

Patent Owner e-Vision Optics, LLC

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IPR2024-01069

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King & Spalding LLP

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e-Vision Optics, LLC EX-2008

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

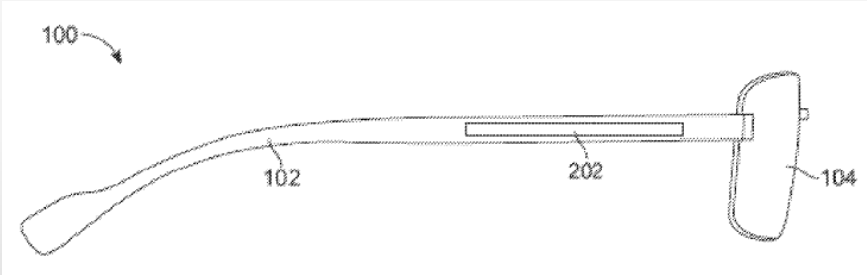
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Independent Claim 14 (Grounds 4-7)

Independent claim 14

Claim 14	Limitation
[14P]	Eyewear comprising:
[14A]	an eyewear frame comprising a temple;
[14B]	a plurality of electronic components disposed within a cavity formed in the temple, the plurality of electronic components comprising (i) at least one of a processor or a controller, (ii) a memory, (iii) a power source, (iv) an antenna, (v) at least one of a transmitter or a receiver, and (vi) at least one of an accelerometer or a gyroscope;
[14C]	a conformal coating, deposited over at least a portion of the plurality of electronic components, to protect the plurality of electronic components; and
[14D]	a capacitive touch switch operably coupled to an electronic component in the plurality of electronic components.



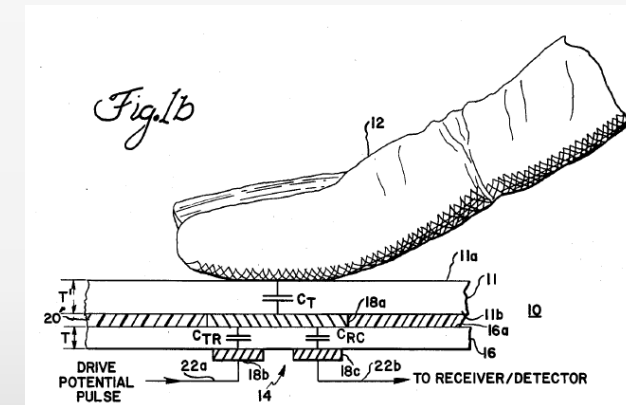
Claim 14 is patentable

- **Grounds 4 and 5 (Howell-719, Sikonowiz, and Howell-158 or Blum-130)**
 - Petitioner's combination does not include the "capacitive touch switch"
- **Ground 6 (Blum-130, Howell-719, and Sikonowiz)**
 - *Lack of motivation to combine*
- **Ground 7 (Blum-130, Eichelberger, and Sikonowiz)**
 - Sikonowiz / Eichelberger are non-analogous art



Fig. 9-3. Computer-controlled automatic insertion machine. (Courtesy Computervision Corp., Bedford, Mass.)

EX-1005 (Sikonowiz), FIG. 9-3



EX-1010 (Eichelberger), FIG. 1b

Petitioner's combination does not include the "capacitive touch switch"

14. Eyewear comprising:
an eyewear frame comprising a temple;
a plurality of electronic components disposed within a cavity formed in the temple, the plurality of electronic components comprising (i) at least one of a processor or a controller, (ii) a memory, (iii) a power source, (iv) an antenna, (v) at least one of a transmitter or a receiver, and (vi) at least one of an accelerometer or a gyroscope;
a conformal coating, deposited over at least a portion of the plurality of electronic components, to protect the plurality of electronic components; and
a capacitive touch switch operably coupled to an electronic component in the plurality of electronic components.

EX-1001 ('355 patent), Cl. 14

Petitioner's combination does not include the "capacitive touch switch"

Id. at 47 (citing Ex. 1002 ¶ 130). Thus, it appears that Petitioner's modification is to *replace* Howell-719's "physical switch" with Blum's "accelerometer/gyroscope-based motion detector."

Ex. 1001, 30:26–28. Petitioner argues that "Howell-719 discloses a capacitive touch switch operably coupled to the speaker to control the speaker." Pet. 48. However, as noted above, Petitioner appears to modify Howell-719's glasses to replace its switch with an accelerometer/gyroscope-based motion detector. If so, the glasses as modified by Petitioner do not include Howell-719's switch, and it is not clear, based on the current record, how the requirement for a capacitive touch switch is satisfied in this combination of references.

Paper 11 (Institution Decision), 29-30

Petitioner's combination does not include the "capacitive touch switch"

[0081] The switch can be activated by magnetic forces 156. For example, there can be a magnetic sensor or a Hall effect detector inside a temple proximate to a joint of a pair of glasses. FIG. 6 shows a section of a pair of glasses 250 with such a detector 254. The detector 254 is electrically connected to a printed circuit board 255. When the temple

EX-1004 (Howell-719), ¶81

[0082] The switch can be activated depending on electrical forces 158. In one embodiment, the electrical force depends on capacitive effect. By 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. In another example, by changing the amount of overlap between two metallic sheets that are not in contact, the capacitance between the two metallic sheets will change. This then changes the range of control of the switch.

EX-1004 (Howell-719), ¶82

Petitioner's combination does not include the "capacitive touch switch"

embedded in the glasses. For example, the switch can be used to turn the speaker on, or to tune the frequency of a radio. If the glasses have two speakers, such as one on each of the temples, there can be two switches, one on each temple to control the corresponding speaker. The two speakers can be for generating stereo audio signals for the user. There can also be one control switch for both speakers.

EX-1004 (Howell-719), ¶74

[0093] In one embodiment, the user can be using a switch when the glasses are worn. Depending on the position and the type of switch, the user may not be able to see the switch when he is manipulating it. In one embodiment, the design of the switch takes into consideration perception. To illustrate, there are two mechanical switches on the glasses. The top surfaces of the two switches have different texture. One switch has a smooth surface and the other has a rough surface. Pushing the rough surface implies incrementing one step and pushing the smooth surface implies decrementing one step. This type of perception design is based on tactile effect. In another example, the heights of the two switches are different. The taller switch is for one effect and the shorter is for another. In yet another embodiment, the lateral

EX-1004 (Howell-719), ¶93

Ground 6 (Blum-130, Howell-719, and Sikonowiz)

Lack of motivation to combine

- Petitioner's rationale uses an *identical paragraph* from Dr. Feland

A POSITA would have been motivated to use such a capacitive touch switch with Blum-130's glasses. Ex. 1002 ¶148. A person needing Blum-130's electro-active lenses would be expected to require frequent switching operations to change the lenses' focal distance as the person looked at objects at different distances. *Id.* Manual switches relying on mechanical movement to close a circuit are susceptible to wear, fatigue, and loosening, which, over the course of repeated switching operations, can lead to eventual failure. *Id.* Capacitive touch switches do not rely on mechanical movement, eliminating this source of failure. *Id.* Moreover, using a capacitive touch switch permits the glasses to have a switch without a protruding button that would disrupt the typical smooth, slim profile of glasses. *Id.* It also avoids Blum-130's inconvenient alternative of needing to carry a second device that remotely controls the lenses. *Id.* (citing Ex. 1006 29:49–51). A capacitive touch switch would therefore have been an ideal choice for a switch in eyewear in the early 2000s, when glasses were often marketed as fashion accessories. *Id.*

Paper (Petition), 54 (excerpted)

148. A POSITA would have been motivated to use such a capacitive touch switch with Blum-130's glasses. A person needing Blum-130's electro-active lenses would be expected to require frequent switching operations to change the lenses' focal distance as the person looked at objects at different distances. Manual switches relying on mechanical movement to close a circuit are susceptible to wear, fatigue, and loosening, which, over the course of repeated switching operations, can lead to eventual failure. Capacitive touch switches do not rely on mechanical movement, eliminating this source of failure. Additionally, using a capacitive touch switch permits the glasses to have a switch without a protruding button that would disrupt the typical smooth, slim profile of glasses. It also avoids Blum-130's inconvenient alternative of needing to carry a second device that remotely controls the lenses. See

EX-1002 (Feland Declaration), ¶148 (excerpted)

Lack of motivation to combine

The switch could be microprocessor controlled, or manually user controlled. In fact, there could be several additional positions included. In another embodiment, the switch is analog not digital, and provides continuous variance of the focal length of the lens by adjusting a knob or lever much like a volume control on a radio.

EX-1006 (Blum-130), 28:55-58

In order to provide a variable focal length to the user, the electro-active lenses are switchable. At least two switch positions are provided, however, more are provided if needed. In the simplest embodiment, the electro-active lenses are either on or off. In the off position, no current flows through the wires, no voltage is applied to the grid assemblies, and only the fixed lens power is utilized. This

EX-1006 (Blum-130), 28:38-43

Ground 7 (Blum-130, Eichelberger, and Sikonowiz)

Eichelberger is not from the same field of endeavor as the '355 patent

(57)

ABSTRACT

Eyewear including an optical functional member, control electronics, and a sealed electrical connective element connecting the electronics to the optical functional member. The connective element can directly connect the electronics to the optical functional member, or can connect through an intermediate contact, e.g., a plug-and-receptacle. The connective element can be routed from the electronics, around a rimlock of the eyewear to the optical functional member. The connective element can be a conductive compressible member, such as conductive rubber. In some embodiments, the connective element can be a multiconductor cable.

EX-1001 ('355 patent), Abstract

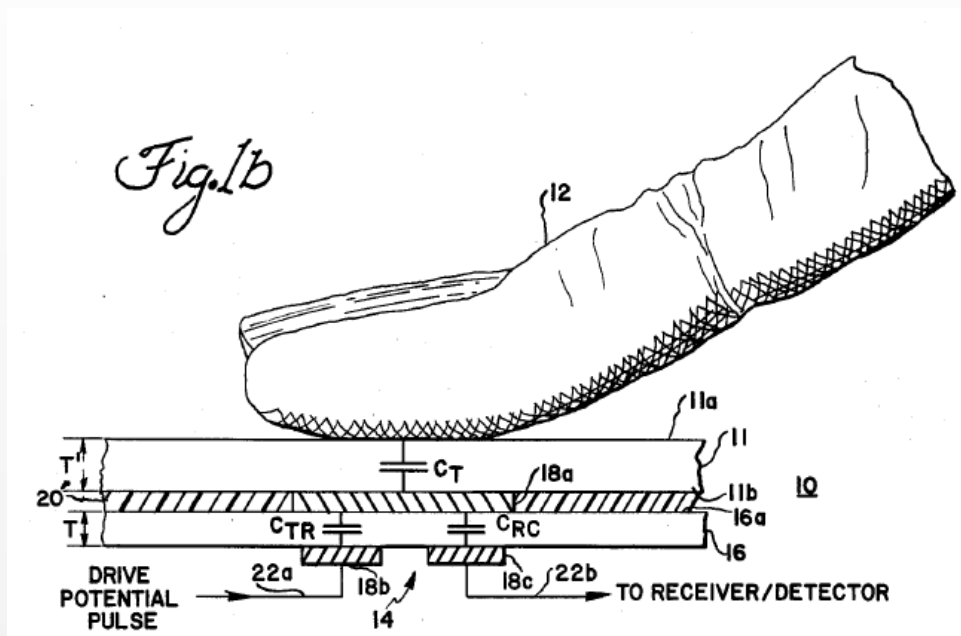
BACKGROUND

The present subject matter relates to various types of eyewear including electronic functional members, including, for example, electronic focusing eyeglasses, electro-active eyeglasses, electronic eyewear providing 3D capabilities, etc.

EX-1001 ('355 patent), Background

Ground 7 (Blum-130, Eichelberger, and Sikonowiz)

Eichelberger is not from the same field of endeavor as the '355 patent



EX-1010 (Eichelberger), FIG. 1b

[57]

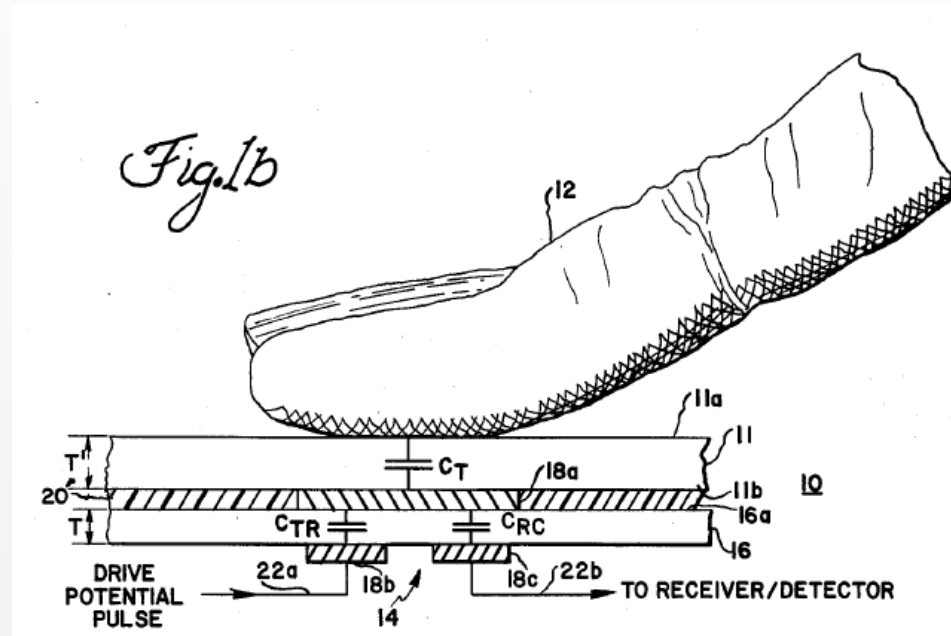
ABSTRACT

A capacitive touch entry structure utilizes an array of at least one capacitive touch sensor fabricated upon a double-sided printed circuit board adhesively mounted upon a surface of a transparent insulative substrate. The substrate has sufficient thickness to safely insulate user personnel, contacting the substrate surface furthest from an electrode of the capacitive touch sensor, from electrical potentials present adjacent to the panel surface upon which the capacitive touch sensor is fastened. Touch sensor circuitry and interconnections may be advantageously fabricated directly upon the pair of conductive planes, sandwiching an insulative layer therebetween, to form the printed circuit portion of the structure. A conductive guard may also be disposed adjacent to the substrate to shield at least the lead portions of the touch sensors from capacitive effects.

EX-1010 (Eichelberger), Abstract

Ground 7 (Blum-130, Eichelberger, and Sikonowiz)

Eichelberger is not reasonably pertinent to the problem solved by the inventor of the '355 patent



EX-1010 (Eichelberger), FIG. 1b

Independent Claim 1 (Grounds 1 and 9)

Independent claim 1

Claim 1	Limitation
[1P]	An eyewear system comprising:
[1A]	an eyewear frame;
[1B]	an electronics assembly comprising electronic components configured to control an electrical functional member;
[1C]	a capacitive touch switch coupled to at least one electronic component in the electronics assembly;
[1D]	at least one electrical connective element electrically connected to the electronic assembly and the electrical functional member; and
[1E]	a conformal layer over the electronic assembly to seal the electronic components;
[1F]	wherein the conformal layer is moisture proof and seals electrical connections of the electronic component;
[1G]	wherein the conformal layer is disposed in an enclosure of the eyewear frame;
[1H]	wherein the eyewear frame comprises a temple; and
[1I]	wherein the electronic assembly is enclosed in the temple.

Claim 1 is patentable

- **Ground 1 (Howell-719 and Sikonowiz)**
 - Sikonowiz non-analogous art
 - Inoperable coating of Howell-719's speaker
 - Inoperable coating of Howel-719's capacitive effect switch
- **Ground 6 (Blum-130, Howell-719, and Sikonowiz)**
 - Sikonowiz non-analogous art
 - Inoperable coating of Blum-130's controller



Fig. 9-3. Computer-controlled automatic insertion machine. (Courtesy Computevision Corp., Bedford, Mass.)

EX-1005 (Sikonowiz), FIG. 9-3

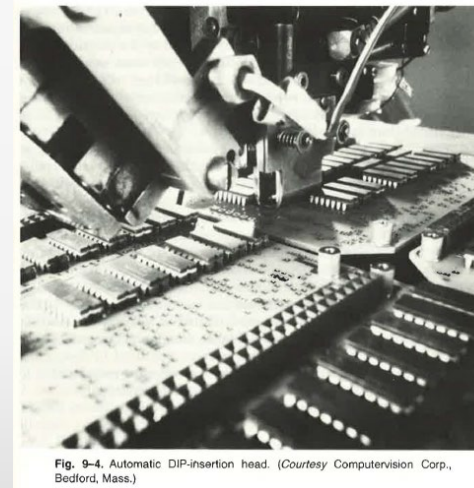


Fig. 9-4. Automatic DIP-insertion head. (Courtesy Computevision Corp., Bedford, Mass.)

EX-1005 (Sikonowiz), FIG. 9-4

Ground 1 (Howell-719 and Sikonowiz)

Sikonowiz is not from the same field of endeavor as the '355 patent

(57)

ABSTRACT

Eyewear including an optical functional member, control electronics, and a sealed electrical connective element connecting the electronics to the optical functional member. The connective element can directly connect the electronics to the optical functional member, or can connect through an intermediate contact, e.g., a plug-and-receptacle. The connective element can be routed from the electronics, around a rimlock of the eyewear to the optical functional member. The connective element can be a conductive compressible member, such as conductive rubber. In some embodiments, the connective element can be a multiconductor cable.

EX-1001 ('355 patent), Abstract

BACKGROUND

The present subject matter relates to various types of eyewear including electronic functional members, including, for example, electronic focusing eyeglasses, electro-active eyeglasses, electronic eyewear providing 3D capabilities, etc.

EX-1001 ('355 patent), Abstract

Ground 1 (Howell-719 and Sikonowiz)

Sikonowiz is not from the same field of endeavor as the '355 patent

C. [1981] Sikonowiz

39. The reference DESIGNING AND CREATING PRINTED CIRCUITS published in 1981. I will refer to this reference as “**Sikonowiz**,” and I understand it is Exhibit 1005. Sikonowiz focuses on designing and manufacturing PCBs.¹ Chapter 9 covers EX-1002 (Declaration), ¶39



Fig. 9-3. Computer-controlled automatic insertion machine. (Courtesy Computervision Corp., Bedford, Mass.)

EX-1005 (Sikonowiz), FIG. 9-3

Ground 1 (Howell-719 and Sikonowiz)

Sikonowiz is not reasonably pertinent to the problem solved by the inventor of the '355 patent

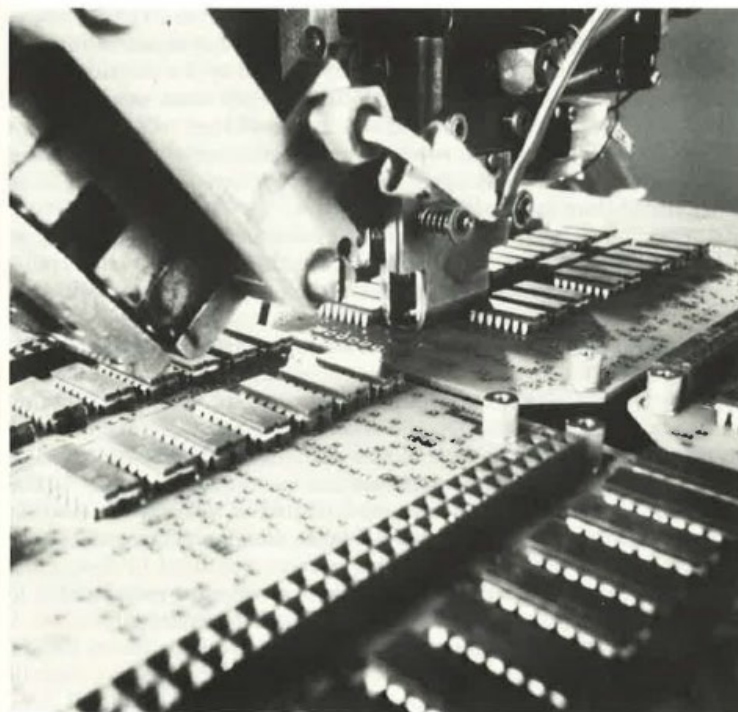


Fig. 9-4. Automatic DIP-insertion head. (Courtesy Computervision Corp., Bedford, Mass.)

EX-1005 (Sikonowiz), FIG. 9-4

Inoperable coating of Howell-719's speaker

It would have been obvious to a POSITA to coat Howell-719's PCB and mounted electronics with a conformal coating, as described in Sikonowiz. A POSITA would have been so motivated to prevent moisture and contaminants from damaging the PCB and its related electronics. *Id.* ¶74. Indeed, compared to PCBs in Paper 1 (Petition), 24 (excerpted)

[0050] In one embodiment, the pair of glasses **10** shown in **FIG. 1** includes a radio, and the speaker is a part of the radio. All the electronics for the radio are at least partially embedded in the glasses. For example, the electronics can be on a printed circuit board, and the board is in one of the temples of the glasses. Information is provided to the user through the radio. The radio can be an AM or a FM receiver. In one embodiment, the receiver is pretuned to the frequencies of the transmitter of the information. Or, before the glasses are distributed, the radio is set to receive signals from a specific frequency band. Also the radio may not include an external tuner or switch on the glasses for the user to tune the radio to listen to another frequency band. In another embodiment, the receiver is tunable by a switch on the glasses to one or more frequencies.

EX-1004 (Howell-719), ¶50

Ground 1 (Howell-719 and Sikonowiz)

Inoperable coating of Howel-719's capacitor

It would have been obvious to a POSITA to coat Howell-719's PCB and mounted electronics with a conformal coating, as described in Sikonowiz. A POSITA would have been so motivated to prevent moisture and contaminants from damaging the PCB and its related electronics. *Id.* ¶ 74. Indeed, compared to PCBs in

Paper 1 (Petition), 24

106. In my opinion, applying a conformal layer to a capacitive touch switch would deprecate the performance of the switch given that it is based on a capacitance change when touched. For example, a POSITA would recognize that “high dielectric constant can produce stray unwanted capacitance effects between surface tracks that run close and parallel to one another – this can alter the tuned characteristics of the circuit” (EX-2007 at 5.)

EX-2004 (Oliver Declaration), ¶ 106

Sikonowiz teaches "solder masking" not conformal coating masking

Solder Masks

As circuit dimensions become smaller and smaller, it becomes increasingly more difficult to avoid the problem of solder bridging between conductors of a printed circuit. If a set of closely spaced, parallel conductors goes through the wave in such a way that the conductors all run parallel to the wavefront, bridging is almost certain to occur, regardless of the type of soldering system used. Solder masking can be of benefit here, since the mask shields all areas of the circuit's underside except for the pads. Consequently, solder never touches

EX-1005 (Sikonowiz), 18 (excerpted)

Ground 6 (Blum-130, Howell-719, and Sikonowiz)

Inoperable coating of Blum-130's controller

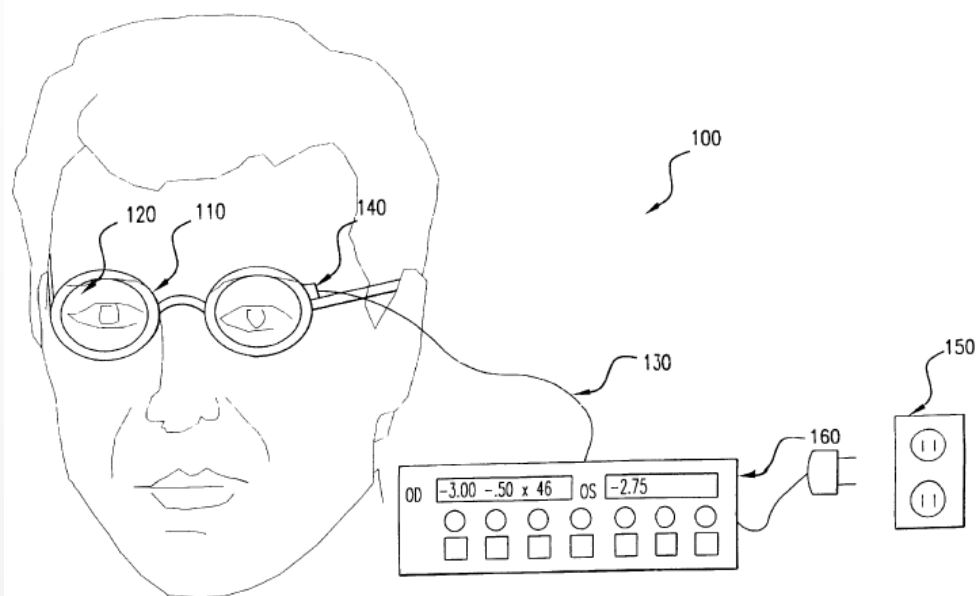


FIG.1

EX-1006 (Blum-130), FIG. 1

In another inventive embodiment, the electro-active eyewear controller may be originally programmed by the eye-care specialist or technician when first dispensed, and later the same controller, or a component thereof, can be reprogrammed to provide a different correction, as the patient's needs change. This electro-active eyewear controller may be extracted from the eyewear, placed in the refractor's controller/programmer (shown in FIGS. 1 and 2) and reprogrammed during the examination, or reprogrammed, in situ, by the refractor without removal from the electro-active eyewear. The electro-active eyewear controller in this case

EX-1006 (Blum-130), 6:53-58

Ground 6 (Blum-130, Howell-719, and Sikonowiz)

Inoperable coating of Blum-130's controller

easier to work with and feature a longer potlife, which results in less waste. Like the epoxies, polyurethane resins offer excellent resistance to chemicals and humidity. When circuits must be repaired, polyurethane conformal coatings may be stripped chemically or burned away with a soldering iron.

EX-1005 (Sikonowiz), 22 (excerpted)

In one inventive embodiment, controller 540 is pre-programmed by the eyecare specialist or technician to meet the patient's convergence and accommodative needs. In this embodiment, this pre-programming is done on controller 540 while controller 540 is outside the patient's eyewear, and controller 540 is then inserted into the eyewear after the examination. In one inventive embodiment, controller 540 is a "read-only" type, supplying the voltage to grid elements to obtain the necessary array of refractive indices to correct the vision for a specific distance. As the patient's prescription changes, a new controller 540 must be programmed and inserted into the eyewear by the specialist. This controller would be of a class of ASIC's, or application specific integrated circuits, and its memory and processing commands permanently imprinted.

EX-1006 (Blum-130), 6:33-47

Independent Claim 13 (Grounds 1, 3, and 6-7)

Independent claim 13

Claim 13	Limitation
[13P]	A method of manufacturing an eyewear system comprising:
[13A]	disposing a plurality of electronic components on a capacitive touch switch;
[13B]	connecting the plurality of electronic components via electrical connections to form an electronic assembly;
[13C]	depositing a conformal layer over at least a portion of the electronic assembly and at least a portion of the capacitive touch switch; and
[13D]	coupling the electronic assembly and the capacitive touch switch with the conformal layer to an enclosure of an eyewear frame.

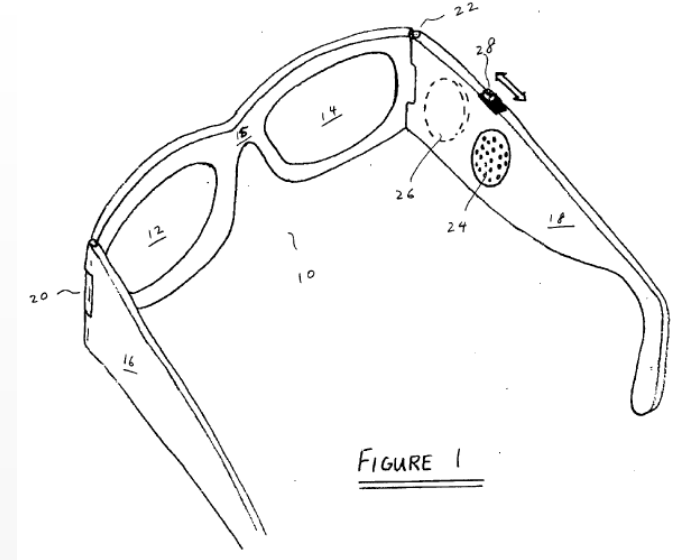
Claim 13 is patentable

- **Grounds 1 and 3 (Howell-719, Sikonowiz, and Eichelberger)**

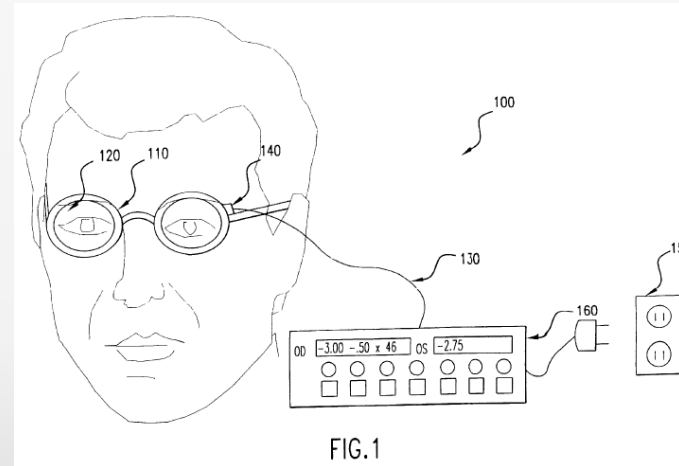
- Howell-719 does not disclose a method of manufacture

- **Grounds 6 and 7 (Blum-130, Sikonowiz and Howell-719 or Eichelberger)**

- Blum-130 does not disclose a method of manufacture



EX-1004 (Howell-719), FIG. 1



EX-1006 (Blum-130), FIG. 1

Howell-719 does not disclose a method of manufacture

[0018] The invention can be implemented in numerous ways including, a **method**, system, device, apparatus, and a computer readable medium. Several embodiments of the invention are discussed below.

EX-1004 (Howell-719), ¶ 18

[0111] Numerous specific details are set forth in order to provide a thorough understanding of the present invention. However, it will become obvious to those skilled in the art that the invention may be practiced without these specific details. The description and representation herein are the common meanings used by those experienced or skilled in the art to most effectively convey the substance of their work to others skilled in the art. In other instances, well-known **methods**, procedures, components, and circuitry have not been described in detail to avoid unnecessarily obscuring aspects of the present invention.

EX-1004 (Howell-719), ¶ 111

Blum-130 does not disclose a method of manufacture

FIG. 4 is a flow diagram of an embodiment of dispensing method 400;

FIG. 5 is a perspective view of an embodiment of electro-active eyewear 500;

FIG. 6 is a flow diagram of an embodiment of prescription method 600;

EX-1006 (Blum-130), 1:51-57

FIG. 27 is a flow diagram of an embodiment of dispensing method 2700; and

EX-1006 (Blum-130), 1:40-41