

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.

IPR2024-01070
Patent 8,801,174 B2

Before RICHARD H. MARSCHALL, JOHN D. HAMANN, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

O'HANLON, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

Luxottica of America Inc. (“Petitioner”) filed a Petition for *inter partes* review of claims 1–19 (“the challenged claims”) of U.S. Patent No. 8,801,174 B2 (Ex. 1001, “the ’174 patent”). Paper 2 (“Pet.”), 1. E-Vision Optics, LLC (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply (Paper 9) and Patent Owner filed a Preliminary Sur-reply (Paper 11). On January 6, 2025, we instituted an *inter partes* review of the challenged claims on all grounds raised in the Petition. Paper 13 (“Institution Decision” or “Inst. Dec.”).

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 22, “PO Resp.”), Petitioner filed a Reply to the Patent Owner Response (Paper 29, “Pet. Reply”), and Patent Owner filed a Sur-reply to Petitioner’s Reply (Paper 30, “PO Sur-reply”). An oral hearing was held on October 6, 2025. A transcript of the hearing has been entered into the record. Paper 37 (“Tr.”).

For the reasons that follow, we conclude that Petitioner has proven by a preponderance of the evidence that claims 1–9 and 12–19 of the ’174 patent are unpatentable. It, however, has failed to meet its burden of proof regarding the unpatentability of claims 10 and 11.

B. Real Parties in Interest

Petitioner identifies itself and Luxottica Group S.p.A. as real parties in interest. Pet. 91. Petitioner asserts that EssilorLuxottica S.A. is the parent company of each of these entities. *Id.*

Patent Owner identifies itself as the sole real party in interest.

Paper 4, 1.¹

C. Related Matters

The parties indicate that the '174 patent is the subject of the following district court proceedings:

e-Vision Optics, LLC v. Luxottica Group SpA, No. 8-23-cv-02013 (C.D. Cal. filed October 26, 2023) (“the Related Litigation”), and

e-Vision, LLC v. Lenovo Group Ltd., No. No. 8-23-cv-01860 (C.D. Cal. filed October 3, 2023).

Pet. 91; Paper 4, 1.

D. The Challenged Patent

The '174 patent discloses eyeglass frames “having one or more conductors that may be utilized to form a part of a conductive path from the temple to the lens housing of the frames.” Ex. 1001, 1:39–42. Figure 2 illustrates an example of such eyeglasses and is reproduced below.

¹ Patent Owner filed a duplicate copy of its mandatory notices as Paper 7.

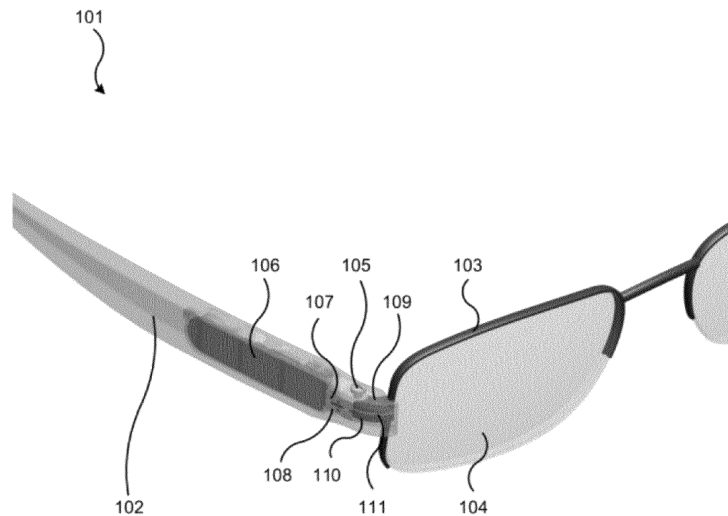


Figure 2 shows eyewear 101 having temple 102, lens housing 103 supporting lens 104, and fastener 105. *Id.* at 15:23–26, 15:41–42. The lens “may be an electronic lens, such as a dynamic lens or an electro-chromic lens, and may utilize power and/or control signals received from an electronic component(s) disposed on, or within, the temple 102 or the lens housing 103.” *Id.* at 15:30–33. The eyewear includes electronics module 106, “which may comprise a plurality of electronic components such as a power source (e.g. a battery), a controller, and/or a sensor.” *Id.* at 15:42–45. The electronics module may utilize a capacitive touch switch as a “back bone” on which the electronic components are disposed. *Id.* at 21:39–46. The electronics module is coupled to temple 102 in part by first electrical conductor 107 and second electrical conductor 108. *Id.* at 15:45–48. The fastener is adapted to compress or hold the first and second electrical conductors in electrical contact with first conductive path 109 and second conductive path 110, respectively. *Id.* at 15:51–55. Insulator material 111 is disposed between and electrically isolates the first and second conductive paths. *Id.* at 15:61–64. The conductive paths

electrically connect to one or more electrical contacts of the electro-active lens or electronic devices disposed in the lens housing or on the other temple of eyewear. *Id.* at 15:67–16:6.

E. The Challenged Claims

Petitioner challenges claims 1–19 of the '174 patent. Claims 1 and 15 are independent. Claim 1 is illustrative of the challenged claims and is reproduced below.

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;
 - an electronics module disposed at least partially within the first temple;
 - a first electrical conductor coupled to the first temple,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
 - a second electrical conductor coupled to the first temple,wherein a second conductive path is provided from the first temple to the lens housing at least in part by the second electrical conductor;
- wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module.

Ex. 1001, 32:13–30.

F. Asserted Grounds of Unpatentability

The Petition relies on the following prior art references:

Name	Reference	Exhibit
Brunton	US 2,915,598, issued December 1, 1959	1003
Kokonaski-999	WO 2010/080999 A1, published July 15, 2010	1004
Hattori-913	JP S58-113913, published July 7, 1983	1006
Delorenzo	US 3,883,701, issued May 13, 1975	1007
Carling	GB 799,294, published August 6, 1958	1008
Eichelberger	US 4,290,052, issued September 15, 1981	1010
Kokonaski-579	Certified copy of U.S. Provisional Patent Application No. 61/157,579, dated January 23, 2010, available under PCT/US2010/020498 ²	1012
Howell-596	US 2005/0230596 A1, published October 20, 2005	1015
Sikonowiz	Sikonowiz, Walter, <i>Designing and Creating Printed Circuits</i> , Hayden Book Company, Inc., published 1981	1016

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 4, 9, 12	102(b) ³	Brunton
1–4, 9, 12	103(a)	Brunton
7, 8, 13	103(a)	Brunton, Carling
1, 2, 4–6, 9, 12, 14	103(a)	Kokonaski-999, Brunton

² Petitioner asserts that the publication date of Kokonaski-579 is July 15, 2010. Pet. 11.

³ The application resulting in the '174 patent was filed prior to the date when the Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112–29, 125 Stat. 284 (2011), took effect. Thus, we refer to the pre-AIA version of sections 102 and 103.

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 2, 5, 6, 12, 13	103(a)	Hattori
1, 2, 4, 9, 12, 13	102(b)	Delorenzo
1–4, 9–13	103(a)	Delorenzo
15–19	103(a)	Kokonaski-999, Kokonaski-579
15, 16, 18	103(a)	Howell-596, Eichelberger, Sikonowiz

Pet. 12. Petitioner submits a declaration of John M. Feland, III, Ph.D. (Ex. 1002, “Feland Declaration”) in support of its contentions. Patent Owner submits a declaration of James H. Oliver, Ph.D. in support of its contentions. Ex. 2016.

II. ANALYSIS

A. Principles of Law

1. *Inter Partes Review*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). Petitioner bears the burden of persuasion to prove unpatentability of each challenged claim by a preponderance of the evidence. 35 U.S.C. § 316(e). This burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

2. Anticipation

“Under 35 U.S.C. § 102 a claim is anticipated ‘if each and every limitation is found either expressly or inherently in a single prior art reference.’” *King Pharm., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1274 (Fed. Cir. 2010) (quoting *Celeritas Techs. Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1360 (Fed. Cir. 1998)). “Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

A reference inherently discloses an element of a claim “if that missing characteristic is necessarily present, or inherent, in the single anticipating reference.” *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citing *Cont’l Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991)). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.” *Therasense*, 593 F.3d at 1332 (quoting *Cont’l Can*, 948 F.2d at 1269).

3. Obviousness

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying

factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) when in evidence, any objective evidence of nonobviousness.⁴ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Best Med. Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022) (quoting *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007)). “The patent’s purpose can also be informative.” *Id.*

Petitioner contends that a person having ordinary skill in the art at the time of the invention “would have had at least a bachelor’s degree in mechanical or manufacturing engineering; mechatronics; electrical engineering plus coursework in mechanical engineering, manufacturing

⁴ The parties have not directed us to any such objective evidence.

engineering, or mechatronics; or a similar technical degree” and “at least 2 years of experience designing consumer electronics, such as eyewear with electronics.” Pet. 9 (citing Ex. 1002 ¶¶ 28–31). Petitioner contends that “[w]ork experience could substitute for formal education and additional formal education could substitute for work experience.” *Id.* at 9–10 (citing Ex. 1002 ¶¶ 28–31).

Patent Owner contends that a person having ordinary skill in the art at the time of the invention would have had “a bachelor’s degree in mechanical engineering, electrical engineering, or computer engineering, or an equivalent degree and, in addition, approximately two years of work experience with embedded electronic devices” and “[m]ore advanced degrees or training in a related discipline or both can compensate for shorter work experience.” PO Resp. 16 (citing Ex. 2016 ¶¶ 44–46).

The parties do not identify, and we do not discern, any material difference between the parties’ proposed definitions. Based on the record currently before us, we adopt Petitioner’s proposed definition of the level of ordinary skill. *See, e.g., GPAC*, 57 F.3d at 1579 (approving the determination of the level of ordinary skill in the art by appeal to the references of record). We note that we would reach the same conclusions under either proposed standard.

C. Claim Construction

In an *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b), including construing the claims in accordance with the ordinary and customary meaning of such claims as

understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention” and “after reading the entire patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Cir. 2005) (en banc). In addition to the specification and prosecution history, we also consider use of the terms in other claims and extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises, although extrinsic evidence is less significant than the intrinsic record. *Id.* at 1312–17. Usually, the specification is dispositive, and it is the single best guide to the meaning of a disputed term. *Id.* at 1315.

“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (alteration in original) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Both parties contend that we should interpret the claim terms according to their ordinary and customary meanings. Pet. 10–11; PO Resp. 14–15. Both parties offer definitions for the ordinary and customary meaning of “constrain,” which we discuss in detail below in § II.E.1.g.i regarding the anticipation challenge to claim 1 based on Brunton.

We determine that no further express construction of any term is necessary.

D. Overview of the Prior Art

1. Brunton

Brunton discloses hearing aids removably mounted in a pair of spectacles. Ex. 1003, 1:15–23. Elements of the hearing aid are “installed in a unit, such as a cartridge, and the unit [is] adapted to be inserted in a cavity in one of the temples of [the] pair of spectacles.” *Id.* at 2:34–39. Figure 1 illustrates Brunton’s spectacles and is reproduced below.

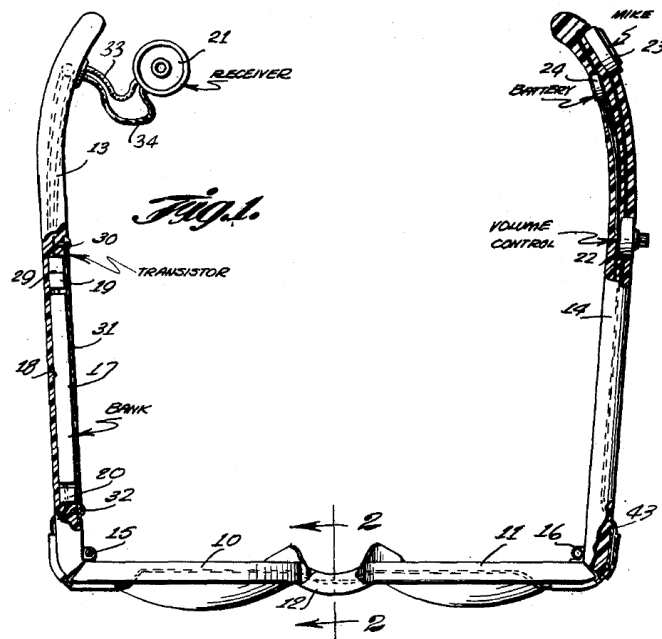


Figure 1 shows spectacles including a lens frame having sections 10 and 11 connected by bridge 12, temples 13 and 14 connected to the ends of the lens frame, hinges 15 and 16, and hearing aid unit 17 positioned in cavity 18 of temple 13. *Id.* at 3:34–40. The hearing aid unit is adapted to be snapped into sockets 19 and 20 and is “connected by suitable conductors to a receiver 21 at the end of the temple 13 and to a volume control 22, a microphone 23 and a battery 24 in the temple 14.” *Id.* at 3:41–44. The

hearing aid unit “contains the elements of a hearing aid, such as resistors, transistors, and capacitors.” *Id.* at 3:51–52.

2. Kokonaski-999

Kokonaski-999 discloses electro-active spectacles. Ex. 1004 ¶ 2. Figures 1 and 2 illustrate the electro-active spectacles and are reproduced below.

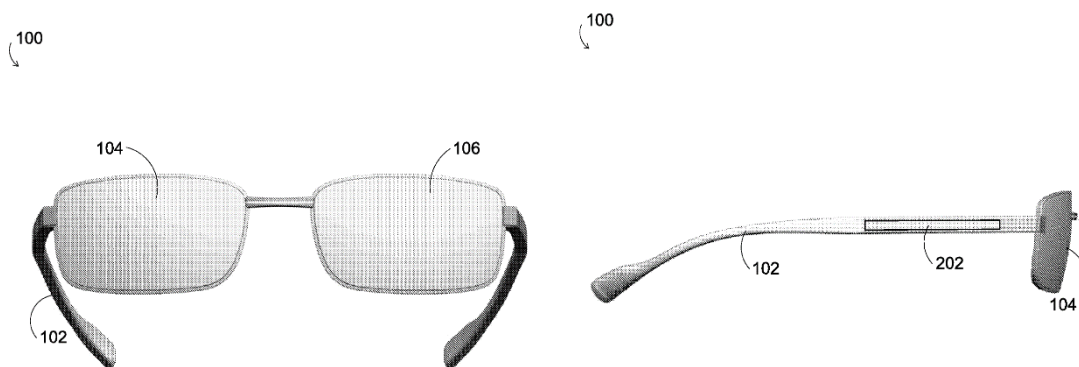


Figure 1 is a perspective view of electro-active spectacles 100, and Figure 2 is a side view of the electro-active spectacles. *Id.* ¶¶ 5–6. The electro-active spectacles include frame 102, first electro-active lens 104, second electro-active lens 106, and electronic module or control unit 202. *Id.* ¶¶ 26, 33. The electro-active lenses “can be any lens or optic capable of changing, varying or tuning the optical power they each provide with the application of electricity.” *Id.* ¶ 26. The electronic module can include various electronics components and can be positioned within the frame. *Id.* ¶ 33. The electronic module can include a switch, such as a capacitive switch, to enable a user to interact with the electronic module. *Id.* ¶ 47.

3. *Hattori*

Hattori discloses eyeglasses with a display device. Ex. 1006, 67.⁵ Figures 1 and 2 illustrate Hattori's eyeglasses and are reproduced below.

Figure 1

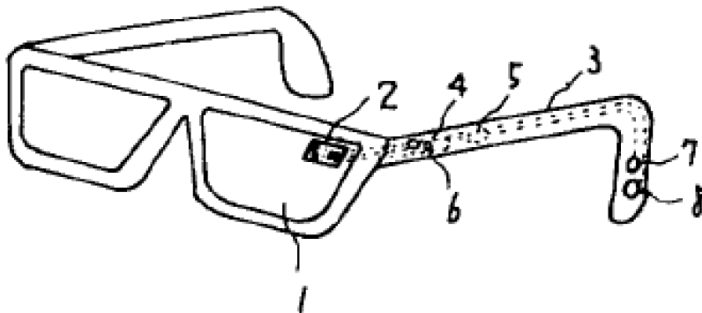


Figure 2

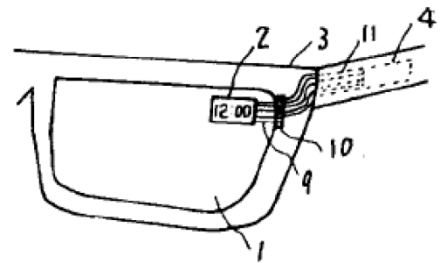


Figure 2 is an enlarged portion of Figure 1, which shows eyeglasses having display device 2 on lens 1, and drive device 4, battery 5, and switch 6 on temple 3. *Id.* at 68. The display device displays content when a voltage is applied to its transparent electrode. *Id.* The drive device drives the display device, is removably embedded within the temple, is powered by the battery, and is turned on or off by the switch, which can be a touch switch. *Id.* Conductive wire bundle 11 connects the display device to the drive device via transparent lead 9 that is connected to the display device, and via lead rubber 10 that is connected to the drive device. *Id.*

⁵ Petitioner did not add pagination to Exhibit 1006, instead referring to the original page numbers. *See, e.g.,* Pet. 23. For consistency, we likewise cite to the original pagination. The Japanese text and English translation have the same pagination, numbered 67–70; our citations refer to the pages of the English translation.

4. Delorenzo

Delorenzo discloses eyeglasses with a built-in hearing aid. Ex. 1007, 1:3–4. Figure 1 illustrates Delorenzo’s eyeglasses and is reproduced below.

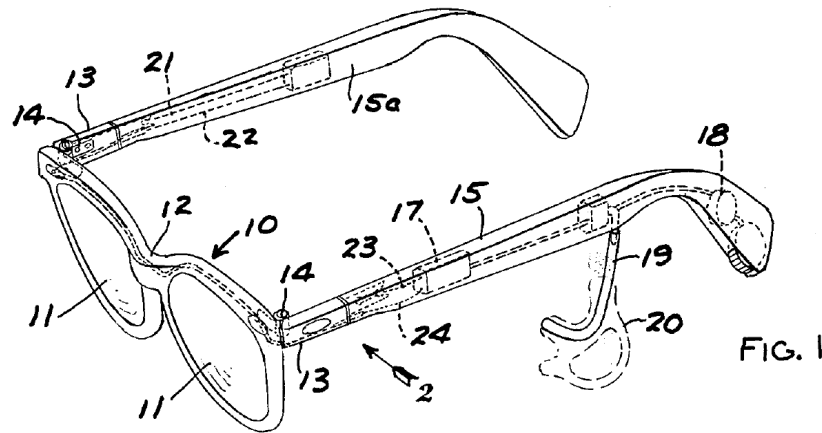
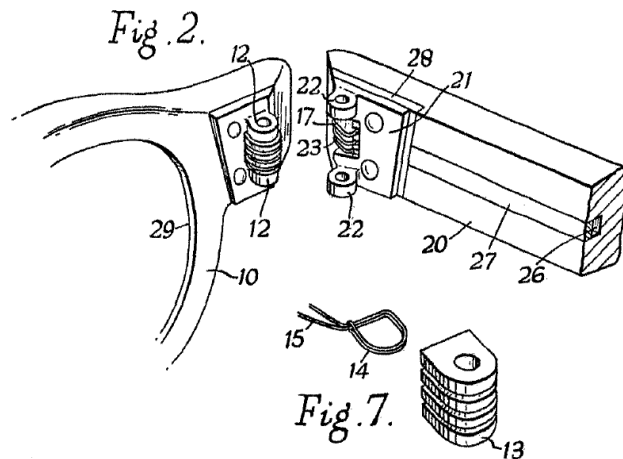


Figure 1 shows eyeglasses having frame front 10 for receiving lenses 11, nosepiece 12, and temples 15 and 15a. *Id.* at 2:3–8. Temple 15a has a microphone and temple 15 has amplifier element 17 “removably embedded therein.” *Id.* at 2:9–11. The amplifier element is “connected electrically . . . with conventional circuitry” to battery 18 and earpiece 20. *Id.* at 2:13–16.

5. Carling

Carling discloses “hearing aids constructed in the form of pairs of spectacles.” Ex. 1008, 1:8–10. Figures 2 and 7 of Carling are reproduced below.



Figures 2 and 7 show spectacle front 10, insulating block 13 that is positioned between lugs 12 and grooved to receive slip rings 14 that are in the form of a “doubled silver wire,” side arm 20, and hinge plate 21. *Id.* at 2:5–33. A hearing aid unit is arranged in a container (shown in Figure 8) at the end of each side arm s. *Id.* at 2:56–57. “A conductor is connected to each of the pairs 15 of ends projecting from the silver wire loop [of slip ring 14] and is passed through” a groove (shown in Figure 1) formed in the frame front, either above or below lens aperture 29 to a further slip ring in the opposite hinge of the spectacle. *Id.* at 2:16–23.

6. Eichelberger

Eichelberger “relates to capacitive touch entry structures and more particularly to a structure allowing capacitive touch entry of data while providing a high degree of safety to user personnel.” Ex. 1010, 1:6–9. Eichelberger’s capacitive touch entry panel includes insulative material layer 16 with “various electrodes 18” of capacitive sensor 14 “deposited upon the surfaces 16a and 16b of layer 16.” *Id.* at 3:6–14. More particularly, “a somewhat rectangular-shaped ‘touch’ electrode 18a” is

fabricated upon surface 16a and “[a] pair of spaced-apart transmitter and receiver electrodes 18b and 18c, respectively, are fabricated upon the insulative layer surface 16b.” *Id.* at 3:15–22.

7. *Kokonaski-579*

Kokonaski-579 discloses electro-active spectacles. Ex. 1012, 9. Kokonaski-579’s electro-active spectacles include a capacitive switch as a switching mechanism with an electronic module placed within the front frame temple casing. *Id.* at 10, Figs. 17–21.

8. *Howell-596*

Howell-596 discloses electronic circuitry having radiation monitoring capability that can be used within eyewear. Ex. 1015, code (57). Figure 16D illustrates an ultraviolet (“UV”) detection system and is reproduced below.

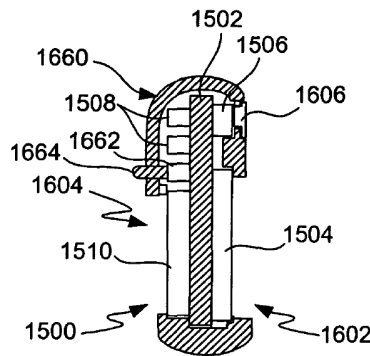


FIG. 16D

Figure 16D is a cross-sectional view of eyewear housing 1660 having electrical circuitry 1508 and switch 1664. *Id.* ¶¶ 57, 191.

9. *Sikonowiz*

Sikonowiz is a textbook about designing and creating printed circuits. Petitioner includes only chapter nine, titled “Final Assembly.” Ex. 1016, 122.⁶ Sikonowiz explains that

[t]he purpose of a conformal coating is to cover a printed-circuit assembly and protect it from environmental hazards such as moisture, dirt, and chemicals. Of these, moisture protection is probably of the greatest general significance. Ideally, a conformal coating covers not only the circuit board but the components mounted on it as well.

Id. at 135–36.

E. Asserted Anticipation by Brunton

Petitioner argues that claims 1, 2, 4, 9, and 12 are anticipated by Brunton. Pet. 13–23. In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). We have reviewed the parties’ briefs and the evidence of record and determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that claims 1, 2, 4, 9, and 12 are anticipated by Brunton.

1. *Independent Claim 1*

a. The Preamble

Claim 1 recites “[a] first device.” Ex. 1001, 32:13. Petitioner maps Brunton’s spectacles to the recited first device. Pet. 13 (citing Ex. 1003, 3:36–39, Fig. 1; Ex. 1002 ¶¶ 54–55).

⁶ Petitioner did not add pagination to Exhibit 1016, instead referring to the page numbers of the textbook. *See, e.g.*, Pet. 85. For consistency, we likewise cite to the original pagination of the textbook.

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Brunton discloses hearing aids removably mounted in a pair of spectacles. Ex. 1003, 1:15–23. The spectacles include a lens frame into which the hearing aid unit is mounted. *Id.* at 3:34–40.

Accordingly, for the foregoing reasons, to the extent the preamble is limiting, Brunton supports Petitioner’s contentions.

b. The Lens Housing Recitation

Claim 1 recites “a lens housing adapted to support a first lens and a second lens.” Ex. 1001, 32:14–15. Petitioner maps Brunton’s frame sections 10, 11 to the recited lens housing and lenses to the recited first and second lenses. Pet. 13 (citing Ex. 1003, 3:36–39, Fig. 1; Ex. 1002 ¶¶ 54–55).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Brunton discloses that its lens housing supports two lenses. Ex. 1003, Fig. 1; *see also id.* at 1:50–55 (disclosing that “the hearing aid elements are independent of the lenses”).

Accordingly, for the foregoing reasons, Brunton supports Petitioner’s contentions.

c. The Temple Recitations

Claim 1 recites “a first temple movably coupled to the lens housing” and “a second temple movably coupled to the lens housing.” Ex. 1001, 32:16–17. Petitioner maps Brunton’s temples 13, 14 to the recited temples. Pet. 13 (citing Ex. 1003, 3:36–39, Fig. 1; Ex. 1002 ¶¶ 54–55).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Brunton discloses that its spectacles include temples 13, 14 connected via hinges 15, 16 to the ends of the lens frame. Ex. 1003, 3:34–40, Fig. 1.

Accordingly, for the foregoing reasons, Brunton supports Petitioner’s contentions.

d. The Electronics Module Recitation

Claim 1 recites “an electronics module disposed at least partially within the first temple.” Ex. 1001, 32:18–19. Petitioner maps Brunton’s hearing aid unit 17 to the recited electronics module and argues that it is installed as a unit in a cavity within a temple of the spectacles. Pet. 14 (citing Ex. 1003, 2:55–63, 3:32–33, 3:39–40, 3:51–56, Figs. 1–2, 6). Petitioner argues that the hearing aid unit is an electronics module because it includes electronic elements. *Id.*

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Brunton discloses that its hearing aid unit “contains the elements of a hearing aid, such as resistors, transistors, and capacitors.” Ex. 1003, 3:51–52. The hearing aid unit is positioned and retained within cavity 18 of temple 13 by snapping into sockets 19, 20. *Id.* at 3:34–44.

Accordingly, for the foregoing reasons, Brunton supports Petitioner’s contentions.

e. The Electrical Conductor Recitations

Claim 1 recites “a first electrical conductor coupled to the first temple” and “a second electrical conductor coupled to the first temple.”

Ex. 1001, 32:20, 32:24. Petitioner argues that “[t]he ’174 patent uses ‘electrical conductor’ to encompass ‘any material that can be used to conduct electrical signals or power.’” Pet. 15 (citing Ex. 1001, 11:15–20). Petitioner argues that Brunton’s sockets 19, 20 include electrical contacts or terminals that make an electrical connection with pins on the hearing aid unit. *Id.* at 16–17 (citing Ex. 1003, 3:57–65, 4:2–4, Figs. 1, 6; Ex. 1002 ¶¶ 57–59).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Brunton discloses that its sockets 19, 20 include tubular contacts 27, 28 that receive pins 25, 26 on the hearing aid unit. Ex. 1003, 3:57–61, Fig. 6. The sockets “may be embedded in the material of the temple.” *Id.* at 3:70–74.

Accordingly, for the foregoing reasons, Brunton supports Petitioner’s contentions.

f. The Conductive Path Recitations

Claim 1 recites “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 “wherein a second conductive path is provided from the first temple to the lens housing at least in part by the second electrical conductor.” Ex. 1001, 32:21–23, 32:25–27. Petitioner argues that Brunton’s spectacles include conducting wires that create conductive paths from socket 20, through temple 13, around hinge 15, and through the lens frame. Pet. 17–19 (citing Ex. 1003, 3:36–44, 4:6–7, 4:10–21; Figs. 1, 2, 7). Petitioner argues 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.* at 19 (citing Ex. 1003, 4:2–9, Figs. 1–2).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Brunton discloses that the ends of its hearing aid unit are provided with contact pins 25, 26 that are adapted to be inserted into tubular contacts 27, 28 in sockets 19, 20. Ex. 1003, 3:57–61, Fig. 6. Once snapped into sockets 19, 20, the hearing aid unit is “connected by suitable conductors to a receiver 21 at the end of the temple 13 and to a volume control 22, a microphone 23 and a battery 24 in the temple 14.” *Id.* at 3:41–44. The connection to the receiver is made by wires 33, 34, and the connections to the other components are made by wires 35, 36. *Id.* at 4:2–9, Figs. 2, 6.

Accordingly, for the foregoing reasons, Brunton supports Petitioner’s contentions.

g. The Constrain Recitation

Claim 1 recites “wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module.” Ex. 1001, 32:28–30. We first address the parties’ interpretation of “constrain” and then consider the parties’ arguments regarding Brunton’s disclosure.

i. Interpretation of “Constrain”

Petitioner argues that “[t]he ’174 patent describes the term ‘constrain’ as including ‘providing support (i.e. a restraining force)’ and ‘retaining the module in a fixed position within the temple.’” Pet. 20 (citation modified) (citing Ex. 1001, 11:52–55).

Patent Owner argues that “constrain” “requires that the claimed electrical conductors physically hold the claimed electronics module in place.” PO Resp. 16; *see also id.* at 35–36 (“[C]onstrain as claimed requires that the electrical conductors physically hold the *electronics module* in place by a physical insertion and restrain the module by applying a force to a surface or component.”). Patent Owner argues that “*constrain* requires physical restraint *and* no minor movements.” *Id.* at 37. Patent Owner argues that its interpretation is supported by the specification and prosecution history of the ’174 patent. *Id.* at 36–39 (citing Ex. 1001, 11:52–57, 11:59–65, Fig. 16; Ex. 2011, 152; Ex. 2016 ¶ 81; Ex. 2018).

Petitioner replies by reiterating the interpretation set forth in the Petition (Pet. Reply 2) and arguing that this interpretation is supported by the specification and prosecution history of the ’174 patent. Pet. Reply 3–5. Petitioner argues that Patent Owner’s interpretation contradicts its definition proffered in the Related Litigation and improperly imports limitations from the specification. *Id.* at 5–8 (citing Ex. 1026, 18–19; Ex. 1027, 12).

Patent Owner replies that both “parties agree that to constrain the electronics module, the conductors must be configured to provide a restraining force that retains the module in a fixed position.” PO Sur-reply 4; *see also id.* at 1 (“[T]he parties appear to apply the very same construction of ‘constrain.’”). Patent Owner argues that, in the Response, it discussed “*exemplary* embodiments in the [’174 patent that] were not intended to limit the defined meaning of ‘constrain.’” *Id.* at 4 (citing PO Resp. 36, 41). Patent Owner argues that its “interpretation of ‘constrain’” is “that to constrain the electronics module, the conductors must be configured to provide a restraining force that retains the module in a fixed position.” *Id.*

at 5; *see also id.* at 6 (“A[n ordinarily skilled artisan] would, therefore, understand that to ‘constrain’ the module, the module must be held in a fixed position *without* minor movement.”). Regarding Petitioner’s arguments regarding Patent Owner’s proffered interpretation to the district court, Patent Owner argues that “Petitioner has made no attempt to show that judicial estoppel is applicable here.” *Id.*

The parties agree that “constrain” means to retain the module in a fixed position. Patent Owner further interprets “constrain” not to allow minor movement. This interpretation is consistent with the ’174 patent, which states,

In some embodiments, the first electrical conductor may be configured to constrain or substantially constrain the electronics module. As used in this context, “constrain” may refer to when the first electrical conductor is configured to provide support (i.e. a restraining force) for the electronics module to retain the module in a fixed position within the temple. That is, the first electrical conductor may be configured to hold the electronics module in place. . . . The term “substantially constrain” is used in this context *to account for some minor movement of the electronics module within the temple*, but the conductor may generally hold the electronics module within the temple in place (such that it remains in an operative position).

Ex. 1001, 11:50–12:3 (emphasis added). Thus, the ’174 patent distinguishes between an electrical conductor configured to “constrain” an electronics module and an electrical conductor configured to “substantially constrain” an electronics module, with the latter allowing for “some minor movement of the electronics module.” We therefore adopt Patent Owner’s interpretation of “constrain” as used in claim 1 to mean the first and second electrical conductors are configured to provide a restraining force that

retains the module in a fixed position without allowing for minor movement of the electronics module.⁷ This interpretation also is consistent with Petitioner’s interpretation, which includes retaining the module in a *fixed* position within the temple. *See* Pet. 20.

We note that, in the Related Litigation, Patent Owner referred to the disclosure at column 11, lines 50–57 as being “clearly permissive language, not limiting language, as denoted by the use of ‘may.’” Ex. 1026, 18. Patent Owner also stated that “it is clear that constrain within the ’174 patent does not require a fixed position.” *Id.* (citing Ex. 1001, 1:42–47, 2:13–14, 13:44–48); *see also* Ex. 1027, 12 (referring to the ’174 patent and stating that “this entire discussion is set of by ‘in some embodiments,’ and that constrain may expressly hold just ‘one end of the [] module’ ‘substantially in place,’ which expressly contradicts [Petitioner’s] ‘fixed position’ construction” (first alteration in original)). We disagree with these characterizations, which are contradicted by the ’174 patent. As explained above, the ’174 patent explicitly discusses and differentiates “constrain” and “substantially constrain” “in embodiments in which the first electrical conductor may be configured to constrain or substantially constrain the electronics module,” such as the embodiment recited in claim 1. We further note that, during the hearing, counsel for Patent Owner asserted that the

⁷ We note that “constrain” was not discussed in any meaningful manner during prosecution of the application resulting in the ’174 patent. Although the Applicant amended claim 41 (which issued as claim 1) to include the second electrical conductor and constrain recitations, the Applicant did not discuss the meaning of “constrain.” *See* Ex. 2011, 99, 104–05. The Examiner then allowed the claims, but similarly did not discuss the meaning of “constrain.” *See id.* at 18.

arguments in the Related Litigation were directed to the interpretation of “couple,” not “constrain.” Tr. 131:2–9.

ii. Brunton’s Disclosure

Petitioner argues that Brunton’s “contact pins on the hearing aid unit are ‘frictionally retained’ by the sockets in the temple cavity” and that, “[b]y 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.” Pet. 20–21 (citing Ex. 1003, 3:61–65, 4:56–63; Ex. 1002 ¶ 64).

Patent Owner argues that Brunton does not support Petitioner’s arguments. PO Resp. 39–45. Patent Owner argues that “Petitioner has not shown that [Brunton’s] contact pins *constrain* the hearing aid unit as required by the patent (e.g., applying a tightening force by use of a fastener).” *Id.* at 41. Rather, Patent Owner argues, “Brunton teaches using a cover plate—*not* contact pins or socket contacts—for holding Brunton’s components in place.” *Id.* at 42–43 (citing Ex. 1003 3:71–4:1; Ex. 2016 ¶ 87); *see also* PO Sur-reply 10, 12 (presenting substantially similar arguments).

Petitioner replies that Patent Owner mischaracterizes Brunton’s disclosure and the Petition. Pet. Reply 10.

Patent Owner replies that “Brunton merely describes one objective of its overall invention as having a ‘casing [that] is continuously in a fixed or stationary position and is not constantly flapping against clothing or portions of the body.’” PO Sur-reply 9–10 (alteration in original) (citing Ex. 1003, 2:17–22).

Patent Owner’s arguments mischaracterize Brunton’s disclosure and, therefore, are unavailing. As correctly noted by Petitioner, Brunton discloses that “the [hearing aid] 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 (emphasis added). Petitioner’s witness, Dr. Feland, testifies,

Frictionally retaining the hearing aid unit’s pins in the cavity means that the socket contacts couple the hearing aid unit to the temple and constrain the hearing aid unit. Brunton’s socket contacts (corresponding to the claimed first and second electrical conductors) accordingly are configured to couple the hearing aid unit (corresponding to the claimed electronics module) to the temple to constrain the hearing aid unit.

Ex. 1002 ¶ 64. We credit this testimony of Dr. Feland, which is consistent with the ordinary and customary meaning of a friction-fit connection.

We give less credit to the testimony of Patent Owner’s witness, Dr. Oliver. Dr. Oliver testifies that “Brunton describes a cover plate that physically secures the sockets.” Ex. 2016 ¶ 87 (citing Ex. 1003, 3:71–4:1). However, this assertion is contradicted by the very disclosure Dr. Oliver quotes in his declaration, which explains that the material of the temple retains the sockets in place: “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.” Ex. 1003, 3:71–74 (emphases added); *see also* Ex. 2016 ¶ 87 (quoting same). Brunton does disclose a cover plate to cover the cavity, but Brunton does not disclose or suggest that the cover plate contacts or otherwise influences the hearing aid: “In the design shown, the temple is provided with a cover plate 31 that

is secured in position over the unit 77 and the transistor 29 with screws 32.”
Ex. 1003, 3:74–4:1; *see also* Ex. 2016 ¶ 87 (quoting same).

Accordingly, for the foregoing reasons, Brunton supports Petitioner’s contentions.

h. Conclusion

For the foregoing reasons, Petitioner has shown, by a preponderance of the evidence, that claim 1 is anticipated by Brunton.

2. Claims 2, 4, 9, and 12

Claims 2, 4, 9, and 12 depend, directly or indirectly, from claim 1. Ex. 1001, 32:31–67. Petitioner contends that Brunton discloses the recitations of these claims and supports these contentions with declaration testimony. Pet. 21–23 (citing Ex. 1002). Patent Owner does not contest Petitioner’s challenges to these claims apart from its contentions regarding parent claim 1. PO Resp. 57–58.

We determine that Petitioner’s contentions regarding these dependent claims are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 2, 4, 9, and 12 are anticipated by Brunton. *See In re NuVasive*, 841 F.3d 966, 974 (Fed. Cir. 2016) (“The Board, having found the only disputed limitations together in one reference, was not required to address undisputed matters.”); Paper 14, 10–11 (emphasizing that “any arguments for patentability not raised in the response may be deemed waived” (emphasis omitted)).

F. Asserted Obviousness Based on Brunton

Petitioner argues that claims 1–4, 9, and 12 would have been obvious in view of Brunton. Pet. 24–26. In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). We have reviewed the parties’ briefs and the evidence of record and determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that claims 1–4, 9, and 12 would have been obvious in view of Brunton.

1. Claims 1, 2, 4, 9, and 12

Petitioner argues that, “[t]o the extent any disclosures cited in [the anticipation challenge based on Brunton] 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.” Pet. 24 (citing *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)).

Patent Owner does not contest this challenge apart from the arguments advanced for the anticipation challenge based on Brunton, which are unavailing for the reasons set forth above. *See* PO Resp. 35–45.

Having found that Brunton anticipates claims 1, 2, 4, 9, and 12, we find that Brunton also renders these claims obvious. *See Connell v. Sears Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (“Though it is never necessary to so hold, a disclosure that anticipates under § 102 also renders the claim invalid under § 103, for ‘anticipation is the epitome of obviousness.’” (quoting *In re Fracalossi*, 681 F.2d 792, (CCPA 1982))).

2. *Claim 3*

Claim 3 depends indirectly from claim 1 through claim 2. Ex. 1001, 32:33–34. Petitioner contends that Brunton teaches or suggests the recitations of this claim and supports these contentions with declaration testimony. Pet. 24–25 (citing Ex. 1002). Patent Owner does not contest Petitioner’s challenges to this claim apart from its contentions regarding parent claim 1. PO Resp. 57–58.

We determine that Petitioner’s contentions regarding this dependent claim are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 3 would have been obvious in view of Brunton. *See In re NuVasive*, 841 F.3d at 974; Paper 14, 10–11.

G. Asserted Obviousness Based on Brunton and Carling

Petitioner argues that claims 7, 8, and 13 would have been obvious in view of Brunton and Carling. Pet. 26–29. In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). Patent Owner does not contest Petitioner’s challenges to these claims apart from its contentions regarding parent claim 1. PO Resp. 57–58.

We determine that Petitioner’s contentions regarding these dependent claims are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 7, 8, and 13 would have been obvious in view of Brunton and Carling. *See In re NuVasive*, 841 F.3d at 974; Paper 14, 10–11.

H. Asserted Obviousness Based on Kokonaski-999 and Brunton

Petitioner argues that claims 1, 2, 4–6, 9, 12, and 14 would have been obvious in view of Kokonaski-999 and Brunton. Pet. 30–43. In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). We have reviewed the parties’ briefs and the evidence of record and determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that claims 1, 2, 4–6, 9, 12, and 14 would have been obvious in view of Kokonaski-999 and Brunton.

1. Independent Claim 1

a. The Preamble

Claim 1 recites “[a] first device.” Ex. 1001, 32:13. Petitioner maps Kokonaski-999’s electro-active eyeglasses to the recited first device. Pet. 30 (citing Ex. 1004 ¶ 23–36, 88–91, Figs. 1, 2, 7–12; Ex. 1002 ¶¶ 87–88).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses electro-active eyeglasses 100. Ex. 1004 ¶ 26, Fig. 1.

Accordingly, for the foregoing reasons, to the extent the preamble is limiting, Kokonaski-999 supports Petitioner’s contentions.

b. The Lens Housing Recitation

Claim 1 recites “a lens housing adapted to support a first lens and a second lens.” Ex. 1001, 32:14–15. Petitioner maps the frame of Kokonaski-999’s glasses to the recited lens housing. Pet. 30 (citing Ex. 1004 ¶ 23–36, 88–91, Figs. 1, 2, 7–12; Ex. 1002 ¶¶ 87–88).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses that its glasses include frame 102 having rim portions to support electro-active lenses 104, 106. Ex. 1004 ¶ 26, Fig. 1.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner’s contentions.

c. The Temple Recitations

Claim 1 recites “a first temple movably coupled to the lens housing” and “a second temple movably coupled to the lens housing.” Ex. 1001, 32:16–17. Petitioner maps the temple of Kokonaski-999’s glasses to the recited lens housing. Pet. 30 (citing Ex. 1004 ¶ 23–36, 88–91, Figs. 1, 2, 7–12; Ex. 1002 ¶¶ 87–88).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses that its glasses include frame 102 having left and right temple portions. Ex. 1004 ¶ 26, Fig. 1.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner’s contentions.

d. The Electronics Module Recitation

Claim 1 recites “an electronics module disposed at least partially within the first temple.” Ex. 1001, 32:18–19. Petitioner maps Kokonaski-999’s electronic module 202 to the recited electronics module and argues that it is disposed in the temple of the eyeglasses. Pet. 31 (citing Ex. 1004 ¶ 33, Fig. 2; Ex. 1002 ¶ 89).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses that its glasses include electronics module 202 positioned within a cavity in the temple of the frame. Ex. 1004 ¶ 3, Fig. 2.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner’s contentions.

e. The Electrical Conductor Recitations

Claim 1 recites “a first electrical conductor coupled to the first temple” and “a second electrical conductor coupled to the first temple.” Ex. 1001, 32:20, 32:24. Petitioner maps Kokonaski-999’s upper conducting member 712 and lower conducting member 714 to the recited first and second electrical conductors and argues that the conducting members physically couple the temple to the eye-wire portion of the eyeglasses. Pet. 31–32 (citing Ex. 1004 ¶ 65, Fig. 7; Ex. 1002 ¶ ; Ex. 1002 ¶¶ 90–92).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses that its electronic module contains the electronic components that control operation of the electro-active lenses. Ex. 1004 ¶ 39. In the embodiment illustrated in Figure 7, the frame includes upper conducting member 712 and lower conducting member 714 that, with insulating member 716, “physically couple the temple of the frame 700 to the eye-wire portion (i.e., the upper and lower rim portions 702 and 704).” *Id.* ¶ 65.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner's contentions.

f. The Conductive Path Recitations

Claim 1 recites “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 “wherein a second conductive path is provided from the first temple to the lens housing at least in part by the second electrical conductor.” Ex. 1001, 32:21–23, 32:25–27. Petitioner argues that Kokonaski-999's first and second conducting members provide connectivity between the electronics module and conductors in the lens housing. Pet. 33–34 (citing Ex. 1004 ¶ 66, Fig. 7; Ex. 1002 ¶¶ 93–95).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses that its electronic module contains the electronic components that control operation of the electro-active lenses. Ex. 1004 ¶ 39. The upper and lower conducting members provide connectivity between the electronics module and the conductors of the electro-active lenses. *Id.* ¶ 66.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner's contentions.

g. The Constrain Recitation

Claim 1 recites “wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module.” Ex. 1001, 32:28–30. Petitioner argues that Kokonaski-999's electronics module includes first contacts 504 in the form

of pins that extend from one end of the module. Pet. 34 (citing Ex. 1004 ¶¶ 39–40, Fig. 5). Petitioner relies on Brunton to teach the use of sockets to frictionally pins of an electronics module. *Id.* (citing Ex. 1003, 3:61–65, 4:56–63). Petitioner argues that it would have been obvious to use sockets in Kokonaski-999’s glasses that cooperate with the pins to frictionally retain the electronics module in the temple and prevent it from inadvertently falling out. *Id.* at 35–36 (citing Ex. 1003, 2:55–63, 3:30–33, 3:51–56, 3:59–65, 4:55–63; Ex. 1004 ¶ 33, Figs. 5, 7; Ex. 1002 ¶¶ 100–104).

Patent Owner contests Petitioner’s arguments for the reasons set forth for the anticipation challenge based on Brunton, which are unavailing for the reasons set forth above. PO Resp. 45–48.

Kokonaski-999’s electronics module includes first contacts 504 and second contacts 506 that connect the electronics module to the electro-active lenses, battery, and other electronic components. Ex. 1004 ¶¶ 39–40. We agree with Petitioner’s description of Figure 5 illustrating first contacts 504 being in the form of pins. *See* Pet. 34; Ex. 1004, Fig. 5. We are persuaded by Petitioner’s argument that it would have been obvious to use sockets, as taught by Brunton, to receive and electrically connect the pins to the other electronic components, and that the sockets would constrain the electronics module in the frame as discussed above regarding the anticipation challenge based on Brunton. *See* Pet. 35–36; Ex. 1002 ¶¶ 99–103.

Accordingly, for the foregoing reasons, Kokonaski-999 and Brunton support Petitioner’s contentions.

h. Conclusion

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 1 would have been obvious in view of the combination of Kokonaski-999 and Brunton.

2. Claims 2, 4–6, 9, 12, and 14

Claims 2, 4–6, 9, 12, and 14 depend, directly or indirectly, from claim 1. Ex. 1001, 32:31–33:8. Petitioner contends that Kokonaski-999 teaches or suggests the recitations of these claims and supports these contentions with declaration testimony. Pet. 21–23 (citing Ex. 1002). Patent Owner does not contest Petitioner’s challenges to these claims apart from its contentions regarding parent claim 1. PO Resp. 57–58.

We determine that Petitioner’s contentions regarding these dependent claims are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 2, 4–6, 9, and 12 would have been obvious in view of Kokonaski-999 and Brunton. *See In re NuVasive*, 841 F.3d at 974; Paper 14, 10–11.

I. Asserted Obviousness Based on Hattori

Petitioner argues that claims 1, 2, 5, 6, 12, and 13 would have been obvious in view of Hattori. Pet. 43–54. In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). We have reviewed the parties’ briefs and the evidence of record and determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that claims 1, 2, 5, 6, 12, and 13 would have been obvious in view of Hattori.

1. Independent Claim 1

a. The Preamble

Claim 1 recites “[a] first device.” Ex. 1001, 32:13. Petitioner maps Hattori’s eyeglasses to the recited device. Pet. 43–44 (citing Ex. 1006, 68–69, Figs. 1, 2, 4, 6; Ex. 1003 ¶¶ 125–127).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Hattori discloses eyeglasses with a display device. Ex. 1006, 67, Fig. 1.

Accordingly, for the foregoing reasons, to the extent the preamble is limiting, Hattori supports Petitioner’s contentions.

b. The Lens Housing Recitation

Claim 1 recites “a lens housing adapted to support a first lens and a second lens.” Ex. 1001, 32:14–15. Petitioner maps the frames of Hattori’s to the recited housing. Pet. 43–44 (citing Ex. 1006, 68–69, Figs. 1, 2, 4, 6; Ex. 1003 ¶¶ 125–127).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Hattori discloses that its glasses include frames in which lenses 1 are retained. Ex. 1006, Fig. 1

Accordingly, for the foregoing reasons, Hattori supports Petitioner’s contentions.

c. The Temple Recitations

Claim 1 recites “a first temple movably coupled to the lens housing” and “a second temple movably coupled to the lens housing.” Ex. 1001,

32:16–17. Petitioner maps the temple of Hattori’s glasses to the recited first temple. Pet. 43–44 (citing Ex. 1006, 68–69, Figs. 1, 2, 4, 6; Ex. 1003 ¶¶ 125–127).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Hattori discloses that its glasses include frames comprising temple 3. Ex. 1006, 68, Fig. 1

Accordingly, for the foregoing reasons, Hattori supports Petitioner’s contentions.

d. The Electronics Module Recitation

Claim 1 recites “an electronics module disposed at least partially within the first temple.” Ex. 1001, 32:18–19. Petitioner maps Hattori’s drive device 4 to the recited electronics module and argues that the drive device is illustrated as integrated circuit 18 that is embedded within a recess in the temple of the glasses. Pet. 44–46 (citing Ex. 1006, 68, Figs. 1, 2, 4(A), 4(B); Ex. 1003 ¶¶ 128–130).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Hattori discloses that its glasses include drive device 4, which includes semiconductor integrated circuit 18, that is embedded in recess 21 processed in the temple of the frames. Ex. 1006, 68.

Accordingly, for the foregoing reasons, Hattori supports Petitioner’s contentions.

e. The Electrical Conductor Recitations

Claim 1 recites “a first electrical conductor coupled to the first temple” and “a second electrical conductor coupled to the first temple.” Ex. 1001, 32:20, 32:24. Petitioner maps Hattori’s zebra-type connector 24 to the recited first and second electrical conductors and argues that “[a] zebra connector is a well-known electrical connector composed of alternating layers of conductive and insulating materials.” Pet. 46–47 (citing Ex. 1006, 68, Figs. 4(A), 6; Ex. 1003 ¶¶ 133–134; Ex. 1020, 3:37–41; Ex. 1021, 6:45–62).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Hattori discloses that its glasses include a hinge connector between the frame arms and the lens holder, and “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. The zebra connector is illustrated as being embedded within the temple of the frames. *Id.* at Fig. 6. Dr. Feland testifies that an ordinarily skilled artisan would consider it to be well known that zebra connectors contain alternating layers of conductive and insulating materials that are, essentially, a plurality of conductors separated by a plurality of insulators. Ex. 1002 ¶¶ 133–134

Accordingly, for the foregoing reasons, Hattori supports Petitioner’s contentions.

f. The Conductive Path Recitations

Claim 1 recites “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 “wherein a second conductive path is provided from the first temple to the lens housing at least in part by the second electrical conductor.” Ex. 1001, 32:21–23, 32:25–27. Petitioner argues that Hattori’s zebra connectors are connected to the drive device and the hinge connector, the hinge connector is connected to the display device via leads that pass through the lens housing. Pet. 47–49 (citing Ex. 1006, 68, Figs. 1, 2, 4(A), 6; Ex. 1003 ¶¶ 133, 137–140).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

As noted above, Hattori discloses that “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. Leads 9, which pass through the lens housing, connect the hinge connector to display device 2. *Id.* at 68, Fig. 2.

Accordingly, for the foregoing reasons, Hattori supports Petitioner’s contentions.

g. The Constrain Recitation

Claim 1 recites “wherein the first and second electrical conductors are configured to couple the electronics module to the first temple to constrain the electronics module.” Ex. 1001, 32:28–30. Petitioner argues that, in Figures 4(B) and 5, Hattori illustrates the output terminal of its drive device

in the form of contact pins. Pet. 49–50 (citing Ex. 1006, 68, Figs. 4(B), 5; Ex. 1003 ¶ 143). Petitioner argues that these contact pins are connected to the zebra connector, which is embedded within the temple of the frames. *Id.* at 50 (citing Ex. 1006, 68, Fig. 4(A); Ex. 1003 ¶ 145). Petitioner argues that “[t]he zebra connector [24] is an elastomeric material that applies 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.” *Id.* at 50–51 (citing Ex. 1021, 6:50–53). Thus, Petitioner contends, “[an ordinarily skilled artisan] would have understood that [Hattori’s] zebra connector is configured . . . to couple the electronics module to the temple to constrain the electronics module.” *Id.* at 51 (citing Ex. 1002 ¶¶ 143–145).

Patent Owner provides a second translation of Hattori. *See* Ex. 2019.⁸ Patent Owner asserts that its version was produced by two translators, and Petitioner’s version was produced by a single translator. PO Resp. 26, 48. Patent Owner contests Petitioner’s arguments that Hattori discloses or teaches electrical conductors configured to restrain the electronics module. *Id.* at 48–53. Patent Owner argues that Petitioner’s reliance on Hattori’s zebra connector is flawed because the connector is formed of an elastomeric material, which would not constrain the electronics module. *Id.* at 49. Patent Owner argues that Petitioner’s version of Hattori “stretch[es] the word ‘embedded’ from its translation to imply that [Hattori’s] ZEBRA connector is physically restrained or bound to the temple.” *Id.* at 51. Patent Owner asserts that its version of Hattori is “accurately translated” and

⁸ Patent Owner’s translation has the same pagination as Petitioner’s translation. *See* note 5 above.

discloses that zebra connector 24 is merely placed within the temple but is not physically constrained to the temple. *Id.* at 51–52. Patent Owner argues that Petitioner has not shown how the conductors constrain the electronics module because “all of these components are simply placed in frame 11.” *Id.* at 52–53; *see also* PO Sur-reply 13–15 (presenting substantially similar arguments).

Petitioner replies that Hattori’s zebra connector provides mechanical stability while also maintaining excellent electrical conductivity. Pet. Reply 12 (citing Ex. 1002 ¶ 134). Petitioner argues that Patent Owner’s translation of Hattori discloses that the zebra connector is incorporated in, and, therefore, coupled to, the temple. *Id.* at 13.

Patent Owner’s translation of Hattori seems to place the paragraphs out of order and appears to be missing language. *See, e.g.*, Ex. 2019, 68. For example, on page 68, the third paragraph of the second column ends midsentence. *Id.* The following paragraph begins midsentence and does not seem to be a continuation of the previous paragraph, as the preceding paragraph discusses components illustrated in Figure 4 and the subsequent paragraph discusses components illustrated in Figure 6. *Id.* Patent Owner’s translation also includes confusing terminology, and so seems less accurate than Petitioner’s version. *See, e.g., id.* (referencing “music unit,” “Special Item 58-113913(2),” “CM08,” and “prize examples”). Thus, Petitioner’s translation appears to be more reliable than Patent Owner’s translation.

Furthermore, the first page of Petitioner’s translation contains a declaration attesting to the accuracy of the translation. Ex. 1006, 1. Patent Owner’s translation, on the other hand, includes only an unsworn statement (which is signed by a single person, not two people as asserted by Patent

Owner). Ex. 2019, 1. This further persuades us that Petitioner’s translation is more reliable than Patent Owner’s translation.

Petitioner’s translation of Hattori discloses that “output terminal group 23 is . . . connected to zebra connector 24 embedded in the temple.” Ex. 1006, 68. We agree with Petitioner’s description of Figures 4(B) and 5 illustrating the output terminal group being in the form of pins. *See* Pet. 50; Ex. 1006, Figs. 4(B), 5. Dr. Feland testifies that “[t]he zebra connector is an elastomeric material that exerts pressure on the integrated circuit’s output terminal group 23 by compressing against it, which creates a secure electrical connection and also physically couples the integrated circuit to the temple to retain it in a fixed position.” Ex. 1002 ¶ 145 (citing Ex. 1021, 6:50–53 (“Zebra connectors . . . make reliable connections by exerting pressure between contacting surfaces.”)). We are persuaded by this evidence that, with the zebra connector embedded within the frames and exerting pressure on the contacting pins of the drive device, the zebra connector constrains the electronics module.

We give less credit to Dr. Oliver’s testimony, which, in large part, relies on the language of Patent Owner’s version of Hattori and a description of the drawing figures that is divorced from Hattori’s description thereof. *See* Ex. 2016 ¶¶ 99–108.

Moreover, even considering Patent Owner’s translation of Hattori, it seems that zebra-type connector 24 being “incorporated in the temple” does not merely mean the connector is “simply placed within” the temple as asserted by Patent Owner. *See* PO Resp. 51–52. Notably, Patent Owner’s translation discloses the drive device is “incorporated into a recess 21 machined in the temple,” but does not mention a recess into which the zebra

connector is positioned. Ex. 2019, 68. Thus, Patent Owner's translation of Hattori also appears to indicate that the zebra connector is retained within the material of the frame in a similar manner that Petitioner's translation discloses.

Accordingly, for the foregoing reasons, Hattori supports Petitioner's contentions.

h. Conclusion

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 1 would have been obvious in view of Hattori.

2. Claims 2, 5, 6, 12, and 13

Claims 2, 5, 6, 12, and 13 depend, directly or indirectly, from claim 1. Ex. 1001, 32:31–33:3. Petitioner contends that Hattori teaches or suggests the recitations of these claims and supports these contentions with declaration testimony. Pet. 51–54 (citing Ex. 1002). Patent Owner does not contest Petitioner's challenges to these claims apart from its contentions regarding parent claim 1. PO Resp. 57–58.

We determine that Petitioner's contentions regarding these dependent claims are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 2, 5, 6, 12, and 13 would have been obvious in view of Hattori. *See In re NuVasive*, 841 F.3d at 974; Paper 14, 10–11.

J. Asserted Unpatentability Based on Delorenzo

Petitioner argues that claims 1, 2, 4, 9, 12, and 13 are anticipated by Delorenzo and that claims 1–4 and 9–13 would have been obvious in view of Delorenzo. Pet. 54–69. In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). We have reviewed the parties’ briefs and the evidence of record and determine that, for the reasons explained below, Petitioner has not shown, by a preponderance of the evidence, that claims 1–4 and 9–13 are anticipated by or would have been obvious in view of Delorenzo.

Claim 1 recites, in relevant part, “a first temple movably coupled to the lens housing” and “a second temple movably coupled to the lens housing.” Ex. 1001, 32:16–17. Petitioner maps Delorenzo’s “temples 15” to the recited temples. Pet. 55 (citing Ex. 1007, Figs. 1, 4).

Claim 1 also recites “an electronics module disposed at least partially within the first temple.” Ex. 1001, 32:18–19. Petitioner argues that amplifier element 17 is removably embedded within the back portion of temple 15, which can be mechanically and electrically connected and disconnected from the front portion of temple 15 (that is, temple tip 13). Pet. 56–57 (citing Ex. 1007, 1:41–51, 2:9–11, 2:44–54, Figs. 1–3, code (57)). Thus, Petitioner argues, “temple 15 is an electronics module disposed at least partially within the fully assembled temple of the eyewear (temple tip 13 plus temple 15).” *Id.* at 57; *see also* Tr. 127:19–128:10 (Petitioner’s counsel confirming that its mapping relies on the connection between Delorenzo’s temple 15 and temple tip 13 to satisfy the recitation that the electronics module be “at least partially within the first temple”).

Patent Owner argues that Petitioner does not “identify an alleged electronics module” in Delorenzo “beyond generally pointing to the temple itself and general components within.” PO Resp. 54–55.

Petitioner replies that “the Petition identifies ‘temple 15’ of Delorenzo as the claimed electronics module.” Pet. Reply 14. Petitioner also asserts that “the back portion (temple 15) satisfies the requirement in [the Electronics Module Recitation] that an electronics module is disposed at least partially within the first temple.” *Id.* at 15.

Patent Owner replies that Delorenzo’s “temple piece 15 is not disposed—even partially—*within* anything.” PO Sur-reply 16 (citing Ex. 1007, Figs. 2–3).

As noted above, Petitioner maps Delorenzo’s temple 15 to both the recited temple and the recited electronics module. Thus, Petitioner has not explained adequately how the electronics module (that is, *temple 15* per Petitioner’s mapping) is disposed at least partially within the first temple (that is, *temple 15* per Petitioner’s mapping). In other words, Petitioner’s mapping require temple 15 to be embedded within itself. It is not clear to us how this requirement is met.

To the extent Petitioner maps Delorenzo’s temple tip 13 to the recited temple and temple 15 to the recited electronics module, Petitioner has not explained adequately how temple 15 is embedded within temple tip 13. Rather, the temple tip and temple are arranged to abut when connected so as to form a continuous temple arm. *See* Ex. 1007, Figs. 1–2.

For the foregoing reasons, Petitioner has not shown, by a preponderance of the evidence, that claim 1 or its dependent claims 2–4

and 9–13 are anticipated by or would have been obvious in view of Delorenzo.

K. Asserted Obviousness in View of Kokonaski-999 and Kokonaski-579

Petitioner argues that claims 15–19 would have been obvious in view of Kokonaski-999 and Kokonaski-579. Pet. 69–81. In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). We have reviewed the parties’ briefs and the evidence of record and determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that claims 15–19 would have been obvious in view of Kokonaski-999 and Kokonaski-579.

1. Independent Claim 15

a. The Preamble

Claim 15 recites “[a] first method.” Ex. 1001, 33:9. Petitioner argues that “Kokonaski-999 discloses a method that involves providing a capacitive touch switch.” Pet. 70 (citing Ex. 1004 ¶ 47, claims 24, 28; Ex. 1002 ¶ 192–193).

Patent Owner argues that neither Kokonaski-999 nor Kokonaski-579 discloses or teaches performance of a method. PO Resp. 59–60; PO Sur-reply 18.

Petitioner replies that “the preamble is not a limitation of claim 15.” Pet. Reply 17. Petitioner argues that, even if the preamble is limiting, “by disclosing each of the claimed steps, Kokonaski-999 and Kokonaski-579 necessarily disclose performance of the preamble’s ‘first method.’” *Id.* at 18. Continuing, Petitioner asserts that “Kokonaski-999 describes methods

of manufacturing and assembling electroactive glasses” and “Kokonaski-579 discloses a ‘method,’ along with eyewear similar to Kokonaski-999’s.” *Id.* at 18–19 (citing Ex. 1004 ¶¶ 26, 80–85, claims 25–34; Ex. 1012, 9, 12–14).

As acknowledged by Petitioner, claim 15 recites “steps,” and, therefore, a method. *See* Pet. Reply 18 (acknowledging that claim 15 recites steps). We are persuaded that Kokonaski-999 discloses a method. Initially, we note that Kokonaski-999 recites several method claims. *See* Ex. 1004, claims 25–34. Additionally, Kokonaski-999’s written description discloses method steps. For example, Kokonaski-999 discloses using a capacitive switch “to activate or deactivate the associated electro-active lens or lenses, to override or initiate automatic operation of the associated electro-active lens or lenses, and to select a mode of operation or prescription correction for a user.” Ex. 1004 ¶ 47. Kokonaski-999 further discloses “locat[ing the capacitive switch] on a surface of the electronic module 202” and “capacitive sense pads can be deposited or built into the frame 102 that can be coupled to the electronic module 202.” *Id.*

Accordingly, for the foregoing reasons, to the extent the preamble is limiting, Kokonaski-999 supports Petitioner’s contentions.

b. The Capacitive Touch Switch Recitation

Claim 15 recites “providing a capacitive touch switch.” Ex. 1001, 33:10. Petitioner argues that Kokonaski-999 discloses an electronic module having a switch that can be a capacitive touch switch. Pet. 70 (citing Ex. 1004 ¶ 47, claims 24, 28; Ex. 1002 ¶ 192–193).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

As noted above, Kokonaski-999 discloses using a capacitive switch, locating the capacitive switch on a surface of electronic module 202, and depositing or building capacitive sense pads into a frame of the electronic module. Ex. 1004 ¶ 47.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner’s contentions.

c. The Electronic Components Recitation

Claim 15 recites “disposing a plurality of electronic components on the capacitive switch.” Ex. 1001, 33:11–12. Petitioner argues that Kokonaski-999 discloses that its electronic module contains at least some 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.” Pet. 71 (citing Ex. 1004 ¶ 39). Petitioner argues that Kokonaski-999 discloses controlling the functions of the electronic module, such as activating the electro-active lenses, via the capacitive switch. *Id.* (citing Ex. 1004 ¶¶ 47, 49–52). Petitioner argues that the ’174 patent discloses that operatively connecting the capacitive switch to the electronic components constitutes disposing the components on the capacitive switch. *Id.* at 70–74 (citing Ex. 1001, 23:55–57, 23:60–24:1, 24:54–56; Ex. 1004 ¶¶ 47, 94–104, Fig. 13; Ex. 1002 ¶¶ 197–198).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses that its “electronic module 202 can contain all or a portion of the electronic components that govern operation of one or more electro-active lenses including . . . a processor, memory, power source,

and/or a gyroscope/accelerometer.” Ex. 1004 ¶ 39. Kokonaski-999 discloses using a capacitive switch “to activate or deactivate the associated electro-active lens or lenses, to override or initiate automatic operation of the associated electro-active lens or lenses, and to select a mode of operation or prescription correction for a user.” *Id.* ¶ 47. We therefore agree with Petitioner’s assertion that the capacitive switch is operatively connected to the electronic components. Pet. 72 (citing Ex. 1002 ¶ 197). We further agree that this constitutes the electronic components being disposed on the capacitive switch as the term is used in the ’174 patent. *See, e.g.*, Ex. 1001, 23:60–24:1.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner’s contentions.

d. The Constrain Recitation

Claim 15 recites “coupling the capacitive touch switch to a partial enclosure to constrain the capacitive touch switch.” Ex. 1001, 33:13–14. Petitioner argues that Kokonaski-999’s electronic module is a partial enclosure because it includes a housing the contains the electronic components. Pet. 75 (citing Ex. 1004 ¶ 39; Ex. 1002 ¶¶ 202–203). Petitioner argues that Kokonaski-999’s capacitive switch is coupled to a surface of the electronic module, and both the capacitive switch and the electronic module are constrained in temple cavity 202. *Id.* (citing Ex. 1004 ¶¶ 33, 47, Fig. 2; Ex. 1002 ¶ 204).

Additionally, Petitioner argues that Kokonaski-579 teaches that the capacitive switch can include sense pads that are enclosed in, and, therefore, constrained by, the temple. *Id.* at 76–78 (citing Ex. 1012, 10–11,

Figs. 17–21; Ex. 1002 ¶¶ 201–207). Petitioner notes that Kokonaski-999 incorporates the disclosure of Kokonaski-579. *Id.* at 69 (citing Ex. 1004 ¶ 1).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

Kokonaski-999 discloses that its “housing 502 can contain the electrical components of the electronic module 202.” Ex. 1004 ¶ 39. The “capacitive switch can be located on a surface of the electronic module 202 that is exposed or accessible when positioned in the frame 102. 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.* ¶ 47.

Accordingly, for the foregoing reasons, Kokonaski-999 supports Petitioner’s contentions.

e. Conclusion

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 15 would have been obvious in view of the combination of Kokonaski-999 and Kokonaski-579.

2. Claims 16–19

Claims 16–19 depend, directly or indirectly, from claim 15. Ex. 1001, 33:15–31. Petitioner contends that Kokonaski-999 and Kokonaski-579 teach or suggest the recitations of these claims and supports these contentions with declaration testimony. Pet. 78–81 (citing Ex. 1002). Patent Owner does not contest Petitioner’s challenges to these claims apart from its contentions regarding parent claim 15. PO Resp. 57–58.

We determine that Petitioner’s contentions regarding these dependent claims are fully supported by the record. Accordingly, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claims 16–19 would have been obvious in view of Kokonaski-999 and Kokonaski-579. *See In re NuVasive*, 841 F.3d at 974; Paper 14, 10–11.

L. Asserted Obviousness in View of Howell-596, Eichelberger, and Sikonowiz

Petitioner argues that claims 15, 16, and 18 would have been obvious in view of Howell-596, Eichelberger, and Sikonowiz. Pet. 81–86.⁹ In support of its showing, Petitioner relies upon the Feland Declaration. *Id.* (citing Ex. 1002). We have reviewed the parties’ briefs and the evidence of record and determine that, for the reasons explained below, Petitioner has shown, by a preponderance of the evidence, that claims 15, 16, and 18 would have been obvious in view of Howell-596, Eichelberger, and Sikonowiz.

1. Independent Claim 15

a. The Preamble

Claim 15 recites “[a] first method.” Ex. 1001, 33:9. Petitioner argues that Eichelberger discloses a method including the steps of “providing a capacitive touch switch and disposing a plurality of electronic components on the capacitive switch.” Pet. 81–82 (citing Ex. 1010, 3:20–25, 3:43–47, 3:53–58, Figs. 1a, 1b); Ex. 1002 ¶217).

⁹ We note that Petitioner only appears to rely on Sikonowiz in challenging claim 18.

Patent Owner argues that neither Howell-596 nor Eichelberger discloses or teaches performance of a method. PO Resp. 60–61; PO Sur-reply 18.

Petitioner reiterates its argument that the preamble of claim 15 is not limiting and argues that, even if limiting, “Howell-596 discloses that its ‘invention can be implemented in numerous ways, including as a . . . method’” and “Eichelberger discloses methods, including ‘fabricat[ion of] capacitive touch sensors’” and sensors. Pet. Reply 20–21 (alterations in original) (citing Ex. 1010, 1:35–36, 3:43–47, 3:53–58; Ex. 1015 ¶¶ 9, 186–206).

As noted above, Petitioner acknowledges that claim 15 recites “steps,” and, therefore, a method. *See* Pet. Reply 18. We are persuaded that Eichelberger discloses a method. For example, Eichelberger discloses forming a sensor on a printed circuit board by forming the desired pattern and etching away the unwanted material. Ex. 1010, 3:43–50. Electrodes of a capacitive touch sensor are deposited on surfaces of the printed circuit board (“PCB”). *Id.* at 3:6–14. We further agree that Howell-596 also discloses a method. *See, e.g.*, Ex. 1015 ¶¶ 9 (“The invention can be implemented in numerous ways, including as a . . . method.”), 152 (disclosing forming the UV detector on a PCB), 187 (discussing assembly of the final product), 233 (discussing forming the radiation monitoring system).

Accordingly, for the foregoing reasons, to the extent the preamble is limiting, Eichelberger supports Petitioner’s contentions.

b. The Capacitive Touch Switch Recitation

Claim 15 recites “providing a capacitive touch switch.” Ex. 1001, 33:10. Petitioner argues that Eichelberger discloses a method including the steps of “providing a capacitive touch switch and disposing a plurality of electronic components on the capacitive switch.” Pet. 81–82 (citing Ex. 1010, 3:20–25, 3:43–47, 3:53–58, Figs. 1a, 1b); Ex. 1002 ¶ 217).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

For the reasons set forth above regarding the preamble, Eichelberger supports Petitioner’s contentions.

c. The Electronic Components Recitation

Claim 15 recites “disposing a plurality of electronic components on the capacitive switch.” Ex. 1001, 33:11–12. Petitioner argues that Eichelberger discloses a method including the steps of “providing a capacitive touch switch and disposing a plurality of electronic components on the capacitive switch.” Pet. 81–82 (citing Ex. 1010, 3:20–25, 3:43–47, 3:53–58, Figs. 1a, 1b); Ex. 1002 ¶ 217).

Patent Owner does not contest this aspect of the Petition. *See generally* PO Resp.

For the reasons set forth above regarding the preamble, Eichelberger supports Petitioner’s contentions.

d. The Constrain Recitation

Claim 15 recites “coupling the capacitive touch switch to a partial enclosure to constrain the capacitive touch switch.” Ex. 1001, 33:13–14. Petitioner argues that Howell-596 teaches a method of making an electronic

UV detection module by coupling a switch with a PCB and electrical circuitry and enclosing the module in a housing to constrain it. Pet. 82–83 (citing Ex. 1015 ¶¶ 181, 188–191, 194–196, Figs. 16D, 17A, 17B).

Petitioner argues that Howell-596 teaches, through an incorporation by reference, that the switch can be a capacitive touch switch. *Id.* at 83 (citing Ex. 1015 ¶ 88; Ex. 1019, 172). Petitioner argues that it would have been obvious “to combine Howell-596 with Eichelberger because Howell-596 discloses using a capacitive touch switch to control the UV detection system in its glasses.” *Id.* at 83 (citing Ex. 1002 ¶ 221).

Patent Owner argues that an ordinarily skilled artisan would not combine the teachings of Howell-596 and Eichelberger because Howell-596 discloses a mechanical button switch, which would have been more reliable, and less expensive and complicated, than a capacitive touch switch. PO Resp. 61–62.

Petitioner replies that there is no requirement for a proposed combination to be the preferred or most desirable option, nor is there a prohibition against combinations that are more complex or expensive. Pet. Reply 22.

Patent Owner replies by acknowledging that Petitioner’s contentions “may be true” and arguing that Petitioner must articulate clear reasoning to support its assertion that it would have been obvious to combine reference teachings. PO Sur-reply 19.

We are persuaded that Petitioner has set forth adequate reasoning to combine the teachings of Eichelberger and Howell-596. Howell-596 teaches electronic circuitry having UV radiation monitoring capability that can be used within eyewear. Ex. 1015, code (57). Howell-596 discloses that the

UV detection system can be activated by a switch, which can be a capacitive touch switch. *Id.* ¶¶ 88, 191; Ex. 1019, 172. As discussed above, Eichelberger teaches a capacitive touch switch with electronic components disposed thereon. Ex. at 3:6–14, 3:43–50. We are persuaded that using Eichelberger’s capacitive touch switch in place of Howell-596’s would have been obvious. *See* Pet. 83–84; Ex. 1002 ¶ 221.

e. Conclusion

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 15 would have been obvious in view of the combination of Howell-596 and Eichelberger.

2. Claim 16

Claim 16 depends directly from claim 15 and further recites “disposing the enclosure substantially within a temple of an eyeglass frame.” Ex. 1001, 33:15–17. Petitioner argues that Howell-596 teaches that its module housing can be contained by the eyewear. Pet. 84–85 (citing Ex. 1015 ¶ 196, Fig. 17B; Ex. 1002 ¶ 223).

Patent Owner acknowledges that Howell-596 discloses providing an electronic circuit in eyewear, but argues that Howell-596 is not analogous to the invention claimed in the ’174 patent. PO Resp. 63–65.

A reference qualifies as prior art for a determination under § 103 when it is analogous to the claimed invention. *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor’s endeavor, whether the

reference still is reasonably pertinent to the particular problem with which the inventor is involved.

In re Bigio, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (citing *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986)).

The Supreme Court’s decision in [*KSR*] directs us to construe the scope of analogous art broadly, stating that “*familiar items may have obvious uses beyond their primary purposes*, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle.” [*KSR*, 550 U.S.] at 402 (emphasis added).

Wyers v. Master Lock Co., 616 F.3d 1231, 1238 (Fed. Cir. 2010).

a. Field of Endeavor

Patent Owner argues that “Howell-596 is primarily about an ‘electronic circuit [with] radiation monitoring capability,’ not fashionable eyewear with electronic capabilities.” PO Resp. 64 (alteration in original). Patent Owner concludes that “[an ordinarily skilled artisan] therefore would have not found Howell-596 to be an analogous reference to the fashionable-electronic eyewear of the ’174 patent.” *Id.*

Petitioner replies that the ’174 patent’s field of endeavor “encompasses eyewear with electronic components and falls within the broader category of consumer electronics intended for widespread use.” Pet. Reply 23 (citing Ex. 1001, 1:19–22; Ex. 1002 ¶ 29). Petitioner argues that “Howell-596 relates to consumer electronics, including, but not limited to, ‘eyewear with an integrated detection module,’” and, thus, is in the same field of endeavor as the ’174 patent. *Id.* at 24 (citing Ex. 1002 ¶ 40); *see also* Ex. 1002 ¶ 40 (citing Ex. 1015 ¶¶ 194–196, code (57)).

Patent Owner interprets Petitioner’s argument as identifying the ’174 patent’s field of endeavor as either consumer electronics or electronic eyewear and argues that either asserted field is too broad. PO Sur-reply 20–21.

“We determine the field of endeavor ‘by reference to explanations of the invention’s subject matter in the patent application, including the embodiments, function, and structure of the claimed invention.’” *Netflix, Inc. v. DIVX, LLC*, 80 F.4th 1352, 1359 (Fed. Cir. 2023) (quoting *In re Bigio*, 381 F.3d at 1325)). The ’174 patent is in the field of electronic eyewear. *See, e.g.*, Ex. 1001, 1:39–55 (disclosing that “[s]ome embodiments provided herein may include a device or apparatus (such as eyeglass frames) having one or more conductors that may be utilized to form a part of a conductive path from the temple to the lens housing of the frame” and disposing electronic components and a capacitive touch switch in a cavity within the glasses frames). Howell-596 is also in the field of electronic eyewear. *See, e.g.*, Ex. 1015 ¶¶ 6–7 (disclosing “electronic circuit having radiation monitoring capability” that is “integrated with eyewear, such as a frame (e.g., a temple of the frame) of the eyewear” in such a manner that “the disturbance to design features of the eyewear can be reduced”).

Accordingly, we agree Petitioner that the ’174 patent and Howell-596 are in the same field of endeavor. Therefore, Howell-596 is analogous to the invention claimed in the ’174 patent. Nonetheless, we also consider the second part of the analogous art test below.

b. Reasonable Pertinence to Inventors' Problem

Patent Owner identifies one problem facing the inventors of the '174 patent was "incorporating electronics without harming aesthetics of the eyewear." PO Sur-reply 21–22. Patent Owner argues that "Howell-596 does not address th[is] problem." *Id.*

As noted above, Howell-596 addresses the problem of reducing "the disturbance to design features of the eyewear" by integrating the electronic components in the frame of the eyewear. Ex. 1015 ¶ 7.

Thus, Howell-596 is reasonably pertinent to the problem identified by Patent Owner and, therefore, is analogous to the invention claimed in the '174 patent.

c. Conclusion

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 16 would have been obvious in view of the combination of Howell-596 and Eichelberger.

3. Claim 18

Claim 18 depends directly from claim 15 and further recites "applying a conformal coating to the plurality of electronic components." Ex. 1001, 33:26–28. Petitioner argues that "Sikonowiz teaches applying a conformal coating as a well-known step of final PCB assembly . . . to cover a printed-circuit assembly and protect it from environmental hazards such as moisture, dirt, and chemicals." Pet. 85 (citing Ex. 1016, 135–37). Petitioner argues that it would have been obvious "to apply such a conformal coating" to Howell-596's PCB "to prevent moisture and contaminants from affecting the PCB's electronics." *Id.* at 85–86 (citing Ex. 1002 ¶ 226).

Patent Owner argues that “nothing in Sikonowiz suggests or provides any direct application to eyewear or electronics in eyewear and Petitioner does not explain how [an ordinarily skilled artisan] would have been motivated to apply Sikonowiz to the same.” PO Resp. 65–66.

Petitioner replies that “the Petition establishes that ‘Sikonowiz describes conformal coating as a well-known step in the assembly of PCBs.’” Pet. Reply 26 (citing Pet. 85–86).

Patent Owner replies that Petitioner has not established a reasonable expectation of success because “application of [Sikonowiz] would frustrate Howell-596’s entire purpose—i.e., detecting UV radiation via its exposed sensor.” PO Sur-reply 23 (citing Ex. 1015 ¶¶ 3–5, 75). Patent Owner argues that Petitioner does not explain adequately how Sikonowiz’s conformal coating would be applied to Howell-596’s device “without sacrificing all of [its] functionality as a radiation monitoring device.” *Id.* at 24.

Sikonowiz teaches the use of a conformal coating on printed circuit boards, with “[t]he purpose of a conformal coating [being] to cover a printed-circuit assembly and protect it from environmental hazards such as moisture, dirt, and chemicals. . . . Ideally, a conformal coating covers not only the circuit board but the components mounted on it as well.” Ex. 1016, 135–36. Petitioner’s contentions that it would have been obvious to use such a conformal coating with the Howell-596-Eichelberger device are supported by the testimony of Dr. Feland. *See* Ex. 1002 ¶ 226. An ordinarily skilled artisan, being “[a] person . . . of ordinary creativity, not an automaton” (*KSR*, 550 U.S. at 421), would know not to cover those components that must remain uncovered, such as Howell-596’s UV monitor.

For the foregoing reasons, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that claim 18 would have been obvious in view of the combination of Howell-596, Eichelberger, and Sikonowiz.

III. CONCLUSION¹⁰

Based on the evidence presented with the Petition, the evidence introduced during the trial, and the parties' respective arguments, Petitioner has shown, by a preponderance of the evidence, that claims 1–9 and 12–19 of the '174 patent are unpatentable. However, Petitioner has failed to show, by a preponderance of the evidence, that claims 10 and 11 of the '174 patent are unpatentable. In summary,

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 4, 9, 12	102(b)	Brunton	1, 2, 4, 9, 12	
1–4, 9, 12	103(a)	Brunton	1–4, 9, 12	
7, 8, 13	103(a)	Brunton, Carling	7, 8, 13	
1, 2, 4–6, 9, 12, 14	103(a)	Kokonaski-999, Brunton	1, 2, 4–6, 9, 12, 14	

¹⁰ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. §§ 42.8(a)(3), (b)(2).

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 5, 6, 12, 13	103(a)	Hattori	1, 2, 5, 6, 12, 13	
1, 2, 4, 9, 12, 13	102(b)	Delorenzo		1, 2, 4, 9, 12, 13
1–4, 9–13	103(a)	Delorenzo		1–4, 9–13
15–19	103(a)	Kokonaski-999, Kokonaski-579	15–19	
15, 16, 18	103(a)	Howell-596, Eichelberger, Sikonowiz	15, 16, 18	
Overall Outcome			1–9, 12–19	10, 11

IV. ORDER

Accordingly, it is

ORDERED that claims 1–9 and 12–19 of the '174 patent have been shown to be unpatentable;

FURTHER ORDERED that claims 10 and 11 of the '174 patent have not been shown to be unpatentable; and

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

IPR2024-01070
Patent 8,801,174 B2

For PETITIONER:

Ali S. Razai
Benjamin B. Anger
Alexander B. Stein
Jacob L. Peterson
MORGAN, LEWIS & BOCKIUS LLP
ali.razai@morganlewis.com
ben.anger@morganlewis.com
alexander.stein@morganlewis.com
jacob.peterson@morganlewis.com
MLB-Luxottica-IPR-174@morganlewis.com.

For PATENT OWNER:

Brian Eutermoser
Mikaela Stone
Christopher C. Campbell
KING & SPALDING LLP
beutermoser@kslaw.com
mikaela.stone@kslaw.com
ccampbell@kslaw.com