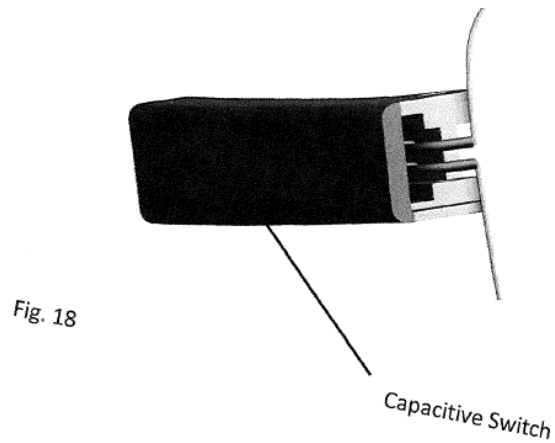
Additionally, Kokonaski-999 discloses that the eyeglass temple serves as a partial enclosure for the capacitive switch: “Alternatively, or in addition thereto, capacitive sense pads can be deposited or built into the frame 102 that can be coupled to the electronic module 202.” *Id.*, ¶[0047]. In this manner, Kokonaski-999’s capacitive touch switch or sense pads are enclosed in the temple of the eyeglasses, thereby constraining the capacitive touch switch or sense pads. Ex.1002, ¶205.

Kokonaski-579 also discloses an electronic module with a capacitive switch coupled to the electronic module to constrain the capacitive switch. *See* Ex.1012, pp. 10-11. In Figures 17-21, Kokonaski-579 shows the electronic module and capacitive switch in various stages of being located and constrained in the eyeglass temple. For example, Figures 17 and 21 show the electronic module being inserted in the temple:

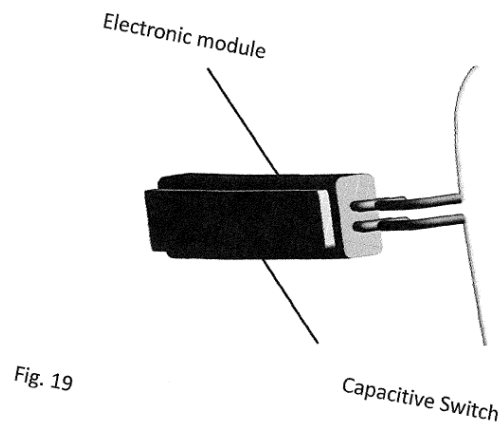


Id., Figs. 17, 21; *id.*, p. 10 (describing the “window in the side of the temple casing to provide for a switching mechanism” and that a preferred embodiment of the

switching mechanism is a capacitive switch). Figure 18 shows the capacitive switch coupled to the electronic module and “extending from the window in the temple casing.”



Id., Fig. 18; *id.*, p. 10. In a view with the temple casing removed, Figure 19 shows the capacitive switch coupled to the electronic module:



Id., Fig. 19. Thus, Kokonaski-999 and Kokonaski-579 disclose “coupling the capacitive touch switch to a partial enclosure to constrain the capacitive touch switch.” Ex.1002, ¶¶201-206.

Accordingly, for the reasons explained above, claim 15 would have been obvious in view of Kokonaski-999 and Kokonaski-579. *Id.* at ¶207.

C. Claim 16

Claim 16 depends from claim 15 and recites that the method further comprises “the step of disposing the enclosure substantially within a temple of an eyeglass frame.” Kokonaski-999 and Kokonaski-579 disclose this limitation. For example, Kokonaski-999 discloses “the electronic module 202 can be positioned anywhere on the frame 102 (e.g., in any portion of the frame 102 having an area or cavity designed to accept insertion of the electronic module 202).” Ex.1004, ¶[0041]; *id.*, Fig. 2.

Kokonaski-579 also discloses disposing the electronic module within the temple casing, as shown in Figure 21:

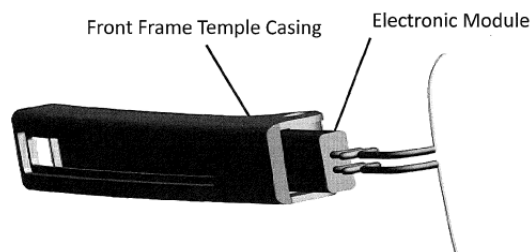


Fig. 21

Ex.1012, Fig. 21.

Thus, claim 16 would have been obvious over Kokonaski-999 and Kokonaski-579. Ex.1002, ¶¶208-209.

D. Claim 17

Claim 17 depends from claim 16 and recites:

17. The first method of claim 16,
 wherein the eyeglass frame comprises electro-active eye
 glass frames;
 wherein the eyeglass frame comprises a first conductive
 path; and
 wherein the first method further comprises the step of
 electrically coupling at least one of the electronic components to
 the first conductive path.

Kokonaski-999 and Kokonaski-579 disclose this limitation. For example, Kokonaski-999 discloses electro-active eyeglasses, where conducting members provide connectivity between the electronics module 202 and the electrical leads in the lenses along a “connectivity path.” Ex.1004, ¶¶[0066]-[0067]; *supra* Section X. Kokonaski-579 similarly discloses electro-active spectacles with conducting wires extending from the electronic module to the lens frames. *See* Ex.1012, Figs. 8-10.

Thus, claim 17 would have been obvious over Kokonaski-999 and Kokonaski-579. Ex.1002, ¶¶210-211.

E. Claim 18

Claim 18 depends from claim 15 and recites “further comprising the step of applying a conformal coating to the plurality of electronic components.”

The '174 patent describes a “conformal coating” as including “any coating that is designed to substantially protect or enclose the electrical connections of the plurality of electronic components.” Ex.1001, 26:18-24. It can include “brushed, spray, or *dip applied acrylic, silicone, or epoxy*” coatings. *Id.*, 3:50-52.

Kokonaski-579 discloses this limitation:

The electronic module is preferably potted or covered in water resistant materials such as *polymeric potting compounds or epoxy*. Materials for potting electronic circuits are well known in the art and often used in PDAs, cell phone, and other hand held devices.

Ex.1012, pp. 9-10. Thus, claim 18 would have been obvious over Kokonaski-579 and Kokonaski-999. Ex.1002, ¶¶212-213.

F. Claim 19

Claim 19 depends from claim 15 and recites “wherein the capacitive touch switch and the enclosure are configured to be pressure fitted.”

It would have been obvious over Kokonaski-999 and Kokonaski-579 and in view of the knowledge of a person of skill in the art to have a capacitive touch switch and enclosure that are configured to be pressure fitted. A POSITA would have

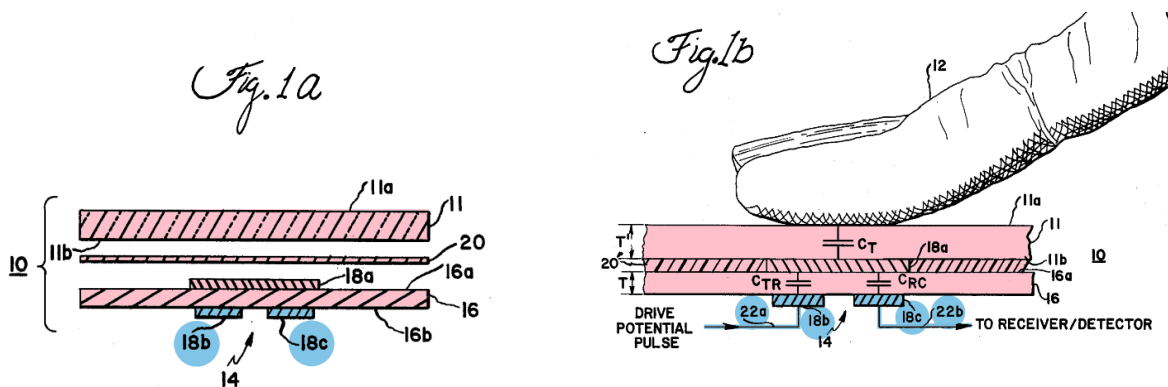
understood that pressure fitting was a desirable and well-known option for coupling a capacitive switch with an electronic module. For example, Nishikawa describes placing a touch panel in the recessed portion of a casing such that the touch panel is “tightly contacted to and housed within the recessed portion.” Ex.1018, ¶[0069]. Prest also discloses that an “input device” comprising a touch pad assembly can be held within the channel of a media device via “press fit mechanisms.” Ex.1017, ¶[0088]. A POSA would have been motivated to pressure fit the capacitive touch switch and enclosure because it would provide a reliable and straightforward option to remove and repair or replace the capacitive touch switch. Ex.1002, ¶¶214-215.

**XV. GROUND 9: HOWELL-596, EICHELBERGER, AND/OR SIKONOWIZ
RENDER OBVIOUS CLAIMS 15-16, 18**

A. Claim 15

1. **Preamble, 15[a], 15[b]: “providing a capacitive touch switch” and “disposing a plurality of electronic components on the capacitive switch”**

Eichelberger (Ex.1010) discloses providing a capacitive touch switch and disposing a plurality of electronic components on the capacitive switch.



Ex.1010, Figs. 1(a), 1(b). Eichelberger’s capacitive touch switch includes a double-sided printed circuit board 16 on which electrodes 18b and 18c are fabricated. *Id.*, 3:20–25, 3:43–47, 3:53–58. Eichelberger thus discloses providing a capacitive touch and disposing a plurality of electronic components on a capacitive touch switch. Ex.1002, ¶217.

2. **Limitation 15[c]: “coupling the capacitive touch switch to a partial enclosure to constrain the capacitive touch switch”**

Howell-596 (Ex.1015) discloses, as explained below, incorporating electronic components on a switch and coupling the switch to a partial enclosure to constrain it. For example, Howell-596 shows in Figure 16D a method of making a UV detection module by coupling a switch 1664 with a substrate (e.g., printed circuit board (PCB)) and electrical circuitry 1508.

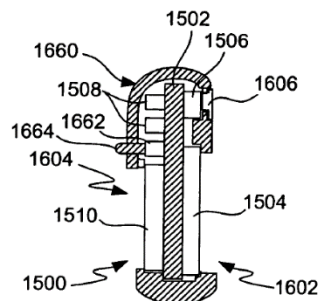


FIG. 16D

Ex.1015, Figure 16D; *id.*, ¶¶[0181], [0188]–[0191].

Howell-596 shows in Figures 17A and 17B that the UV detection system is partially enclosed by module housing 1700 to constrain it.

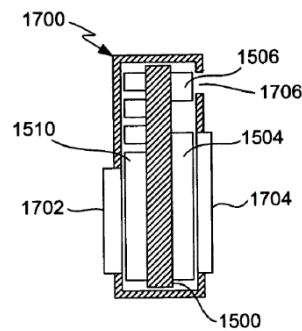


FIG. 17A

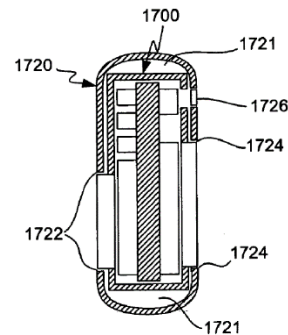


FIG. 17B

Id., Fig. 17; *id.*, ¶¶[00194]-[0196]. Howell-596 teaches that such alternative embodiments are not mutually exclusive. *Id.* ¶[0239].

Howell-596 discloses a variety of switches to use. *Id.*, ¶[0193]. Indeed, Howell-596 incorporates U.S. Provisional Patent Application No. 60/583,169 and points to a specific section therein titled “Eyeglasses with User Input Capability.” *Id.*, ¶[0088]. That section explains the switch “can be activated depending on electrical forces 158” that in turn “depend[] on capacitive effect.” Ex.1019, 172 ¶57. It further discloses “[b]y changing the capacitance, the switch is turned on and off. For example, the capacitance is changed by placing one’s finger over a metallic pad.” *Id.*

A POSITA would have been motivated to combine Howell-596 with Eichelberger because Howell-596 discloses using a capacitive touch switch to control the UV detection system in its glasses. Ex.1002, ¶221. Incorporating Eichelberger’s capacitive touch switch into Howell-596’s eyeglasses involves

nothing more than identifying a long-known example of the genus of switches (capacitive touch switches) that Howell-596 expressly discloses and using that specific example according to its fundamental purpose of detecting capacitance levels to trigger a switch in functionality. *Id.* Because using Eichelberger’s capacitive touch switch in exactly the way Howell-596 contemplates using a capacitive touch switch would lead to the predictable result of using capacitance to control the UV detection electronics in Howell-596’s glasses, a POSITA would have had a reasonable expectation of success. *Id.*

Eichelberger and Howell-596 thus discloses all limitations of claim 15 and it would have been obvious to combine Eichelberger with Howell-596. Ex.1002, ¶¶218-222.

B. Claim 16

Claim 16 depends from claim 15 and recites that the method further comprises “the step of disposing the enclosure substantially within a temple of an eyeglass frame.” Howell-596 disclose this limitation. For example, as shown in Figure 17B, it discloses that the module housing 1700 (with internal electrical components) “is contained by the eyewear housing 1720.”

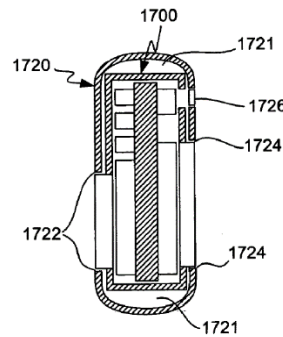


FIG. 17B

Ex.1015, Fig. 17B, ¶[0196].

Thus, claim 16 would have been obvious over Howell-596 and Eichelberger.

Ex.1002, ¶223.

C. Claim 18

Claim 18 depends from claim 15 and recites “comprising the step of applying a conformal coating to the plurality of electronic components.”

Published in 1981, Sikonowiz (Ex.1016) is a treatise on designing and manufacturing printed circuit boards. Sikonowiz teaches applying a conformal coating as a well-known step of final PCB assembly. *Id.*, 135–37. As Sikonowiz explains, the “purpose of a conformal coating is to cover a printed-circuit assembly and protect it from environmental hazards such as moisture, dirt, and chemicals.” *Id.*, 135–36.

Because Sikonowiz describes conformal coating as a well-known step in the assembly of PCBs for keeping moisture and contaminants out, Sikonowiz demonstrates that it would have been obvious to a POSITA to apply such a

conformal coating. Sikonowiz expressly motivates applying a conformal coating to a PCB like that in Howell-596 to prevent moisture and contaminants from affecting the PCB's electronics. Because conformal coatings were commonplace with PCBs as far back as the 1980s, a POSITA would have had a reasonable expectation of success in applying Sikonowiz's teachings to Howell-596. Ex.1002 ¶226. For example, applying a conformal coating as Sikonowiz teaches would represent using a known technique (conformal coating) with a known device ready for improvement (uncoated PCB); and the result would have been predictable because decades of experience would have told a POSITA that the coated PCB would accomplish its intended function with the added benefit of keeping moisture and contaminants from interfering with the electronics. *Id.*

Thus, claim 18 would have been obvious over Howell-596, Eichelberger, and Sikonowiz. Ex.1002, ¶¶224-227.

XVI. 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 the 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.

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

Considering the factors under *Apple v. Fintiv*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential), the Board should decline to exercise its discretion under §314(a).

A. Factor 1: Potential Stay

Petitioner will move to stay the Litigation pending resolution of this IPR. In the Litigation, discovery is in the very early stages, with the parties serving initial sets of discovery requests on June 4, 2024. Claim construction, depositions, expert reports, and summary-judgment motions have not begun. The Central District of California recognizes a “liberal policy” favoring stays pending PTO proceedings. *RJ Tech. LLC v. Apple Inc.*, No. 8:22-cv-01874, 2023 WL 8188475, at *1 (C.D. Cal. Oct. 4, 2023). Courts in that district stay litigation 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. *Polaris PowerLED Techs., LLC v. LG Elecs., Inc.*, No. SACV-20-00125, 2020 WL 6064964, at *2-3 (C.D. Cal. Aug. 26, 2020). Courts routinely grant pre-institution stays. *E.g., RJ Tech.*, 2023 WL 8188475, at *3; *DataQuill Ltd. v. TCL*

Comm’n Tech. Holdings Ltd., No. 2:19-cv-03394, 2020 WL 3884436, at *1-3 (C.D. Cal. Apr. 24, 2020). Accordingly, this factor favors institution.

B. Factor 2: Proximity of Trial to FWD

The Litigation’s trial is currently scheduled for July 21, 2025. A final written decision in this proceeding would be expected within five months of that date—in December 2025. Furthermore, the Litigation is in its early stages, and, as statistics discussed below suggest, the court may well postpone trial, due to a stay or otherwise. The Director’s June 2022 memorandum counsels against relying on scheduled trial dates. Memo⁴ 8.

In 2023, over 17,000 new cases were filed in the Central District, resulting in 622 new cases per authorized judgeship, *not accounting for vacancies*. Ex.1023. In 2023, the median time to trial for civil cases in the Central District 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 (PTAB Nov. 17, 2023); *Samsung Elecs. Co. v. DoDots Licensing Sols. LLC*, IPR2023-00621, Paper 9 at 11 (PTAB Oct. 11, 2023).

⁴ 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

On June 13, 2024, the Court granted Petitioner’s motion to dismiss claims from Patent Owner’s amended complaint. The parties have invested very little in the Litigation. Fact discovery remains in its infancy. *Supra* §XVII.A. 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 (PTAB Mar. 9, 2021); *Huawei Techs. Co. v. WSOU Invs., LLC*, IPR2021-00226, Paper 10 at 13-14 (PTAB 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 ’174 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, *supra* n.4, at 7.

E. Factor 5: The Parties

The parties are the same, but due to the likelihood of a stay, the Litigation is unlikely to go to trial before a final written decision. This factor is neutral. *Google LLC v. Jawbone Innovations, LLC*, IPR2022-00630, Paper 10 at 14 (PTAB Sept. 13, 2022) (note: Paper 10 is captioned with Samsung as petitioner).

F. Factor 6: Other Circumstances

The prior art here has never been considered by the PTO, any court, or any jury. The petition’s merits are particularly strong, which favors institution. *Fintiv*, IPR2020-00019, Paper 11 at 18. 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.

XVIII. 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, only one reference being used in the grounds of the Petition, Kokonaski-999, is listed on the face of the ’174 patent. All other references were never submitted to the Patent Office. And Kokonaski-999 was never relied upon by the examiner in rejecting any claims. Accordingly, the

references are not—and could not be—cumulative of previously-considered references. Thus, the Board should not deny institution under §325(d).

**XIX. 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 '174 patent is asserted in the Litigation.

PO also asserted the '174 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) 2AZR@knobbe.com Knobbe, Martens, Olson, & Bear, LLP <u>Postal and Hand-Delivery Address:</u> 2040 Main St., 14 th Floor Irvine, CA 92614 Telephone: 949-760-0404 Facsimile: 949-760-9502	Jacob L. Peterson (Reg. No. 65,096) 2JUP@knobbe.com Joseph F. Jennings (Reg. No. 40,664) 2JFJ@knobbe.com Benjamin B. Anger (Reg. No. 62,207) 2BBA@knobbe.com Knobbe, Martens, Olson, & Bear, LLP <u>Postal and Hand-Delivery Address:</u> 2040 Main St., 14 th Floor Irvine, CA 92614 Telephone: 949-760-0404 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-174@knobbe.com.

E. Standing

The '174 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.

XX. CONCLUSION

Petitioner respectfully requests that the Board institute IPR and cancel all challenged claims of the '174 patent.

Dated: June 21, 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. 8,801,174 contains 13,496 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 21, 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. 8,801,174, PETITIONER’S POWER OF ATTORNEY, and EXHIBITS 1001-1024 are being served by FedEx on the Patent Owner at the correspondence address of record for the subject patent as follows:

Sterne, Kessler, Goldstein & Fox P.L.L.C.
1101 K Street, NW
10th Floor
Washington, DC 20005

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
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1700 Pennsylvania Avenue, NW, Suite 200
Washington, DC 20006-4707

Dated: June 21, 2024

By: /Ali S. Razai/
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