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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	IPVCP006X1C10D1
First Named Inventor	HOWELL et al.
Title	HEADSET WITH CONNECTION REGION
Priority Mail Express® Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [✓] **Fee Transmittal Form** (PTO/SB/17 or equivalent)
2. [ ] **Applicant asserts small entity status.** See 37 CFR 1.27
3. [ ] **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. [✓] **Specification** [*Total Pages* 78] Both the claims and abstract must start on a new page. *(See MPEP § 608.01(a) for information on the preferred arrangement)*
5. [✓] **Drawing(s)** (35 U.S.C. 113) [*Total Sheets* 42]
6. **Inventor's Oath or Declaration** [*Total Pages* 4] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. [ ] Newly executed (original or copy)
   b. [✓] A copy from a prior application (37 CFR 1.63(d))
7. [✓] **Application Data Sheet** ** See note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
8. **CD-ROM or CD-R** in duplicate, large table, or Computer Program (*Appendix*)
   [ ] Landscape Table on CD
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ACCOMPANYING APPLICATION PAPERS

10. [ ] **Assignment Papers** (cover sheet & document(s)) Name of Assignee _____
11. [✓] **37 CFR 3.73(c) Statement** (*when there is an assignee*) [✓] **Power of Attorney**
12. [ ] **English Translation Document** (*if applicable*)
13. [✓] **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    [ ] Copies of citations attached
14. [ ] **Preliminary Amendment**
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16. [ ] **Certified Copy of Priority Document(s)** (*if foreign priority is claimed*)
17. [ ] **Nonpublication Request** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
18. [ ] **Other:** _____

*__Note__: (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

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Bose Exhibit 1002
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HEADSET WITH CONNECTION REGION

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a divisional of U.S. Patent Application No. 18/129,660, filed March 31, 2023, and entitled "EYEWEAR WITH CONNECTION REGION," which is hereby incorporated herein by reference, which is a continuation of U.S. Patent Application No. 16/424,018, filed May 28, 2019, now U.S. Patent No. 11,630,331, and entitled "EYEWEAR WITH TOUCH-SENSITIVE INPUT SURFACE," which is hereby incorporated herein by reference, which is a continuation of U.S. Patent Application No. 13/831,419, filed March 14, 2013, now U.S. Patent No. 10,345,625, and entitled "EYEWEAR WITH TOUCH-SENSITIVE INPUT SURFACE," which is hereby incorporated herein by reference, which is a continuation of U.S. Patent Application No. 13/291,020, filed November 7, 2011, now U.S. Patent No. 8,430,507, and entitled "EYEWEAR WITH TOUCH-SENSITIVE INPUT SURFACE" which is hereby incorporated herein by reference, which is a continuation of U.S. Patent Application No. 12/803,732, filed July 1, 2010, now U.S. Patent No. 8,434,863, and entitled "EYEGLASSES WITH A PRINTED CIRCUIT BOARD" which is hereby incorporated herein by reference, which is a continuation of U.S. Patent Application No. 11/546,685, filed October 11, 2006, now U.S. Patent No. 7,806,525, and entitled "EYEGLASSES HAVING A CAMERA" which is hereby incorporated herein by reference, which is a continuation-in-part of U.S. Patent Application No. 11/183,256, filed July 15, 2005, now U.S. Patent No. 7,500,747, and entitled "EYEGLASSES WITH ELECTRICAL COMPONENTS," which is hereby incorporated herein by reference, which claims priority to each of: (i) U.S. Provisional Patent Application No. 60/592,045, filed July 28, 2004, entitled "EYEGLASSES WITH A CLOCK OR OTHER ELECTRICAL COMPONENT," and which is hereby incorporated herein by reference; and (ii) U.S. Provisional Patent Application No. 60/605,191, filed August 28, 2004, entitled "ELECTRICAL COMPONENTS FOR USE WITH EYEWEAR, AND METHODS THEREFOR," and which is hereby incorporated herein by reference.

[0002] U.S. Patent Application No. 11/183,256 also claims priority to each of: (i) U.S. Provisional Patent Application No. 60/618,107, filed October 12, 2004, and entitled "TETHERED ELECTRICAL COMPONENTS FOR EYEGLASSES," which is hereby incorporated herein by reference; (ii) U.S. Provisional Patent Application No. 60/620,238, filed October 18, 2004, entitled "EYEGLASSES WITH HEARING ENHANCED AND OTHER AUDIO SIGNAL-GENERATING CAPABILITIES," and which is hereby incorporated herein by reference; (iii) U.S. Provisional Patent Application No. 60/647,836, filed January 31, 2005, and entitled "EYEGLASSES WITH HEART RATE MONITOR," which is hereby incorporated herein by reference; and (iv) U.S. Provisional Patent Application No. 60/647,826, filed January 31, 2005, and entitled "EYEWEAR WITH ELECTRICAL COMPONENTS," which is hereby incorporated herein by reference.

[0003] U. S. Patent Application 11/546,685 also claims priority to each of: (i) U.S. Provisional Patent Application No. 60/725,896, filed October 11, 2005, and entitled "EYEGLASSES WITH ELECTRICAL COMPONENTS," which is hereby incorporated herein by reference; (ii) U.S. Provisional Patent Application No. 60/725,999, filed October 11, 2005, and entitled "EYEWEAR SUPPORTING AFTER-MARKET ELECTRICAL COMPONENTS," which is hereby incorporated herein by reference; (iii) U.S. Provisional Patent Application No. 60/787,850, filed April 1, 2006, and entitled "EYEGLASSES WITH A HEART RATE MONITOR," which is hereby incorporated herein by reference; and (iv) U.S. Provisional Patent Application No. 60/846,150, filed September 20, 2006, and entitled "EYEGLASSES WITH ACTIVITY MONITORING," which is hereby incorporated herein by reference.

[0004] This application is related to U.S. Patent Application No. 10/964,011, filed October 12, 2004, now U.S. Patent No. 7,192,136, and entitled "TETHERED ELECTRICAL COMPONENTS FOR EYEGLASSES," which is hereby incorporated herein by reference, which references to each of: (i) U.S. Provisional Patent Application No. 60/509,631, filed October 9, 2003, and entitled "TETHERED ELECTRICAL COMPONENTS FOR EYEGLASSES," which is hereby incorporated herein by reference; (ii) U.S. Provisional Patent Application

No. 60/527,565, filed December 8, 2003, and entitled "ADAPTABLE COMMUNICATION TECHNIQUES FOR ELECTRONIC DEVICES," which is hereby incorporated herein by reference; (iii) U.S. Provisional Patent Application No. 60/562,798, filed April 15, 2004, entitled "EYEWEAR WITH ULTRAVIOLET DETECTION SYSTEM," and which is hereby incorporated herein by reference; (iv) U.S. Provisional Patent Application No. 60/583,169, filed June 26, 2004, entitled "ELECTRICAL COMPONENTS FOR USE WITH EYEWEAR, AND METHODS THEREFOR," and which is hereby incorporated herein by reference.

[0005] In addition, this application is related to each of: (i) U.S. Patent Application 10/822,218, filed April 12, 2004, and entitled "EYEGLASSES FOR WIRELESS COMMUNICATIONS," which is hereby incorporated herein by reference; (ii) U.S. Patent Application No. 10/964,011, filed October 12, 2004 now U.S. Patent No. 7,192,136, and entitled "TETHERED ELECTRICAL COMPONENTS FOR EYEGLASSES," which is hereby incorporated herein by reference; (iii) U.S. Patent Application No. 11/006,343, filed December 7, 2004 now U.S. Patent No. 7,116,976, and entitled "ADAPTABLE COMMUNICATION TECHNIQUES FOR ELECTRONIC DEVICES," which is hereby incorporated herein by reference; (iv) U.S. Patent Application No. 11/078,855, filed March 11, 2005 now U. S. Patent No. 7,500,746, and entitled "EYEWEAR WITH RADIATION DETECTION SYSTEM," which is hereby incorporated herein by reference; (v) U.S. Patent Application No. 11/078,857, filed March 11, 2005, and entitled "RADIATION MONITORING SYSTEM," which is hereby incorporated herein by reference; (vi) U.S. Patent Application No. 11/183,269, filed July 15, 2005 now U.S. Patent No. 7,380,936, and entitled "EYEWEAR SUPPORTING AFTER-MARKET ELECTRICAL COMPONENTS," which is hereby incorporated herein by reference; (vii) U.S. Patent Application No. 11/183,283, filed July 15, 2005, and entitled "EVENT EYEGLASSES," which is hereby incorporated herein by reference; (viii) U.S. Patent Application No. 11/183,262, filed July 15, 2005, and entitled "EYEGLASSES WITH HEARING ENHANCED AND OTHER AUDIO SIGNAL-GENERATING CAPABILITIES," which is hereby incorporated herein by reference; (ix) U.S. Patent Application No. 11/183,263, filed July 15, 2005 now U.S. Patent

No. 7,380,936, and entitled "EYEGLASSES WITH A CLOCK OR OTHER ELECTRICAL COMPONENT," which is hereby incorporated herein by reference; (x) U.S. Patent Application No. 11/183,276, filed July 15, 2005 now U.S. Patent No. 7,255,437, and entitled "EYEGLASSES WITH ACTIVITY MONITORING," which is hereby incorporated herein by reference; and (xi) U.S. Patent Application No. 11,580,222, filed October 11, 2006 now U.S. Patent No. 7,581,833, and entitled "EYEGLASSES SUPPORTING AFTER MARKET ELECTRICAL COMPONENTS", which is hereby incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0006] Many of us have experienced the inconvenience of trying to listen to a piece of music from a portable device in an outdoor environment, particularly in cold weather. First, we remove the device from inside our jacket. Then, we take off our gloves to find the right song, connect the device to a headset, and put on the headset. After we have finished listening, we go through the process again to put the device back into our jacket. To a certain degree, we are somewhat used to such procedures. However, to look at this objectively, going through the multi-step process just to listen to a piece of music is cumbersome. Such inconvenient procedures are not limited to hearing music. For example, it may not be much easier for us to use the cell phones or cameras and the like.

[0007] It should be apparent from the foregoing that there is still a need to increase the ease of handling electronic devices.

SUMMARY OF THE INVENTION

[0008] The present invention provides a pair of glasses with one or more embedded or partially embedded electrical components. In a number of the embodiments of the invention, with one or more electrical components in the glasses, the electrical components are much easier to operate. For example, you do not have to take an electronic device out from your pocket to use it. The electronic device may already be in your glasses, and you just have to turn it on.

[0009] In one embodiment, an eyewear for a user includes an eyewear frame; a first switch at the frame, the first switch having at least two operational states, and the operational states of the switch being configured to be changed by a user touching a surface of the frame, without moving any mechanical part at least partially exposed to the outside of the frame; and a first electrical component in the frame configured to be electrically coupled to the first switch to perform a function.

[00010] In another embodiment, an eyewear for a user includes an eyewear frame, electrical circuitry at least partially in the eyewear frame, and a touch sensitive input surface on the eyewear frame configured to provide an input to the electrical circuitry to perform a function via touching the touch sensitive input surface.

[00011] In yet another embodiment, an eyewear includes a switch with at least two operational states. The operational states of the switch can be configured to be changed by sliding a finger across a touch sensitive input surface of the frame, without moving any mechanical part at least partially exposed to the outside of the frame. The embodiment could also include an electrical component in the frame configured to be electrically coupled to the switch to perform a function.

[00012] Other aspects and advantages of the present invention will become apparent from the following detailed description, which, when taken in conjunction with the accompanying drawings, illustrates by way of example the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[00013] FIG. 1 shows one embodiment of the invention with a speaker in one of the temples of the glasses.

[00014] FIG. 2 shows a tube extending from a speaker at a temple of the glasses to guide sound to one of the ears of the user according to one embodiment of the invention.

[00015] FIG. 3 shows a retractable tube extending from a speaker at a temple of the glasses according to one embodiment of the invention.

[00016] FIG. 4 shows a funnel at the output of a speaker in the glasses according to one embodiment of the invention.

[00017] FIG. 5 shows a male connector at the end of a temple according to one embodiment of the invention.

[00018] FIGS. 6A-6B illustrate a process to make a non-standard female plug couple to a male connector at a pair of glasses according to one embodiment of the invention.

[00019] FIG. 7 illustrates another non-standard connector, applicable to clamp onto a temple of a pair of glasses according to an embodiment of the invention.

[00020] FIGS. 8A-8E shows different embodiments of standard connectors located at different positions on the temple of a pair of glasses according to the invention.

[00021] FIGs. 8F-8H are diagrams pertaining to providing a removable electronic device with an eyeglass frame according to one embodiment of the invention.

[00022] FIG. 8I is a diagram of a temple of an eyeglass frame according to another embodiment of the invention.

[00023] FIG. 9 shows some of the electrical components for a MP3 player according to an embodiment of the invention.

[00024] FIG. 10 shows an embodiment of the invention where a user is wearing a pair of glasses with electrical components, tethered to a base, which is connected to a portable device.

[00025] FIGS. 11A-11B show different embodiments of the present invention illustrating some of the electrical components for wireless connections to a pair of glasses.

[00026] FIG. 12 shows a process for a personalized radio according to one embodiment of the present invention.

[00027] FIG. 13 shows a number of attributes of control knobs according to different embodiments of the present invention.

[00028] FIG. 14 shows some of the electrical components for capturing images with a pair of glasses according to an embodiment of the present invention.

[00029] FIG. 15 shows an operation of taking actions based on images captured with a pair of glasses with wireless transceiver capability according to one embodiment of the invention.

[00030] FIG. 16 shows an operation to provide messages to a user based on images captured by a pair of glasses according to an embodiment of the present invention.

[00031] FIG. 17A is a chart that depicts examples of sensors in a pair of glasses according to different embodiments of the present invention.

[00032] FIG. 17B is a diagram of a temple arrangement according to one embodiment of the invention.

[00033] FIG. 17C is a diagram of a cover that at least partially covers a temple according to one embodiment of the invention.

[00034] FIG. 17D is a diagram of a fit-over temple that at least partially fits over a temple according to one embodiment of the invention.

[00035] FIG. 18 shows an embodiment including an eye mask according to the invention.

[00036] FIG. 19 shows an embodiment including a night cap according to the invention.

[00037] FIG. 20A is a diagram illustrating a temple having a slot for receiving a removable electronic device according to one embodiment of the invention

[00038] FIG. 20B is a diagram illustrating the temple having a recessed lower portion according to another embodiment of the invention.

[00039] FIGs. 21A and 21B are diagrams illustrating a pair of glasses having a camera coupled thereto, according to one embodiment.

[00040] FIG. 22 is a diagram of a pair of glasses having a camera according to one embodiment of the invention.

[00041] FIG. 23A is a diagram of a pair of glasses having a camera according to one embodiment of the invention.

[00042] FIG. 23B is a diagram of the pair of glasses according to another embodiment.

[00043] FIG. 24 is a side view of a pair of eyeglasses according to another embodiment of the invention.

[00044] FIG. 25 shows one embodiment of the invention with a speaker in one of the temples of a pair of glasses.

[00045] Fig. 26 shows a number of attributes regarding a number of applications of glasses according to different embodiments of the invention.

[00046] FIG. 27 shows some electrical components of a player according to an embodiment of the invention.

[00047] Fig. 28 illustrates a number of forces activating a switch according to a number of embodiments of the invention.

[00048] Fig. 29 illustrates a number of mechanical forces activating a switch according to a number of embodiments of the invention.

[00049] FIG. 30 shows a Hall-effect detector at a joint of a pair of glasses according to an embodiment of the invention.

[00050] FIGs. 31A-31C illustrate different embodiments of a quadrature sensor according to the invention.

[00051] Same numerals in Figures 1-31 are assigned to similar elements in all the figures. Embodiments of the invention are discussed below with reference to Figures 1-31. However, those skilled in the art will readily appreciate that the detailed description given herein with respect to these figures is for explanatory purposes as the invention extends beyond these limited embodiments.

DETAILED DESCRIPTION OF THE INVENTION

[00052] A number of embodiments according to the present invention regarding glasses with one or more electrical components attached, partially embedded or fully embedded are described. Many of them are applicable to different types of glasses, such as sunglasses, auxiliary frames, fit-over glasses, prescription glasses, safety glasses, swim masks, and goggles, such as ski goggles. In a number of embodiments, the frames of the glasses have more surface area than frames with minimal structure. For example, the temple regions of the glasses can have a tapered profile. They are wider or broader when they are closer to the lens holders. Then they get narrower. In one embodiment, a wider or broader temple implies that the temple spans across a wider or broader area longitudinally down from the top of the head of the user. FIG. 1 shows an example of such an embodiment.

[00053] FIG. 1 shows one embodiment 100 of the invention where there is a speaker 102 at least partially embedded in one of the temples 104 of the glasses 106. The speaker 102 is closer to one end of the temple 104 than the other end. The end of the temple that the speaker 102 is closer to is the end that is in the vicinity of the lens holder or the hinge of the glasses 106, instead of the end 108 that is free. The speaker can be partially embedded in the glasses. For example, the mouth of the speaker, where sometimes there can be small holes on a cover, can be exposed.

[00054] In the embodiment shown in FIG. 1, the speaker 102 outputs audio signals in the direction towards the user. In another embodiment, the speaker 102 outputs audio signals in the direction away from the user. For example, the mouth of the speaker 102 can be facing outwards away from the user.

[00055] There are different approaches to embed an electrical component into a pair of glasses. For example, the glasses can be made of plastic (e.g., plastic frames). One way to produce such frames is to first assemble electrical components onto a circuit board. The circuit board can be shaped to fit, for example, the temple of the glasses. The circuit board is placed into a mold. Then, hot, molten plastic is injected around the circuit board to form the temple piece of

the glasses. To reduce weight, the wall of the glasses can be made relatively thin through injection molding techniques.

[00056] In another embodiment, the glasses have metallic frames. For example, the frames can be made of Titanium, which is a relatively light metal. Also, Titanium is relatively non-conductive and strong, and is quite immune to corrosion. Further, Titanium can be anodized or heat colored.

[00057] For glasses with metallic frames, to prevent circuits from being shorted or to reduce leakage current, one embodiment provides an insulating layer between the electrical components or circuit board and the metallic frames. One example of an insulting layer is a tape to encapsulate the electrical components. The tape is non-conducting so as to provide insulation and, to a certain degree, can also provide mechanical stiffness. One way to make such temples is to have two sheets of the metal die-stamped to form the two halves, or the two faces of the temple piece. A circuit board is made to fit into the space between the faces. Then, two die-cut pieces of insulator material (e.g., dielectric tape) can cover the top and the bottom surfaces of the circuit board. The board is then sandwiched between the faces to form the temple. In one example, the dielectric tape can be double-sided sticky tape, with one side sticking to the circuit board, and the other side sticking to the temple. An adhesive can be used to glue the two faces of the temple piece together.

[00058] In yet another embodiment, the frames are made of hard rubber. The frames can be manufactured in an approach similar to injection molding techniques, with circuit boards inserted into the mold along with the rubber at the time of molding.

[00059] Different types of speakers can be used, such as, standard, fixed-magnet/moving coil speakers; speakers with fixed-coil and a steel diaphragm; piezo-electric speakers; and electrostatic speakers.

[00060] In one embodiment, the glasses further include a tube, such as a plastic tube, extending from a speaker. The tube serves to guide sound generated by the speaker to one of the ears of the user. FIG. 2 shows an embodiment where

a tube 150 is located on the outside of a temple 152. In another embodiment, the tube can be on the inside of a temple.

[00061] In one embodiment, the tube 150 can be rotated, such as from behind the temple 152 (if the tube is on the inside of the temple) to being downward at an angle towards one of the ears of the user, such as the position shown in FIG. 2. To increase flexibility, the tube can be attached to a rotating disk 154, which allows rotation about the speaker.

[00062] In another embodiment, the tube is malleable. This allows the tube to be placed in different positions.

[00063] In one embodiment, the length of the tube is adjustable. FIG. 3 shows such an embodiment 200 of a pair of glasses with a retractable tube 202. In the figure, the tube is shown to be in its extended position.

[00064] To further enhance sound coupling, in one approach, there is a plug 156 at the end of the tube for inserting into an ear of the user. The plug can be an ear bud. The plug can provide a cushion, foam rubber or other materials. Such materials give comfort and/or enhance sound coupling to the ear canal.

[00065] In another approach, there is a funnel at the output of the speaker. FIG. 4 shows the cross section of such a funnel from a speaker at a temple region of the glasses. As shown in FIG. 4, the speaker 254 sits on a speaker frame 252, and the speaker 254 is electrically connected to a circuit board 256. As sound is generated from the speaker 254, the sound propagates to a tube 258 through a structure 260 in the shape of a funnel. Such a structure helps guide the sound to the tube (i.e., improved sound coupling). Also, FIG. 4 shows the tube, which can be the tube 150 shown in FIG. 2, mounted onto the temple region of the glasses with a circular lip 262. Such a lip 262 allows the tube 258 to rotate relative to the glasses. In the embodiment shown in FIG. 4, the speaker 254 is fully embedded in the glasses.

[00066] As an alternative to or in conjunction with the tube, the glasses can include a channel to likewise guide sound generated by the speaker to one of the ears of the user. For example, the channel can be formed within a temple. The temple also has an opening to output the sound towards the user's ear.

[00067] FIG. 1 shows one speaker at one of the temples. There can be more than one speaker at each temple. In one embodiment, there can also be at least one speaker at each temple. The two speakers can generate stereo effects.

[00068] In another embodiment, the glasses can provide four or more speakers to give a high fidelity sound or a surround sound effect. For example, each temple can include one speaker in front of the user's ear, and one speaker behind the user's ear. The different speakers can generate different portions or sections of the sound. Further, if a base (discussed below) or portable electronic device is coupled to the glasses, the base or portable electronic device can contain another speaker, such as a base or woofer speaker. Such embodiments enable the glasses to provide a personal high-fidelity sound or a surround-sound environment.

[00069] Electrical signals can be coupled to an electrical component, such as a speaker, in a pair of glasses through a number of mechanisms. In one embodiment, there is an electrical connector at least partially embedded in the glasses. In other words, at least a portion of the connector is inside the glasses. The connector is electrically coupled to the speaker (or other electrical component) by, for example, a conductor. The conductor can be on a printed-circuit board. In one embodiment, the conductor is also embedded in the glasses.

[00070] Regarding connectors, FIG. 5 shows one embodiment where the connector is not a standard connector. The end 108 of the temple 104 of the glasses 106 shown in FIG. 1 has a similar connector. In FIG. 5, the connector is a male plug or a male connector 300 at the end of a temple 302 of a pair of glasses. The connector 300 is connected to the speaker through, for example, one or more wires embedded in the temple. Electrical signals external to the glasses can then be coupled to the speaker (or other electrical component) through the plug.

[00071] As shown in FIG. 5, the free end of the temple 302 can have a relatively flat cross section. There can be one or more electrically-conductive contacts, such as 304 and 306, on one or both of the flat surfaces of the temple. In FIG. 5, four contacts are shown on one surface of the temple. The contacts, 304 and 306, can be metal pads or bumps.

[00072] In one embodiment, a non-standard connector can be made using printed-circuit board technologies. First, a printed-circuit board with printed conductors connected to metal contact bumps is produced. Then plastic is overmolded around the printed-circuit board, with the mold designed to shut off around the bumps or pads. The overmolded plastic can serve as the temple, and the pads would be left exposed. Thus, portions of the printed circuit board are covered by plastic, and areas with the bumps or pads are exposed for connection. These pads serve as the connectors for the glasses.

[00073] Regarding printed-circuit boards, there can be one or more circuit boards in the glasses. For example, there can be a circuit board in one of the temples of the glasses. Or, the circuits can be divided into two circuit boards, one in each temple of the glasses. The circuit boards can carry additional electrical components to be described below.

[00074] In one embodiment, the circuit boards are rigid. In another embodiment, the circuit boards are made of flexible materials, such as a polyimide sheet, like Kapton®. In one embodiment, the circuit board is configured or adapts to the shape of the temple in which it resides.

[00075] As shown in FIG. 5, the end of the temple 302 serves as a male connector (plug) 300. The non-standard male connector 300 can be received by a non-standard female connector (plug) 310. Typically, the female connector 310 makes electrical and physical connection through grabbing around the male plug. The female connector 310 can be connected to a cable 312.

[00076] FIGS. 6A-6B illustrate a process to make the non-standard female plug 310. First, an electrical wire 354 is attached to a small sheet or piece of metal 356. FIG. 6A shows a number of such wires, with a number of the metal sheets or pieces crimped to a hard PVC 358. The figure shows the back side of the crimped board with the wires and with a number of holes, such as 360. Then the frame is overmolded with a soft PVC. FIG. 6B shows a cross section of the overmolded frame 362 with the soft PVC. As shown in the figure, a number of the metal sheets, such as 364 and 366, are exposed. They are the metal contacts in the female connector 310. Instead of the above approach, alternatively, a wire can

be attached to a sheet of metal by putting the wire between the metal and the plastic as the metal is crimped onto a plastic. When the temple (i.e., male connector 300) is inserted into the female plug, the soft PVC material stretches slightly, providing a spring-force to keep the contacts connected.

[00077] The hard PVC can have a hardness of over 80 durometer, while the soft PVC can have a hardness of less than 50 durometer. The hard PVC can be replaced by other materials, such as Polypropylene or cloth. The soft PVC can be replaced by Silicone, or a thermo-plastic elastomer, such as Kraton®.

[00078] Referring to both FIG. 5 and FIG. 6B, when the male connector 300 is inserted into the slot 314 of the female connector 310, the metal pads, 304 and 306, will get in contact, or mate, with the metal sheets, 364 and 366.

[00079] In one embodiment, as long as the male connector 300 is pushed all the way into the female connector 310, the pads are aligned correctly to the sheets for electrical connections. In another embodiment, there is an alignment mechanism to guide the position of the temple relative to the female connector so as to ensure the conductive sheets to be in contact with the conductive pads. For example, there can be a registration location to indicate that the male connector is at the appropriate position relative to the female connector. There can be an alignment extension, which can be a partial sphere, close to the end of the temple 302, such as between the pads 304 and 306, at 316. And, there can be a corresponding alignment notch at the female connector 310. When the extension is received or caught by the notch, the male connector 300 is in the appropriate position relative to the female connector 310. In other words, the alignment is proper, and the pads and the sheets are in contact.

[00080] FIG. 5 shows the non-standard male connector 300 at one end of a temple of a pair of glasses. In yet another embodiment, a non-standard connector can be at another location. FIG. 7 shows another example of a non-standard connector 400. The connector 400 includes one or more conductive pads, 412 and 414, on the top side of a temple 402. The connector 400 is designed to receive another connector 406 that grabs onto the side of the temple 402. There can be an indentation 404 on the temple 402 to receive the other connector 406. The

other connector 406 can include a top 420 and a bottom 416 clip. There are a number of conductive pads or sheets inside the other connector 406. The indentation 404 provides an alignment to indicate where the top clip 420 of the other connector 406 should grab onto the temple 402 for connection. At that position, the conductive pads at the temple will be in contact with the conductive pads or sheets at the other connector 406. There can also be another indentation 418 at the temple 402 to receive the bottom clip 416. This can further enhance the alignment process and to secure the connection.

[00081] In FIG. 7, the other connector 406 is coupled to one end of a cord and a plug 408, which can be inserted into a portable device 410, can be connected to another end of the cord. The portable device, for example, can be a cell phone. This type of non-standard clip-type connector could be easily applied to the temple with one hand, for example, while the user is driving a car.

[00082] A number of non-standard connectors have been described. In another embodiment, the contacts are based on standard connectors, which can be off-the-shelf connectors. FIGS. 8A-8E show a number of examples of such connectors.

[00083] In one embodiment, the standard connector is a standard cylindrical plug located at the end of a temple. From a different perspective, the temple molds around the end of the plug. FIG. 8A shows one such embodiment. The plug 450 can be a standard audio connector or a 3-wire or three terminal plug, such as a 3.5 mm male stereo mini-phone plug. The 3 wires for such a plug are typically one for ground, the other two applicable for two signals, such as for creating stereo effects. FIG. 8A also shows the three wires, 452, 454 and 456, inside the temple, extended from the plug 450. These wires are for connection to electrical components of the glasses.

[00084] In one embodiment, the cylindrical plug 450 shown in FIG. 8A can be protected, encapsulated or shrouded. Or, at least a portion of the plug is protected, encapsulated or shrouded. Such protection can, for example, be for aesthetic reasons, or to prevent the plug from scratching the face of the user when

the user is putting on the pair of glasses. In FIG. 8A, the plug 450 is partially embedded in a temple.

[00085] Instead of a three terminal plug, other types of standard cylindrical plugs applicable to different embodiments of the present invention include a serial connector with 3 pins, typically one for ground, one for transmitting data (Tx) and the third for receiving data (Rx); or (b) a 2-wire connector, one served as ground, the other for carrying, such as power and modulated signals.

[00086] In yet another embodiment, instead of a cylindrical plug, the standard connector at the end of a temple of a pair of glasses is a USB or a FIREWIRE connector.

[00087] A number of embodiments have been described where the standard connector(s) at the glasses are male connectors. In yet another embodiment, the standard connector(s) in the glasses are female connectors. For example, there can be a 3.5 mm female stereo mini-phone plug at the end of a temple of a pair of glasses. At least a portion of the female connector can be protected, encapsulated or shrouded. For example, the female connector can be recessed within the end of a temple.

[00088] FIGS. 8B-8E show different examples of standard connectors located or partially embedded not at the end of a temple of a pair of glasses, but, for example, on the side of the temple, such as on the inside surface or the outside surface of a temple. FIG. 8B shows a 0.10" header plug 460, commonly known as a MOLEX connector, on such a surface. FIG. 8C shows a female mini-phone plug 465 on such a surface. FIG. 8D shows a card connector 470 to receive a card 472, such as a removable media card (e.g., memory card). There can be a cover 474 to secure and/or protect the media card 472 in place after it is inserted into the card connector 470. FIG. 8E shows a female USB connector 480 on the inside surface of a temple 482 to receive a male USB connector 484.

[00089] FIGs. 8F-8H are diagrams pertaining to providing a removable electronic device with an eyeglass frame according to one embodiment of the invention. FIG. 8F illustrates a temple 490 that includes a connector 492. The connector 492 includes an opening 494. A removable electronic device can be

coupled to the temple 490 using the connector 492. More particularly, FIG. 8G illustrates a removable electronic device 496 that includes an electronic device housing 498 and a connector 499. As an example, the removable electronic device 496 can be a memory storage device, sometimes referred to as a memory card. FIG. 8H illustrates the removable electronic device 496 coupled to the temple 490. The removable electronic device 496 is coupled to one side of the temple 490, such side can be either an inside or outside surface of the eyeglass frame. When the removable electronic device 496 is coupled to the temple 490, the connector 499 of the removable electronic device 496 is inserted into the opening 494 of the connector 492. Physical forces between the connector 499 and the connector 492 operate to secure the removable electronic device 496 to the temple 490, yet permit the removable electronic device 496 to be removable therefrom.

[00090] In one embodiment, the connector 492 is not electrically connected to any electronic circuitry within the temple 490 or other parts of the eyeglass frame. In other words, the connector 492 provides a convenient means by which removable electronic devices can be coupled to the eyeglass frame. In another embodiment, the connector 492 can be coupled to electrical circuitry within the temple 490 or elsewhere within the eyeglass frame. Such an embodiment allows the electronic components within the removable electronic device 496 to be utilized with the electrical circuitry within the temple 490 or elsewhere within the eyeglass frame. For example, the removable electronic device 496 can provide data storage and/or other software modules to be utilized by or to utilize the other electrical circuitry within the temple 490 or elsewhere within the eyeglass frame. In any case, by attaching the removable electronic device 496 to the temple 490 (and thus the eyeglass frame), the removable electronic device 496 is able to be conveniently carried by the user of the eyeglass frame. In one implementation, the eyeglass frame, which includes the connector 492, becomes a docking station for the removable electronic device 496. As such, a variety of different removable electronic devices can be interconnected with the eyeglass frame, as desired. For example, the eyeglass frame can thus support different function or operations

depending on the removable electronic device that is attached. For example, the eyeglass frame might operate as a camera, data storage device, FM radio, MP3 player, mobile telephone, pedometer, hearing enhancer, sun sensor, time piece, etc.

[00091] In one embodiment, the removable electronic device 496 can align itself with the orientation of the temple 490, such as shown in FIG. 8H. In FIG. 8G, the electronic device housing 498 can be said to have an elongated housing. The configuration (e.g., shape) and/or color of the removable electronic device 496 can also be designed to conform or complement the design of the temple 490. In one embodiment, the temple 490 might also have a recessed region to allow the portable electronic device to be less visually perceptible when attached to the temple 490 or to provide a more consistent contour of the temple 490.

[00092] In one embodiment, the connector 499 is a male connector, and the connector 492 is a female connector or a similarly sized structure. In one implementation the connector 499 is a peripheral bus connector, such as a Universal Serial Bus (USB) connector. In such cases, the connector 492 can also be a peripheral bus connector (either electrically functional or non-functional as noted above).

[00093] Although the embodiment illustrated in FIGs. 8F-8H utilize connectors, namely, electrical connectors, the removable electronic device 496 could be attached to the temple in other ways. For example, other means to provide physical forces to hold the removable electronic device 496 in place can be used.

[00094] FIG. 8I is a diagram of a temple of an eyeglass frame according to another embodiment of the invention. In this embodiment, the temple 490' includes an opening 491 through which a cable 493 extends outward. The cable 493 has an electrical connector 495 connected at its end. The electrical connector 495 is electrically connected to electrical circuits within the temple 490' or elsewhere within the eyeglass frame such as by way of one or more wires contained within the cable 493. In one implementation, the length of the cable 493 is about one to four inches. The temple 490' shown in FIG. 8I also includes a

receptacle 497. The receptacle 497 is affixed to or integral with the temple 490 to receive the electrical connector 495. Typically, the receptacle 497 provides a holding mechanism for the electrical connector 495 when not been utilized. When the electrical connector 495 is being utilized, the electrical connector 495 is removed from the receptacle 497 and coupled to a corresponding counterpart connector of another electrical device. The cord 493 can provide ease-of-use so that the electrical connector 495 can be maneuvered to couple to the counterpart connector. In one embodiment, the temple 490' can provide a recess for receiving the entire cable 493, with the outer surface of the receptacle 497 being substantially flush to the surface of the temple 490. So when the connector 495 is not in use, the connector 495 can be in the receptacle 497, with the cable 493 in the recess. In one embodiment, when the cable 493 is in the recess and the connector 495 inside the receptacle 497, the cable 493 has substantially no slack. Also, in another embodiment, the cable 493 can be retractable into the opening 491. In the embodiment shown in FIG. 8I, the electrical connector 495 is a male connector, and the receptacle 497 is a female connector or a similarly sized structure.

[00095] A number of standard and non-standard connectors have been described. Other types of connectors can also be used. In one embodiment, there is a connector adapter, which serves to transform such other type of connectors to a different interface. For example, an adapter can be a cord with one type of connector at one end and a different type of connector at the other end.

[00096] In one or more of the above embodiments, the glasses can access audio signals from another device through a connector at the glasses. The another device can be a multimedia asset players or a radio.

[00097] In one embodiment of the invention, the glasses have a storage medium (i.e., memory). The memory can be on a printed-circuit board and, for example, store 256 MBs or more. The memory can be a built-in or removable flash memory. The memory can be coupled to a device external to the glasses through one or more connectors at the glasses. As an example, a 256 MB flash memory

is in one of the temples of a pair of glasses, and there is a USB connector at the free end of that temple to couple to an external device.

[00098] With the embedded storage medium, the glasses can upload information in the memory to or download information into the memory from an external device, such as a computer. A user can plug the glasses into the computer through a connector, either directly, or indirectly, with, for example, an intermediate wire in between. The user can store files in the glasses. Such an embodiment should reduce the chances of the user losing the files because the user has to lose the glasses as well.

[00099] In yet another embodiment of the invention, a pair of glasses includes a multimedia asset player, such as a MP3 player. FIG. 9 shows some of the electrical components for a MP3 player 500 according to an embodiment of the invention. The player 500 includes a speaker 502 and a data bus 512, which facilitates data transfer among, for example, a processor 506, a storage device 510, and a coder/decoder (CODEC) 504. The processor 506, which can be a microprocessor or controller, controls the operation of the player 500. The storage device 510 stores the multimedia assets, such as MP3 files, or other types of media data that are appropriately formatted. In one example, the MP3 files are digitally encoded songs or other types of audio signals. The storage device 510 can include a number of separate storage elements. For example, the device 510 can be a flash memory device, or a minidisk device, and a cache, which can improve the access time and reduce power consumption of the storage device. The storage device 510 typically also includes a Read-Only Memory (ROM), which stores programs, utilities or processes to be executed in a non-volatile manner. The player 500 can also include a RAM, such as for the cache.

[000100] Once a media asset, such as a song, is selected to be played, the processor 506 would supply the asset to the CODEC 504, which decompresses the asset and produces analog output signals for the speaker 502. In one embodiment, the bus 512 is also coupled to an input/output device 508, which would allow a user to upload songs in the glasses to an external instrument, such as a computer, or download songs from the instrument to the glasses.

[000101] There are different approaches to select a song. In one embodiment, the songs or the media assets can be categorized in the MP3 player, and the categorization can be hierarchical, with multiple levels in the hierarchy. To illustrate, assume that there are three levels. The top level can be the name of the singer; the second level can be the time period when the asset was produced, and the third level can be the names of the songs. The entries, such as the name of the singer, can be abbreviated. There can be a small display and a control knob to allow a user to scroll down entries in a level. By pushing the knob, the user selects an entry, which can lead the user to a lower level. There can be an entry for moving up a level also. In another embodiment, the display is a touch-screen display, allowing entries to be entered directly on the display. In yet another embodiment, entries can be selected based on voice recognition.

[000102] A number of embodiments have been described with the glasses having a connector. In one embodiment, the glasses can have more than one connector. For example, a pair of glasses with two connectors also has a speaker. One connector is, for example, at a broad side of a temple, as in FIG. 8D. The connector can be for coupling to multimedia assets of a MP3 player. Another connector is, for example, at the end of a temple, as in FIG. 8A. That connector can couple power to the glasses. The speaker can play the multimedia assets accessed from one connector, based on power from another connector.

[000103] As described, power (e.g., external power source) can be coupled to the glasses through a connector. In one embodiment, the power source is embedded inside or inserted into the glasses. Different types of power sources are applicable. For example, the power source can be a battery, a fuel cell, a solar cell, or a re-chargeable battery. The rechargeable battery can be charged through a connector at the glasses.

[000104] In an earlier application, namely, U.S. Provisional Patent Application No. 60/509,631, filed October 9, 2003, and entitled "TETHERED ELECTRICAL COMPONENTS FOR EYEGLASSES," which has been incorporated herein by reference, there can be a base connected to the glasses through a cord. The cord can be just a piece of flexible conductor encapsulated by a flexible insulator.

Typically, a cord includes a number of electrical wires or conductors. There can be one or more electrical components in the base, and there can also be one or more electrical components in the cord. The different types of connectors previously described can be located in the base. In one embodiment, a power source is an electrical component in the base tethered to a pair of glasses. In another embodiment, the glasses are tethered to a base that has a connector. The connector is connected to and draws power from an external electronic device. In this embodiment, electrical components in the glasses draw power from the external electronic devices.

[000105] FIG. 10 shows an embodiment where a user 550 is wearing a pair of glasses 552, which include electrical components. There are also tethered electrical components in a base 554, which is connected to the glasses 552 through a cord 556. In addition, there is a wire 558 connected to a connector at the base 554 to a portable electronic device 560. The portable device 560 can be (a) a multimedia device, such as a MP3 player/recorder or a minidisk players, (b) a wireless communication device, such as a cell phone, or (c) a personal digital assistant, or other types of portable devices with computing and/or entertaining and/or communication capabilities.

[000106] Note that instead of connecting to the portable electronic device 560 through the base 554, in another embodiment, the glasses 552 directly connect to the portable device 560 through a cord.

[000107] In one embodiment, there is an attachment device 562, such as a pin or clip. The attachment device attaches at least a part of the glasses to the user's clothing. The attachment device 562 can serve to attach the cord 556 and/or the wire 558 and/or the base 554 to the user's clothing. The attachment can also be through other mechanisms, such as Velcro.

[000108] In a number of embodiments, the speaker described is assumed to emit audio signals. In one embodiment, the speaker emits ultrasonic signals. The glasses can be used, for example, as an insect repellant by transmitting ultrasound to repel insects, such as mosquitoes. In this embodiment, the one or more speakers broadcast the ultrasonic signals away from the user. In other words, the

speakers face outwards, not inwards towards the user. In this embodiment, the glasses, which can include a base, also has a power source to provide power to the speaker. There can also be a control knob to turn the one or more speakers on/off on the glasses. There will be additional discussions on the control knob below.

[000109] In another embodiment, the glasses generating ultrasonic signals can be used to produce audio signals that are more directional. For example, two ultrasonic signals are generated by a speaker in the glasses, with their difference frequencies being the audio signals. The audio signals generated based on mixing the two ultrasonic signals can be much more directional than audio signals directly generated from the speaker.

[000110] Referring back to FIG. 1, in one embodiment, the glasses include a microphone 110. The microphone 110 can be at the end of a temple 104 close to a lens holder 112. Or, the microphone 110 can be in the lens holder 112, located directly adjacent to the temple 104. In yet another embodiment, there can be a small protrusion extending down from the temple to house the microphone.

[000111] With glasses having a microphone, one can use the glasses to record voices into, for example, a storage medium. The storage medium can be in the glasses, or can be in a base or a portable device attached to the glasses.

[000112] Different types of microphones can be used. For example, they can be electret microphones, crystal microphones, resistance microphones, piezoelectric microphones or moving-coil microphones.

[000113] In one embodiment, the glasses with a microphone also include a speaker that can generate directional sound. A user can speak into the microphone and his message can be transmitted from the glasses in a more directional manner.

[000114] In another embodiment, the glasses also include a notification electrical component to provide a notification to the user wearing the glasses. The notification can be to notify, alert or display information to the user. There can be a display located at the inside 114 of the lens holder, or at the vicinity of the junction 116 or the hinge of a lens holder and its corresponding temple facing the user. Or,

there can be a display at the inside surface of a temple, or at other locations on the glasses. The display can be one or more light emitting diodes. To alert the user, one or more diodes can blink. The blinking can be of a specific sequence. Instead of diodes, the display can be a liquid crystal display. The display can provide indications or information to the user. For example, a number or a variable-height bar can be shown. Other than visual indications, the notification or alert can be audio, like a beeper.

[000115] In one embodiment, the notification electrical component is for selecting a multimedia asset in a multimedia asset player in a pair of glasses for the multimedia to play. The multimedia asset player can be a MP3 player.

[000116] A number of embodiments of the present invention have been described where electrical signals are transmitted to or from a pair of glasses through a physical connection. In one embodiment, electrical signals are wirelessly coupled to a pair of glasses. The coupling can be short range or long range. The coupling can be directly to the glasses, or to a base connected to a pair of glasses. The glasses with wireless coupling capabilities can be used to couple to a Bluetooth network, the Internet, a WiFi network, a WiMax network, a cell-phone network or other types of networks. The coupling can also be through a point-to-point link, such as an infrared link.

[000117] FIGS. 11A-11B show examples of some of the electrical components in or tethered to a pair of glasses for wireless connections, according to embodiments of the present invention. In FIG. 11A, a high frequency or RF antenna 602 wirelessly captures high frequency or RF signals for RF transceiver circuits 604. If the transceiver circuits are for a conventional superheterodyne system, the transceiver circuits 604 mix the RF signals down to IF signals. Then the IF signals are processed by baseband circuits. Digital outputs from the baseband circuits are coupled to a processor 608 for analysis and synthesis.

[000118] Outputs from the processor 608 are fed to a D-to-A converter 610 to generate audio signals for a speaker 612. Similarly, audio analog signals from a microphone 614 can be fed to an A-to-D converter 616 to generate digital low frequency signals for the processor 608 and then to the RF transceiver circuits

604. The low frequency signals are up-converted by the RF transceiver circuits 604 and wirelessly transmitted by the antenna 602.

[000119] In another embodiment, digital conversion is moved closer to the antenna. For example, instead of mixing RF into IF signals, the RF transceiver circuits 604 directly perform digital conversion from the RF signals.

[000120] Typically, high frequency filters are used at the front end of the RF transceiver circuits 604 for the RF signals. In one embodiment, to save space, FBAR (film bulk acoustic resonator) duplexer is employed. A set of piezoelectric filters can be used to separate incoming and outgoing signals. For cell phone operation, such filters can enable a user to hear and speak simultaneously. A number of these electronic devices can be on a circuit board in the glasses. Or, some of the devices are in the glasses, while other in the base tethered to the glasses.

[000121] FIG. 11B shows another example of some of the electrical components in or tethered to a pair of glasses for wireless connections according to the present invention. In this embodiment, there does not need to have digital data. A speaker 620 and a microphone 622 are connected to an analog interface circuit 624, which is coupled to a RF transceiver circuit 626 and an antenna 628. For the speaker application, the transceiver circuit 626 mixes the RF signals down into IF signals, which are converted by the analog interface circuit 624 into analog signals for the speaker 620. Similarly, for the microphone application, its analog signals are converted into the IF signals by the analog interface circuit 624 to be up converted by the transceiver circuit 626 into RF signals for the antenna 628. These types of circuitry are suitable for, such as, simple radios, analog cell phones, CB radios, walkee-talkees, police radios or intercom systems.

[000122] In one embodiment, most of the electrical components are not in the glasses. The pair of glasses includes an antenna to capture the wireless signals, and a connector. The wireless signals captured are transmitted through the connector to electrical circuits external to the glasses.

[000123] A number of processors have been described. The processors can use different types of operating systems. In one embodiment, Symbian Operating

Systems are used. In another embodiment, operating systems, such as TinyOS, are used. The operating system could be programmed in C++ and then compiled into machine codes.

[000124] For privacy protection, signals can be encrypted before transmission. Encryption can take significant computation power, and may generate a fair amount of heat. In one embodiment, encryption capabilities are located in a base tethered to the glasses. There can be a fan inside the base. The fan can be turned on during encryption. In another embodiment, the fan is activated during other high capacity uses for heat dissipation purposes.

[000125] In yet another embodiment, there is a fan in the glasses. The fan is located at a temple of the glasses, in the region close to its lens holder. The fan is used to cool the wearer of the glasses.

[000126] In one embodiment, a pair of glasses has access to voice recognition software. The software can be embedded in (a) the glasses, (b) a base tethered to the glasses, (c) a portable device wired or wirelessly coupled to the glasses or to the base, or (d) a computing system wired or wirelessly coupled to the glasses. Or, the software or firmware can be in more than one of the above devices.

[000127] Glasses that can couple to signals wirelessly can be used in different applications. For example, the glasses can be a cell phone wireless head set, such as a Bluetooth cordless headset. Such short-distance wireless technologies allow the headset to connect to the user's cell phone without a wire. This would allow the user to drive, eat or perform other functions without getting tangled in a pesky wire.

[000128] In one embodiment, the cell phone is a VOIP (voice over Internet protocol) phone.

[000129] In one embodiment, for the glasses operating as a cell phone head set, the head set includes active noise cancellation mechanism. For example, the glasses include two microphones. One microphone is for capturing the voice of the user. But the microphone captures ambient noise also. It can be embedded in a protrusion extending from the end of the temple close to a lens holder, towards the mouth of the user, as the microphone 110 in FIG. 1. Another microphone can

be located at the top of one of the lens holders pointing away from the mouth of the user. This microphone is for capturing ambient noise. As a first order approximation, outputs from the two microphones could be subtracted from each other to provide voice signals with noise reduced.

[000130] In yet another embodiment, the glasses with wireless coupling capabilities also have a multimedia asset player, such as a MP3 player. The glasses can be used to receive music directly in digital format over, for example, a data-capable network of a mobile operator. The music can be received, for example, at a speed of 16 Kbits per second, providing sound quality close to compact disc. If the music is transmitted in a compressed manner, such as in a MP3 format, then the music data can be received at a much lower speed. In one embodiment, the glasses also have a microphone and can serve as a cellular phone or a wireless headset of a cellular phone.

[000131] In yet another embodiment, the glasses can serve as a radio, again through electrical components in or tethered to the glasses. In this embodiment, the glasses can include a tuner with one or more control knobs. The knobs can be used to select channels and to set the volume.

[000132] In one embodiment, a pair of glasses allows personalization by including a preference indicator. The indicator allows a user to provide his preference, such as on whatever is being output by the glasses. In one example, the glasses also has a radio having a speaker and with electrical components for wireless connection. In this example, the indicator can be used by the user to provide his preference regarding whatever is being played by the radio at that time. This preference can be wirelessly transmitted from the glasses to a third party. To illustrate, when the user is listening to a piece of music, the user can indicate he likes the piece of music by pressing a control knob on the glasses. This piece of preference information is then transmitted and received by a service provider, which is then informed of the user's preference. Instead of a control knob, in another embodiment, the preference indicator is a system with a microphone and voice recognition software. The user can indicate his preference vocally.

[000133] In another example regarding the personalization process, the glasses can serve as a multimedia asset player, such as a MP3 player. The song that the user has shown preference can be stored in a storage device, which can be in the glasses.

[000134] FIG. 12 shows a process 650 according to one embodiment of the present invention for a personalized radio.

[000135] Initially, a pair of glasses according to the present invention receives 652 a piece of music from a radio station. That piece of music is stored 654 in a buffer or a temporary storage area. This temporary storage area can be in the glasses or tethered to the glasses. The piece of music is also sent 656 to a speaker in the glasses.

[000136] Assume that the user likes the music. Based on the preference indicator, the user shows his preference. After the glasses receive 658 an indication of the user's preference, the glasses determine 660 the song corresponding to the indication. That piece of music can then be moved 662 from the buffer to a permanent storage area, such as into a flash memory. This would then allow the user to subsequently access the piece of music.

[000137] There are different ways to determine 660 the song or the content being played by the radio corresponding to the indication. For example, one rule is that when the user pushes the preference button or voices his preference, the song (or media asset or media file) that is being played is the one the user likes. Since the operating system knows what song is being played at what time, based on the rule, the song of preference is determined. Another rule is that when the user shows his preference, and there is no song being played at that instance, the song immediately preceding the break is the song of preference.

[000138] In another embodiment, the glasses can get 664 an identification for the song of preference. For example, the glasses can ask the user to provide an identification for the piece of music. This identification can be the type of music, the singer, the name of the music or other identification. In another embodiment, there can be meta data embedded, such as in the beginning part of the music (or media asset). Having such meta data embedded is not uncommon for music in

digital format. The meta data can include identifications for the music. The glasses can get 664 such identification. Based on the identification, the song is categorized 666 accordingly, such as grouped with other songs having the same identification. Such categorization process would enhance the ease of accessing the song by the user at a later time.

[000139] A number of control knobs have been described. FIG. 13 shows a number of attributes 700 regarding control knobs according to the present invention. The knobs can be of different physical structure 702. For example, a control knob can be a roller, a switch or a push-button. A control knob serving as an up/down controller can use two buttons, or a roller.

[000140] A control knob can be more intelligent 704. For example, a push-button control knob can serve different purposes depending on the duration the knob is being pushed. If a user pushes it for more than three seconds, the knob serves as an on-off toggle switch. In another example, a knob can serve multiple purposes, and the specific purpose depends on the number of times the knob is pushed.

[000141] A knob can also be programmed. A user can connect the glasses to a computer and program the knob accordingly. For example, one can program a knob such that if the knob is pushed more than three seconds, the knob would serve as an on/off switch for the glasses.

[000142] The location 706 of a control knob can vary for different applications. A control knob can be located on the glasses. A control knob can be on the top, the side or the bottom of the temple. A control knob can be located at the inside of a temple facing the user. Assume that there are a number of control knobs and all of them are on the edges of a temple, except one. By being at a position different from other control knobs, this knob can serve a specific purpose. For example, it can be an on/off control knob. In yet another embodiment, a control knob can be located in a base tethered to the glasses.

[000143] The number 708 of control knobs can vary depending on operations. For example, there is an on/off control knob and a volume up/down control knob. If the glasses are used for cell phone headset application, in one embodiment,

there is also an answer/hang-up control knob. If the glasses serve as a radio, in one embodiment, there is also a tuning control knob, which can be two push buttons. If the glasses serve as a CD player, in one embodiment, there is a play control knob, a stop control knob, and a skip forward/backward control knob. If the glasses serve as a multimedia asset player, such as a MP3 player, in one embodiment, there is a save-this-song control knob, a skip-forward/backward-song control knob and a select-song-to-play control knob.

[000144] A number of embodiments of the present invention have been described regarding audio signals. In one embodiment, the glasses further serve as a camera.

[000145] FIG. 14 shows one embodiment of electrical components in a pair of glasses with image capturing capabilities. A processor 752 is coupled to a CCD interface chip 754 and then to a CCD chip 756. Images focused by a lens 758 are captured and collected by the CCD chip. In another embodiment, there is also be a flash controller 760 connected to the processor 752 to control a flash 762.

[000146] In one embodiment, a number of pixels of the CCD chip 756 are used as light sensors. The pixels can be used to adjust the sensitivity of the CCD chip 756 based on the amount of ambient light. For example, if the outside environment is dim, it would take a longer period of time to collect enough charges by the CCD chip 756 to re-create the image. This implies that the integration time of the CCD chip 756 should increase.

[000147] In yet another embodiment, the camera can pertain to a video camera. The capacity of the memory 753 increases so as to store the video images.

[000148] In one embodiment, the glasses do not offer adjustment on the image distance. The CCD chip 756 can be located, for example, at the focal point of the lens 758. In another embodiment, there is an image distance control knob. For example, a mechanical lever can be pre-programmed or pre-set to move the lens to one or more different positions. One position can be for close-up shots, such as objects from 2 to 4 ft, and another for scenic or vista images, such as objects greater than 6 ft.

[000149] Depending on the embodiment, electrical components of a camera can be in a pair of glasses, and/or a base tethered to the glasses, and/or a portable device tethered to the glasses or to the base. For example, the memory 753 can be in the base tethered to the glasses.

[000150] The location of the lens 758 can vary depending on the embodiment. In one embodiment, referring to FIG. 1, one location is at the bridge of the glasses, with the lens of the camera facing forward. In this situation, what the user sees is substantially what the captured image would be. In other words, in a general sense, what the user sees is what the user gets. With such an embodiment, it is relatively easy for a user to take pictures, hands-free. In another embodiment, another location for the lens 758 are at a side portion adjacent to a lens holder, before the joint of the corresponding temple, such as at 116 in FIG. 1. Again, the lens of the camera faces forward. Some of the electrical components of the camera can be in that location, and other components in the temple 104. These components are electrically connected through one of the joints, such as with a flexible pc board. In yet another embodiment, the lens 758 can face sideways and outwards in a temple of a pair of glasses, towards the left or right side of the user.

[000151] Regarding storing the images, in one embodiment, the images are stored locally. One approach to determine which image to store is the first-in-first-out approach. Once the camera is turned on, the camera takes pictures continually in an automatic mode, such as once every few seconds. When the memory becomes full or under other pre-set or pre-programmed condition, the first picture stored will be deleted when the next picture comes in. In another embodiment, the digital content in one picture is compared to the digital content in, for example, the fifth picture further down. If the difference between the two is not more than a pre-set threshold, the four pictures in between will be deleted. One approach to determine the difference is by comparing the total charges collected by the CCD chip for the two images. If the two sets of charges do not differ by more than a certain threshold, the images in between would be deleted.

[000152] The images captured can also be stored at a remote site. For example, the glasses can upload the images to a computer, wirelessly or through a wired connection from a connector at the glasses.

[000153] FIG. 15 shows an operation 800 of taking certain actions based on images captured by a pair of glasses with a wireless transceiver, according to one embodiment of the invention. This operation can be used by a police officer on patrol. Before the officer gets out of his patrol vehicle to confront a suspect, the officer can inform the station. At that point, the camera is turned on 802.

[000154] There can be different approaches to turn on the camera. In one embodiment, an operator at the station can remind the officer to turn on the camera. Or, the operator can remotely turn on the camera. In yet another embodiment, the camera can be automatically turned on under certain condition. One such condition is that if the camera is out of the patrol vehicle, the camera is automatically turned on. With the glasses having the capability to wirelessly communicate with the patrol vehicle, one method to detect if the glasses are out of the patrol vehicle is based on the wireless signal strength of the glasses. The patrol vehicle can detect the signal strength of the wireless signals, which depends on the distance between glasses and the vehicle. A threshold can be set. If the signal strength is below the preset threshold, the glasses would be assumed to be out of the car, and the camera would be automatically turned on.

[000155] After the camera is turned on 802, the glasses start to continually take 804 pictures, such as once every few seconds. The pictures taken are automatically transmitted back 806 to the patrol vehicle in a wireless manner. In this situation, the patrol vehicle serves as a hub, which stores the pictures. Then, the hub re-transmits 808 the pictures back to the station. Note that the pictures can be compressed by standard algorithms before they are transmitted. This compression mechanism can be performed by a computer in the patrol vehicle. When the station gets the pictures, they are de-compressed before being viewed, such as by the operator. The pictures enable the operator at the station to see what the officer is confronting. This effectively allows the operator at the station to perform real-time monitoring of or for the officer. If it is a high risk situation, the

operator can quickly react 810, such as by dispatching additional support for the officer. In one embodiment, the glasses can include not only a camera but also a microphone for audio pickup, such as sounds from the officer, suspect, witness or environmental sounds (such as door opening, gun shot, etc.).

[000156] Regarding ownership of the glasses, the user can own the glasses. In one embodiment, the user leases the glasses from a provider. For example, the user leases a ski goggle with a camera. After the user turns on the camera, as the user skis, the goggle automatically takes pictures. Later, the user can return the goggle to the provider or a kiosk, where the pictures can be retrieved and/or stored. Alternatively, the goggle can include a wireless transceiver and the images could be uploaded continually or automatically to the provider or the kiosk via a wireless network. The provider or the kiosk can transmit the images to a website, such as a website associated with the user. In another embodiment, the user picks up hardcopies of the images, e.g., a CD with the images or a DVD with the video, from the provider or the kiosk.

[000157] In one embodiment, the glasses allow the user to enter his identification. This can be done, for example, through a control knob at the glasses. Such identification is then linked to the images. Based on the identification, the user can return to the provider or kiosk at a subsequent time to pick up the images previously left behind.

[000158] In yet another embodiment, the pair of glasses with a camera also has a speaker and a wireless transceiver. It can be used to remotely control or direct the user wearing the glasses. FIG. 16 shows one such operation 850 according to one embodiment.

[000159] To illustrate the operation 850, assume that the user is a paramedic helping a patient. The glasses continually take pictures 852 of objects directly in front of the paramedic, such as images around four feet away from the eyes of the paramedic. The pictures are wirelessly transmitted 854 to a remote site, such as a hospital, to be viewed by a doctor. Again, this transmission can be a two-step process. For example, pictures can be transmitted to the paramedic's ambulance, which can then re-transmit to the remote site. The first transmission from the

glasses to the ambulance can be through a low-power, short-range, broadband, wireless transmission protocol. The second transmission from the ambulance to the hospital can be through a much longer-range, higher power, broadband, wireless transmission protocol. Again, compression and de-compression techniques can be used to enhance the rate of transmission by reducing the amount of data to be transmitted.

[000160] Based on the images, the doctor sends out voice messages to the paramedic. These messages are wirelessly transmitted to and received 856 by the glasses. The speaker in the glasses outputs 858 the messages to the paramedic.

[000161] In another embodiment, the glasses also have a microphone, which allows the paramedic to communicate directly with the doctor also.

[000162] In one embodiment, the glasses can take pictures and can be a multimedia asset player. Pictures and the multimedia assets can share the same memory storage device. In this situation, the capacity for the multimedia assets and pictures can be interrelated. For example, a user can take more pictures if there are less multimedia assets, such as fewer songs in the storage device.

[000163] A number of embodiments have been described regarding electrical components in the temples of glasses. The locations selected are for illustration purposes. In other embodiments, some of the components are embedded fully or partially in other areas of the glasses, such as the lens holders or the bridges of the glasses. For example, there are glasses where there are shields at the edges of the lens holders of the glasses. These shields can wrap around, or better conform to the profile of, the face of the wearer. There can be transparent or translucent windows on these shields also. The shields are not limited to be in primary frames. They can be in, for example, fit-over glasses, auxiliary frames or safety glasses. To illustrate, in fit-over glasses, such shields can go over or cover at least a portion of the primary frames. One or more electrical components can be in such shields. In still another embodiment, one or more electrical components can be in a strap tied to the corresponding eyewear, such as a sports strap tied to the corresponding sports eyewear. For example, the one or more electrical

components can be at least partially embedded in or attached to a strap. As one particular example, an audio player or wireless communication module can be at least partially embedded in or attached to the strap. The strap may also provide electrical conductors (that are attached or internal to the strap). Such electrical conductors can be coupled to a speaker to produce audio output to the speaker, or can be coupled to a microphone to receive audio input from the microphone. The speaker and/or microphone can also be attached to or integral with the strap.

[000164] Note that in one embodiment, a pair of glasses does not have to include lenses. Also, a number of embodiments have been described with a pair of glasses tethered to a base. In one embodiment, a pair of glasses includes a base and a cord connecting the base to the glasses.

[000165] In yet another embodiment, a pair of glasses also includes a sensor. FIG. 17A is a chart 900 that depicts examples of sensors in the glasses.

[000166] In one embodiment, the sensor is a "being worn" sensor. The "being worn" sensor indicates whether the glasses are being worn by its user. The "being worn" operation can be performed using, for example, a thermal sensor, a motion detector, a stress sensor or a switch.

[000167] In one embodiment, a motion detector is used as a "being worn" sensor. A threshold can be set, such that if the amount of motion exceeds the threshold, the eyewear is assumed to be worn. The motion detector can, for example, be achieved by a mechanical means or an accelerometer.

[000168] In another embodiment, the "being worn" sensor includes two thermal sensors. One sensor can be at approximately the middle of a temple, such as in a region that touches the head of the user wearing the glasses. The other sensor can be at the end of the temple, close to its hinge. If the temperature differential between the two sensors is beyond a certain preset value, the eyewear would be assumed to be worn. The differential is presumed to be caused by a person wearing the pair of glasses.

[000169] In yet another embodiment, the "being worn" sensor includes a stress sensor at the hinge of the temple. The assumption is that when the eyewear is

worn, the hinge is typically slightly stretched because typically, the width of the head of the user is slightly wider than the width between the temples when the two temples are in the extended positions. If the value of the stress sensor is beyond a certain preset value, the glasses would be assumed to be worn.

[000170] In a further embodiment, the "being worn" sensor can be a switch. For example, at the hinge between a temple and its corresponding lens holder, there is a switch. When that temple is fully extended outwards, the switch is turned on. The switch can be a pin. When the temple is fully extended outwards, the pin is pressed. When both temples are fully extended outwards, in one embodiment, the glasses would be assumed to be worn by the user.

[000171] In one embodiment, another type of sensor is an environmental sensor. The environmental sensor can sense environmental conditions, such as one or more of ultraviolet radiation, temperature (e.g., ambient temperature), pressure, light, humidity and toxins (e.g., chemicals, radiation, etc.).

[000172] In another embodiment, another type of sensor is a condition sensor. The condition sensor can sense the conditions of the user of the glasses. Examples of physical sensors include sensing one or more of distance traveled, location, speed, calories consumed, temperature and vital signs associated with the user of the glasses. The distance traveled could represent the horizontal distance traveled or the vertical distance (i.e. elevation) traveled. The speed can be the rate of movement along the horizontal distance traveled and/or the vertical distance. In yet another embodiment, the condition sensor can sense the emotional conditions of the user of the glasses.

[000173] The sensors can be provided in a redundant or fault-tolerant manner. For example, sensors can come in pairs in the glasses. When one malfunctions, the other one will take over its operation. In another embodiment, the sensor information can be processed in a differential manner to examine changes to the sensor information. The sensors can by powered by a battery, solar energy, or kinetic energy. For reduced power consumption, the sensors can remain in a low-power state unless data is being acquired by the sensors. In yet another

embodiment, two or more of the auxiliary sensors can communicate with one another (wired or wirelessly) to exchange data or control information.

[000174] A number of embodiments have been described regarding one or more electrical components at least partially embedded in a pair of glasses. In one embodiment, one or more electrical components are at least partially embedded in a temple tip of a pair of glasses. Temple tips are particularly common for wire or metal frames. The pair of glasses has a first and a second lens holders for receiving lenses. Each of the lens holders has a first side and a second side. The pair of glasses has a bridge element that couples the first side of the first lens holder to the second side of the second lens holder. The pair of glasses also includes a first temple and a second temple. The first temple is pivotally secured to the second side of the first lens holder through a joint, while the second temple is pivotally secured to the first side of the second lens holder through another joint. A temple typically has two ends, a first end and a second end. The first end can be the end that is pivotally secured to a lens holder through a joint, and the second end can be the other end of the temple. It is not uncommon that a temple includes a main body and an enclosure that grabs onto the main body of the temple. The second end is typically where the enclosure grabs onto the main body. The enclosure can be made of a different material than the main body of the temple. In one embodiment, such an enclosure is a temple tip, and there is an electrical component, partially or fully, embedded in the tip. There can also be a connector, such as the connector 300 shown in FIG. 5, at the temple tip. In another embodiment, the temple tip can include a female connector, which can be similar to the female connector 310 shown in FIG. 6B. As the temple tip grabs onto the main body of the temple, the female connector can make electrical contact with a male connector at the main body of the temple. Typically, particularly before a pair of glasses has been extensively worn, the temple tip can be removed and re-inserted back on to the main body of the temple without a lot of difficulties. Such a temple tip can be an after-market component, with different temple tips having different electrical components to serve different functions.

[000175] FIG. 17B is a diagram of a temple arrangement 910 according to one embodiment of the invention. In this arrangement, a temple tip is not considered as a part of the temple. The temple arrangement 910 includes a temple 912 that is associated with a pair of eyeglasses. Over the end of the temple 912 that is opposite the associated lens holder, a temple tip 914 is provided. The temple tip 914 can be held to the temple 912 by frictional forces and/or adhesive. The temple tip 914 includes at least one electrical component 916 that is at least partially embedded therein. The temple tip 914 can be manufactured and delivered to resellers or retailers as such. Alternatively, the temple tip 914 can be separately provided as an optional replacement temple tip for an existing temple tip. Hence, as after manufacture, upgrade to the eyewear can be had through replacing the existing temple tip with the replacement temple tip. The colors and shapes of the temple tip 914 can vary widely. In the after manufacturing environment, the reseller or retailer can be provided with a range of different colors and shapes so that a user can receive a replacement tip that reasonably matches the color and shape of the temple or that provides an altered appearance as desired by the user.

[000176] Besides a replacement temple tip such as illustrated in FIG. 17B, a temple tip can also be effectively modified by a fit-over temple or temple cover. FIG. 17C is a diagram of a temple cover 920 that at least partially covers a temple (e.g., temple 912) according to one embodiment of the invention. As another example, the temple cover 920 can be a fabric or other material, such as a sock or sleeve, that slides over and at least partially covers a temple tip. The temple cover 920 can include at one electrical component 922 that is either attached thereto or at least partially embedded therein. The temple cover 920 can also include an opening 924 so as to received a temple or a temple tip. The temple cover 920 can be held to a temple by frictional forces and/or adhesive. FIG. 17D is a diagram of a fit-over temple 926 that at least partially fits over a temple according to one embodiment of the invention. For example, the fit-over temple 926 can at least partial fit-over a temple tip. The fit-over temple 926 includes at one electrical component 928 that is either attached thereto or at least partially embedded therein. The fit-over temple 926 can also include an opening 930 so

as to receive a temple. The fit-over temple 926 can be held to a temple by frictional forces and/or adhesive. As an example, the fit-over temple 926 can be plastic or other material. The colors and shapes of the fit-over temple 926 can vary widely. In the after manufacturing environment, the reseller or retailer can be provided with a range of different colors and shapes so that a user can receive a replacement temple cover or fit-over temple that reasonably matches the color and shape of the temple or that provides an altered appearance as desired by the user.

[000177] In one embodiment, a fit-over temple or temple cover according to the invention can further include a connector or cable to facilitate electrical connection with the at least one electrical component that is either attached to a temple or a temple tip or at least partially embedded therein.

[000178] In one embodiment, an electrical component is a component of an electrical circuit, and the electrical circuit is for performing at least a desired, intended or predetermined function.

[000179] A number of embodiments have been described above for an eyeglass frame, i.e., primary frame, are also applicable to an auxiliary frame. An auxiliary frame can attach to a primary frame through different techniques, such as using clips. Another technique to attach an auxiliary frame to a primary frame is by way of magnets. Examples of using magnets as an attachment technique can be found, for example, in U.S. Patent 6,012,811, entitled, "EYEGLASS FRAMES WITH MAGNETS AT BRIDGES FOR ATTACHMENT."

[000180] A number of embodiments have been described where one or more electrical components are at least partially embedded in a pair of glasses. In yet another embodiment, the one or more electrical components are at least partially embedded in an eye mask.

[000181] FIG. 18 shows one embodiment 925 where one or more electrical components are at least partially embedded in an eye mask 927. The eye mask 927 includes a piece of fabric that is opaque so that when the mask is worn, the mask wraps around the eyes to block light from entering into the eyes of the user.

[000182] The embodiment 925 includes a wrapping mechanism to hold the fabric onto the head of a user so that when the mask is worn by the user, the mechanism allows the fabric to have a relatively tight and comfortable fit over the face of the user. In one approach the wrapping mechanism is achieved with the fabric in the shape of a band and having a certain degree of elasticity. When the mask is worn by the user, the elasticity of the fabric allows the mask to establish a relatively tight fit over the face of the user. In another example, the fabric is a long piece of material. The wrapping mechanism includes a clip or Velcro at the two ends of the piece of material to tie the two ends together. In another example, the wrapping mechanism includes two elastic pieces of elastic materials at the two ends of the fabric. To wear the mask, each elastic piece of material goes over one of the ears of the user so that the fabric establishes a relatively tight fit over the face of the user. In yet another embodiment, the mask 927 includes a notch 935 to accommodate the nose of the user. In another embodiment, there can be additional padding in the vicinity of the one or more electrical components so that if an electrical component is pressed against the user, the padding serves as a buffer or cushion.

[000183] In one embodiment, a speaker 929 can be at least partially embedded in the mask 927, and can be positioned close to and facing one of the ears of the user. The speaker 929, through an electrical connector, is electrically connected to a cable 931. The cable 931 can also have a connector 933 at its distal end. The connector 933 can be plugged into another device, such as a MP3 player or a CD player. After putting on the mask, with the connector 933 plugged into the another device, the user would be able to hear, for example, audio sounds such as music. The eyemask 925 can be applied to different areas. For example, the user can be on a plane, and would like to rest. The user can put on the eyemask 925, and plug the connector 933 into a media outlet at an armrest of her seat in the plane. Thus, the user can enjoy music while taking a rest. The embodiment 925 could also include a plurality of speakers, such as one for each of the user's ears.

[000184] In another embodiment, the eyemask 927 includes the speaker 929 and a battery that is electrically connected to the speaker 929. The battery can be in a pocket on the eyemask and can be replaceable. The battery can also be a rechargeable battery, such as a lithium-ion battery, and there is a connector at least partially embedded in the eyemask. The connector can be used to recharge the battery.

[000185] FIG. 19 shows another embodiment 950 where one or more electrical components are at least partially embedded in a night cap 952. In one embodiment, the cap 952 is at least partially made of fabric. In another embodiment, the cap 952 is entirely made of fabric. The cap includes a wrapping mechanism. When the cap is worn, the wrapping mechanism holds the cap onto the head of the user, and allows the cap to have a relatively tight and comfortable fit over the head of the user. Again the wrapping mechanism can be an elastic band at the base 963 of the cap 952. Or, the wrapping mechanism can include clips or Velcro as previously described.

[000186] The cap can include at least one speaker 954, which is at least partially embedded in the cap 952. When the cap 952 is worn by a user, the speaker 954 is positioned close to and facing one of the ears of the user. The speaker 954 can, for example, be electrically connected through a connector to a device 962 in a pocket 960 on the cap 952. The electrical connection can be through a cable 956 external to the cap 952. The cable 956 also can have a connector 958 to be plugged into the device 962. In another embodiment, the cable 956 is embedded in the cap. The device 962 can be an asset player, such as a MP3 player, with a battery. Through the connector 958, audio signals from the device 962 can be received by the speaker 954 and heard by the user. There can be one or more additional pockets on the night cap for one or more additional electrical components. When worn, the night cap does not have to cover the eyes of the user. In yet another embodiment, when worn, the night cap further covers the eyes of the user, as shown in FIG. 19. In one embodiment, the embodiment 950 further includes padding in the vicinity of an electrical component to serve as a buffer or cushion between the user and the electrical component.

[000187] A number of embodiments have been described involving a speaker in an eyemask or a night cap. In one embodiment, the audio output from the speaker can serve to cancel the environmental sounds in the vicinity of the user. For example, if the user is on an airplane, the surrounding environmental sound has a relatively high level of white noise. This white noise can be detected by a pickup device and cancelled by noise cancellation circuitry provided within the eyemask or night cap. Namely, the audio output from the speaker serves to cancel the white noise of the user's environment. In another embodiment, the electrical component embedded or partially embedded is not a speaker, but can be a sensor, which can sense a physiological function of the user.

[000188] FIG. 20A is a diagram illustrating a temple 1000 having a slot for receiving a removable electronic device 1002 according to one embodiment of the invention. In one example, the removable electronic device 1002 can be a memory storage device, sometimes referred to as a memory card. As shown in FIG. 20A, the removable electronic device 1002 is inserted into the slot. Although the slot could be electrically non-functional, typically the slot provides an avenue for the removable electronic device 1002 to be physically and electrically connected to electrical circuitry within the temple 1000 or elsewhere within the eyeglass frame. FIG. 20B is a diagram illustrating the temple 1000 having a recessed lower portion 1004 according to another embodiment of the invention. The recessed lower portion 1004 facilitates the insertion and removal of the removable electronic device 1002. In either embodiment, the removable electronic device can be manually inserted and removed or can use more complicated mechanical mechanisms to assist with the insertion and removal (e.g., spring-based push and release structure).

[000189] FIGs. 21A and 21B are diagrams illustrating a pair of glasses 2100 having a camera 2101 coupled thereto, according to one embodiment. The camera includes an image sensor 2102 and a camera housing 2106 (also referred to as a camera support arm). In this embodiment, the camera 2101 is rotatably coupled to an exterior surface of a temple 2104 of the pair of glasses 2100. The camera support arm 2106 is attached to the temple 2104. The camera support

arm 2106 can couple to the temple 2104 using a hinge 2108. In one implementation, the hinge 2108 can use a spring or cam mechanism so that the camera support arm 2106 is held either against the temple 2104 when not in use or held in an open or extended position when in use. FIG. 21A illustrates one position of the camera support arm 2106 when the camera 2101 is not in use. FIG. 21B illustrates one position of the camera support arm 2106 when the camera 2101 is in use. The presence of the camera 2101 with the pair of eyeglasses 2100 enables a wearer of the pair of eyeglasses 2100 to take pictures of what the wearer is looking at. It should be noted that other supporting circuitry such as data storage for pictures, switches, battery, and electronics for the camera 2101 can be in the temple 2104, in the camera support arm 2106, elsewhere in the pair of glasses 2100, or even tethered thereto. However, in one implementation, the camera 2101 is completely self-contained in the camera housing 2106. In one embodiment, the hinge 2108 can also serve as a switch to turn the image sensor 2102 on or off.

[000190] In one implementation, to improve overall appearance of the pair of glasses 2100, the temple 2100 can provide a recess for receiving the camera support arm 2106 when the camera is not being utilized. Such may improve the aesthetic appearance of the pair of glasses 2100.

[000191] In another implementation, the pair of glasses 2100 can further provide a viewfinder. The viewfinder can assist the user in directing the image sensor 2102 towards whenever the user desired to photograph. The viewfinder can be a separate apparatus that is extended by user action or can be a viewfinder that is visually present or presented on one of the lenses. In one example, the viewfinder can be an extendable viewer through which the user can look through to determine the field of reference of the image sensor 2102. The viewfinder can be extendible from either of the temples, such as in a telescoping, sliding or flipping action. Additionally, when the camera support arm 2106 is extended, a viewfinder can be automatically initiated. For example, indicators on one of the lens can be visually presented, such as through optical projection from one or more light sources. In another embodiment, the viewfinder can be always present, such as

with indicators on one of the lens of the pair of glasses 2100. The indicators can be a few faint dots to define an area (e.g., a square) on the lens.

[000192] In one embodiment, the camera support arm (camera housing) 2106 is removably coupled to the hinge 2108. As such, the camera 2101 can be removed from or attached to the pair of glasses 2100. Indeed, the camera support arm (camera housing) 2106 can be a camera body that houses electronics for the camera 2101. In such case, the camera 2101 can operate as a camera apart from the pair of glasses 2100.

[000193] In one implementation, the camera support arm 2106 has a connector and the hinge 2108 has a counterpart connector. In one example, the connectors are peripheral bus connectors, such as USB connectors. In such case, the camera support arm 2106 can be attached and removed from the pair of glasses 2100. Such a connection via the connectors can be electrically functional or non-functional. If functional, electrical components in the pair of glasses 2100 can be electrically connected to electrical components in the camera 2101.

[000194] Still further, in one embodiment, the connector at the end of the hinge 2108 enables connection of a variety of different peripheral devices to the pair of glasses 2100. For example, the different peripheral devices (portable electronic devices) can be the camera, a memory card, or a media player. In one embodiment, electrical components integral with the pair of glasses 2100 can be shared by the different peripheral components. The hinge 2108 is not necessary in other embodiments, see FIGs. 8F-8H, where a connector is attached or integral with a temple of a pair of glasses. If desired, the camera 2101 or other peripheral devices can include in its structure a hinge or other mechanism to permit positioning the camera or other peripheral devices.

[000195] In still another embodiment, an angled or hinged adapter can be inserted between a connector attached to the pair of glasses 2100 and a connector of the camera 2101 or other peripheral devices. The adapter can be electrically functional or non-functional.

[000196] In yet in another embodiment, a pair of glasses functioning as a headset with a speaker and a microphone further includes a camera. FIG. 22 is a diagram of a pair of glasses 2200 having a camera according to one embodiment of the invention. The glasses 2200 include a temple 2205 that has a microphone 2204, a speaker 2206 and a camera 2208 with a connector 2210. The connector 2210 is for connecting, for example, to another electronic device that provides at least one of data or information transfer capabilities or a power source for the glasses.

[000197] In one embodiment, the camera 2208 is a digital camera with an on/off switch 2212. For example, the camera 2208 is a CCD camera including a CCD controller coupled to a CCD chip to capture images, a CCD memory device and a lens.

[000198] In one embodiment, with the connector 2210 connected to another electronic device (e.g., a portable electronic device), when the switch 2212 is pushed on, the CCD chip takes a picture. The charges in the CCD chip are digitized and transmitted through the connector 2210 to the other electronic device, under the management of the controller. At least some of the charges can be temporarily stored in the CCD memory device, for example, to accommodate the differences in speed in taking pictures and sending the pictures to the portable device through the connector. In this embodiment, images can be stored at the other electronic device. In another embodiment, the glasses can include sufficient data storage capabilities to store the pictures, at least until transferred to another electronic device.

[000199] In one embodiment, the glasses do not offer focusing capability. The CCD chip can be located, for example, at the focal point of the lens. In another embodiment, there is an image distance control knob. For example, a mechanical lever can be pre-programmed or pre-set to move the lens to one or more different positions. In one implementation, there can be just two positions. One position can be for close-up shots and another for distance shots, such as close-up being

about 2 ft from the lens and the distant being about 6 ft away; or close-up being about 8 inches away and distant being about 2 ft away.

[000200] FIG. 22 shows one embodiment regarding the location of the camera 2208 at the end of the temple or arm 2205 of the glasses 2200 next to the hinge. The lens of the camera faces forward. In this situation, what the user sees is substantially what the captured image would be. In other words, in a general sense, what the user sees through the glasses is what the user gets, without the need for an additional view finder. With such an embodiment, it is relatively easy for a user to take pictures, hands-free, without the need for an additional strap for holding the camera.

[000201] The connector 2210 at the end of the glasses 2200 can be, for example, a 4-terminal connector, one for ground, one for power and the other two for transmit and receive signals. In another embodiment, the connector 2210 can be a 3-terminal connector, with the power line and one of the signal lines sharing one terminal.

[000202] Regarding the embodiment shown in FIG. 22, the speaker 2206 can be in the glasses, with a tube 2216 and an ear bud 2218, to help bring audio signals to the user. In one embodiment, the tube 2216 can be rotated at its end where it connects to the glasses. In another embodiment, the speaker 2206 can be provided at the ear bud 2218.

[000203] In one embodiment, the CCD chip with the CCD memory device and the CCD controller are on the same integrated circuit.

[000204] The embodiment shown in FIG. 22 also includes a microphone 2204. In one embodiment, the CCD memory device also stores audio signals from the microphone 2204. For example, the memory device stores a duration of time, such as the last 15 seconds, of audio signals. When the user takes a picture, a duration of time before taking the picture, such as the previous 15 seconds, audio signals can be coupled to the picture. Another duration of time after taking the picture, such as the next 10 seconds, of audio signals can also be coupled to the picture. In one embodiment, the audio picked up can include environmental sounds

present at that time. The audio signals or the digitized version of the audio signals can also be transmitted to the other electronic device with the corresponding picture. In the future, if the user wants to view the picture, the audio signals can be played with the picture at the same time. As another example, the user can provide an auditory annotation to the pictures being taken. Here, the user can leave a specific audio message to be associated with the picture. For example, the user might take a picture of his childhood home and record an audio annotation, "This is where I grew up".

[000205] In one embodiment, a pair of glasses functions as a headset with a speaker, a microphone and a camera. The pair of glasses can be coupled to another electronic device through a connector of the glasses. Additional electrical components, such as those in the other electronic device, like a portable device, for the glasses can be incorporated in the glasses. For example, the power source can also be in the glasses and the glasses do not have to include a connector. In one embodiment, the glasses include non-volatile memory to store at least a number of pictures. In another embodiment, the glasses further include a connector to receive a memory card, such as a flash memory device. The card can be a standard memory card with a USB connector. Pictures taken can be stored in the removable memory card.

[000206] In yet another embodiment for the glasses with a camera, the glasses do not include a speaker or a microphone. The glasses include a temple that has a CCD controller coupled to a CCD chip, a CCD memory device and a lens. The temple also includes an on/off switch with a connector. The connector is for connecting, for example, to a portable device that includes at least a power source for the camera.

[000207] In still another embodiment, an auditory feedback by a speaker is provided or coupled to a pair of glasses. For example, a clicking or "snapshot" sound can be output when a picture is taken (such as when a user initiates the picture taking).

[000208] Additional disclosure on camera in glasses can be found in U.S. Provisional Application No. 60/583,169, filed on June 22, 2004, which is hereby incorporated by reference.

[000209] A number of electrical components have been described. They can be on circuit boards, which can be made of flexible materials. They can be on a substrate. They can also be integrated into one or more integrated circuits.

[000210] FIG. 23A is a diagram of a pair of glasses (i.e., eyeglass frame) 2300 having a camera according to one embodiment of the invention. The eyeglass frame 2300 illustrated in FIG. 23A includes a lens holder 2302 holding a lens 2304 and a lens holder 2306 holding a lens 2308. The eyeglass frame 2300 also includes temples 2309 and 2310. In the embodiment shown in FIG. 23A, the temple 2310 includes a camera 2312, supporting electronics 2314 and a switch (e.g., button) 2316. In one embodiment, the camera 2312 includes a CCD chip. The camera 2312 can also include a lens and buffer memory. In one embodiment, the electronics 2314 illustrated in FIG. 23A can be embedded within the temple 2310. The electronics 2314 can include at least a microcontroller (e.g., an image processor), a memory, and a battery. These electronics 2314 can support the camera 2312. The eyeglass frame 2300 can further include various other electrical components. For example, the eyeglass frame 2300 can further include one or more of: a microphone, an earphone, a removable memory, a display, a clock, and a Global Positioning System (GPS). These electrical components can be used in conjunction with the camera 2312 or separately from the camera 2312. The button 2316 enables a wearer of the eyeglass frame 2300 to turn the camera 2312 on/off and/or to cause a picture to be taken (recorded). For example, by pushing the button 2316 for more than a few seconds, the camera will be turned off. However, by pushing and releasing the button 2316, the camera takes a picture.

[000211] Still further, in the embodiment of the eyeglass frame 2300 shown in FIG. 23A, the eyeglass frame 2300 further includes a view finder 2318 and an angled surface 2320. Other embodiments of eyeglass frames need not include such features. Nevertheless, the view finder 2318 can assist a wearer (i.e., user)

of the eyeglass frame 2300 in understanding the frame of the image (picture) being captured by the camera 2312. In this example, the view finder 2318 is provided on the lens 2304 in a visible, yet non-distracting manner. As shown in FIG. 23A, the view finder 2318 can be positioned such the wearer can direct the image (picture) to be captured. For example, the wearer would orient their head (using the view finder 2318) to direct the camera 2312 towards the desired subject. Also, the angled surface 2320 allows mounting the camera 2312 in an angled manner. As a result, the direction of the camera 2312 is not straight forward but out towards the side. This facilitates the wearer in directing the camera 2312 using a single eye via the lens 2304, and more particularly via the view finder 2318 if provided. The outward angle from straight forward being utilized by the camera 2312 can vary with implementation. For example, the outward angle can be in the range of 10-70 degrees or more particularly in the range of 15-60 degrees, or more particularly in the range of 20-40 degrees from the perpendicular direction of the plane of a front surface of the eyeglass frame 2300. In one embodiment, with the camera positioned at an angle, the lens holder 2302 would not block the field of view of the camera even with the camera being positioned at a distance behind the lens holder 2302.

[000212] Although the camera 2312 is provided on the left side of the pair of glasses 2300 as shown in FIG. 23A, it should be understood that the camera could alternatively or additionally be provided on the right side of the glasses.

[000213] FIG. 23B is a diagram of a pair of glasses (i.e., eyeglass frame) 2300' according to another embodiment. In this embodiment, the eyeglass frame 2300' is similar to the eyeglass frame 2300 illustrated in FIG. 23A. However, the eyeglass frame 2300' further includes a connector 2322 and a memory card 2324. More particularly, the temple 2310 includes a region 2326 larger than the temple region shown in FIG. 23A. The larger or enlarged region can provide additional space for the connector 2322 and the memory card 2324. The memory card 2324 can be operatively connected electrically to the electronics 2314 within the temple 2310 via the connector 2322. The connector 2322 also can serve to provide a physical connection of the memory card 2324 to the eyeglass frame 2300. In one

embodiment, such physical connection is removable so that the memory card 2324 can be connected to or removed from the temple 2310. Accordingly, the memory card 2324 can facilitate porting of data or information (e.g., pictures) from the eyeglass frame 2300' to another electronic device (e.g., computer). As an example, the connector 2322 can be a USB connector or other peripheral type connector.

[000214] The eyeglass frame having a camera according to one embodiment of the invention can further include one or more sensors. For example, the one or more sensors can include one or more of a "being worn" sensor, a motion sensor, and a light sensor. These sensors can be used to influence operation of the camera provided with the eyeglass frame. For example, a "being worn" sensor can be used to determine whether the eyeglass frame is being worn by a user. If the eyeglass frame is not being worn, then the camera can be deactivated to prevent unnecessary battery consumption and/or to prevent pictures from being taken. As an example, if the camera is operated to automatically, periodically take a picture, then if the eyeglasses are not being worn, the automatic picture taking process could be stopped. In one embodiment, a motion sensor can be used in a variety of ways. A motion indication can indicate a rate of activity of the user. For example, the rate of activity could be used to avoid taking pictures during periods of high activity, such as rapid movements of the eyeglass frame (or the corresponding user), or to influence image processing, such as exposure rate. As another example, the rate of activity can be used to control the rate pictures are taken such as in the automatic picture taking example. In one embodiment, a light sensor can indicate the degree of light in the vicinity of the camera. The light indication can influence the image processing, such as exposure rate of the camera.

[000215] In one embodiment, in an automatic picture taking example, the location, time or device resources (e.g., available memory) can also be used to control the rate pictures are taken. Also, the ability of the eyeglass frame to know or acquire time and/or location information (such as the location of the eyeglass

frame or the corresponding user) can enable pictures taken by the camera to be stored along with time and/or location indications.

[000216] The eyeglass frame having a camera according to one embodiment of the invention can further include a global positioning system (GPS). The information from the GPS can be used to alter configuration settings and/or influence operation of the camera. For example, the configuration settings can be different at night versus during daytime or can be different depending on time or location. As another example, the camera can take pictures depending on location. In one implementation, the camera can automatically take pictures dependent on a change in location. For example, after taking a picture, the camera can take a subsequent picture when the change in location exceeds a predetermined threshold.

[000217] In one embodiment, the camera utilized in the various embodiments is a digital camera, namely, a digital image capture device. The camera can be a still camera or a motion camera (i.e., video camera). The camera can be designed for manual focusing, auto-focusing, or predetermined fixed focusing. The camera can also support a wide angle or panoramic view.

[000218] FIG. 24 is a side view of a pair of eyeglasses (i.e., eyeglass frame) 2400 according to another embodiment of the invention. The eyeglasses 2400 include a lens holder 2402 for a lens 2404. The lens holder 2402 is for the left side of the eyeglasses 2400. A bridge 2406 couples the lens holder 2402 to another lens holder for the right side of the eyeglasses. In this embodiment, the lens 2404 and the lens holder 2402 extend substantially around the side and are sometimes referred to as “wrap-around” type frames. The eyeglasses 2400 include a temple having a forward temple portion 2408 and a rearward temple portion 2410. Typically, the lens holder 2402, the temple 2406, the forward temple portion 2408 and the rearward temple portion 2410 are integrally formed as a single structure. The eyeglasses 2400 also support audio output to a wearer of the eyeglasses 2400. To support audio, the eyeglasses 2400 include an ear bud 2412, which serves as a speaker, and an extension arm 2414. In this embodiment, the

extension arm 2414 couples the ear bud 2412 to the forward temple portion 2408. The extension arm 2414 can be pliable so that the wearer can adjust the position of the ear bud 2412. In further support of audio, the eyeglasses 2400 couple to a cable 2416. The cable 2416 provides audio signals to the ear bud 2412 via at least one electrical conductor extending through the cable 2416 and the extension arm 2414 to the ear bud 2412. In one implementation, one end of the cable 2416 has a connector 2418 and the other end is integral with or connected to the forward temple portion 2408. The connector 2418 can connect to a media output device, such as a portable media player (e.g., radio, MP3 player, CD player, etc.). In another implementation, the cable 2416 can have a connector, such as a plug, that connects to a jack 2420 embedded in the forward temple portion 2408, thereby allowing the cable 2416 to detach from the eyeglasses 2400. Alternatively, the cable 2416 can directly connect to the media output device without the use of the connector 2418. Optionally, the eyeglasses 2400 can also support audio input by providing a microphone with the eyeglasses 2400. In one embodiment, with a microphone, the eyeglasses 2400 serve as a headset for a phone.

[000219] Regardless of the electrical components being utilized with the eyeglass frames, it may be desirable for the eyeglass frames to be substantially balanced in weight. In the event that electrical components are attached and/or at least partially embedded in one of the temples of the eyeglass frame, the other of the temples can include other electrical components or even a counter weight so that the eyeglass frame can be substantially balanced.

[000220] Fig. 25 shows one embodiment of the present invention. The embodiment includes a pair of glasses 3010 with a first lens holder 3012 and a second lens holder 3014. Both lens holders are for receiving lenses. The first lens holder 3012 has a first side and a second side. The second lens holder 3014 also has a first side and a second side. The pair of glasses has a bridge element 3016. The bridge element is coupled to the first side of the first lens holder 3012 and the second side of the second lens holder 3014. In one embodiment, the lens holders and the bridge element are not separate pieces, but are an integral piece.

[000221] The pair of glasses 3010 also includes a first temple 3016 and a second temple 3018. The first temple 3016 is pivotally secured to the second side of the first lens holder 3012 through a joint 3020. And, the second temple 3018 is pivotally secured to the first side of the second lens holder 3014 through another joint 3022. The glasses 3010 further include a speaker 3024, a power source 3026 and a switch 3028. The speaker 3024 is powered by the power source 3026, and the switch 3028 is used to turn the speaker 3024 on and off. The pair of glasses 3010 can deliver information through the speaker 3024 to the wearer or user of the glasses 3010. In one embodiment, the information is available for a duration of time. With the speaker 3024 close to at least one of ears of the wearer of the glasses 3010, the information provided to the user can be provided in a relatively private manner.

[000222] In different embodiments, the glasses 3010 can be a pair of sunglasses, fit-over glasses, prescription glasses or other types of glasses. In a number of embodiments, the frames of the glasses have more surface area than frames with minimal structure, such as those frames with lenses connected together by wires. For example, the temples of the glasses can have a tapered profile. Each of the temples is wider or broader when it is close to its corresponding joint. In one embodiment, the temple is wider or broader by spanning across a wider or broader area longitudinally downward, creating a bigger surface in an orientation generally parallel to the side of the user's head. FIG. 25 shows an example of such an embodiment.

[000223] In another embodiment, there can be a shield at least at one edge of each of the lens holders of the glasses. These shields can wrap around, or better conform to the profile of, the face of the wearer. The shields can be opaque. There can be transparent or translucent windows on these shields. To illustrate, in fit-over sunglasses, when worn over a pair of prescription glasses, such shields can go over or cover at least a portion of the pair of prescription glasses. Note that in one embodiment, a pair of glasses does not have to include lenses.

[000224] In one embodiment, a pair of glasses is for an event. An event can be viewed from the perspective of one or more organizations sponsoring or

organizing the event. These events can be, for example, a basketball game, a concert, or a trade show. These events are provided or sponsored by one or more organizations or companies. In a number of embodiments where information is available from a speaker at a pair of glasses and the glasses are for an event, the information made available from the speaker is related to the event. In such embodiments, the information can be available for only a limited duration of time and the duration is associated with the event, which can include some time (such as buffer time) before the event and some time after the event. When the event is over, which can include any post-event buffer time, the information will generally not be available.

[000225] In another embodiment, an event can be viewed from the perspective of the person at the event. From the perspective of the person, an event can be buying a product from a store. This can be considered an event from the point of view of the person at the event. Typically, it has a beginning, it has an end, and there is a purpose or a theme. The information is available to the person when the person is at or proximate to a location associated with the event, such as a building. When the person is away from the location, the information will not be available.

[000226] In one embodiment, the duration of an event is not more than a week. In another embodiment, the duration is not more than a day. In yet another embodiment, the duration of an event is not more than a few hours, such as nine hours.

[000227] In one embodiment, there is advertising or promotional material on a pair of glasses, and the material is related to an event. The material can be on the surface area provided by temples, shields or other areas on a pair of glasses. For example, if the event is about dinosaurs in the Jurassic period provided by an organization, there can be a Brachiosaurus printed on the glasses. The organization can use the surface area on the glasses as places for advertisement of not only the event, but also the organization itself. The organization can also sell such surface area to other companies, which can provide additional promotional material on the glasses.

[000228] Referring back to FIG. 25, it shows one embodiment of the invention where there is a speaker 3024 in one of the temples 3018 of the glasses 3010.

[000229] In one embodiment, the information is available for a duration of time, which can be short. For example, the power source 3026, which can be a battery, may not have enough power to run the speaker 3024 in its full capacity for a long duration. To illustrate, the battery 3026 only has enough power to run the speaker continuously for a short duration of time, which can be less than a few hours with the speaker 3024 at its highest volume possible, when it is turned on by the switch 3028 in the glasses 3010. The battery 3026 can be encapsulated in the glasses 3010, such as in one of the temples 3018 of the glasses 3010. The battery 3026 can be a coin battery or a AAA battery, or other types of batteries. In one implementation, the glasses are designed such that the battery 3026 is not easily replaceable by the user. The battery 3026 can be inside a temple and the temple can be sealed so that the battery 3026 is typically not replaceable without breaking the temple.

[000230] Fig. 26 shows a number of attributes regarding the applications of the glasses, such as the glasses shown in Fig. 25, according to different embodiments of the invention.

[000231] In one embodiment, the information provided by the glasses can be driven by an event organized by an organization 3050. For example, the user is at a football game in a stadium. The information can be related to a star player, such as his statistics, or other interesting information regarding the team. The information can be for an event related to the event at the stadium. For example, the user is at the Stanford Stadium watching the game between the Stanford and the Berkeley football teams. However, periodic update information or other types of information, such as play-by-play information, from a game at the UCLA Stadium between UCLA and USC can be provided to the user. All four teams are vying for the PAC 10 title. The user at the Stanford Stadium, who might be an UCLA fan, can hear about how the UCLA team is performing, while watching the Stanford/Berkeley game.

[000232] In the embodiments where information is available from the glasses, the information is available hands-free. This allows the user to use both of his hands totally freely, for whatever other purposes the user prefers, including providing different gestures.

[000233] In the embodiments where information is available, such as through a radio, the information can be available almost instantaneously when the electrical components in the embodiments are activated or turned on. This can be important during high intensity games. If it takes 30 seconds to start the system before information is available, such down time may not be available or tolerable during the games.

[000234] The user in an event may not be the audience or the observer of the event. In one embodiment, the user using a pair of glasses in the present invention not only attends the event, the person also helps to produce the event. For example, the event is a game, and the person is a coach of one of the teams playing in the game. Additional embodiments will be described where a pair of glasses is coupled to a handheld device. The glasses provide information to the coach, who can use the handheld device for a number of purposes, such as to track plays or calls.

[000235] In one embodiment, the information available at a pair of glasses can be advertising materials available during the break time of a game. The advertising materials can, for example, be from a company organizing or sponsoring the event, or from one of the teams in the event.

[000236] As another example, the event is an indoor event, such as an indoor concert.

[000237] The information can be location driven 3052, which in one embodiment can be considered as an event attended by a user when the user is at the location. For example, the user is in a store, with many products. The products can be services. As the user moves around the store, he looks at different products. In one approach, each product is designated by a number. By entering the specific number into the glasses or into a portable device coupled to the glasses, such as through a switch, information pertinent to the corresponding

product will be available to the user. As another example, the user can be in an exhibit hall, a trade show or in a museum. As the user strolls in the hall, information of different exhibits is available to him. Or, the user can be walking around a botanical garden, and is given a virtual, unguided tour by the glasses of the different type of plants in the garden. When the user moves away from such locations, the information will not be available.

[000238] The user can be at places where he is alone, or he does not know anybody. He might be bored. For example, he can be in a dental office having his teeth cleaned. Or, he can be in a bank waiting for his turn. Different types of information can be available to him. For example, if the bank has a new home loan program, such information is available to him. Again, when the user moves away from such location, the information will not be available.

[000239] The information can be for entertaining 3054 the user. Or, the information is primarily promotional 3056 in nature. The promotion can be related to the event the user is participating, or the promotion can be related to the location, such as the company associated with the user's location.

[000240] The information can be in different languages 3058. For example, glasses with a red dot provide information in English, while glasses with a white dot provide information in Spanish. Or, there can be a switch on the glasses that allows setting the language to that preferred by the user.

[000241] The glasses can be given away 3060. They can be sold at a relatively low price 3062. Or, the glasses can be for temporarily use, such as the user can borrow, rent or lease 3064 the glasses for a short duration of time. To track such glasses after they have been rented, each pair of glasses can have an identifier, such as a bar code. The bar code can be located on the inside of the glasses, such as on the inside of a temple of the glasses. In another embodiment, each pair of glasses can also or alternatively have a RFID tag, which can be wirelessly tracked. The tag can be in a temple, such as in the vicinity of the tip of the temple, or its temple tip. A temple tip is, in general, in a region of the temple substantially furthest away from the hinge of that temple. The organization responsible for renting out the glasses can ask for the user's identity card, which

can be the user's driver's license. The card is then linked to the bar code, the RFID tag or other identifier of the glasses. When the user returns the glasses, the user can reclaim the corresponding identity card.

[000242] Referring back to Fig. 25, the embodiment 3010 includes a speaker 3024 that is at least partially embedded into the glasses. There are different approaches to embed an electrical component, such as a speaker, into different types of glasses. A number of approaches are described, for example, in the various related patent application noted above.

[000243] In one embodiment, the pair of glasses 3010 shown in FIG. 25 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.

[000244] The information can be information captured by a microphone or other pickup device, and transmitted over radio frequency waves to the radio.

[000245] As to the transmitted frequencies, typically government agencies, such as the FCC in the United States, regulate the availability of frequency ranges, particularly when the power of transmission is not low. In one embodiment, the transmitted frequencies can be on either side of the standard FM radio bands. They can be within the television VHF frequency range of 50 megahertz to 150 megahertz, or 49 to 88 MHz, or 108 to 220 MHz. Selecting such frequencies can have the advantage of having receiver components more readily available and less expensive. But, the frequencies selected may vary depending on costs, performance and/or FCC or other government agency requirements.

[000246] In another embodiment, the transmitted frequencies are in the CB (Citizen Band) radio band.

[000247] In yet another embodiment, the transmitted frequencies are FM-sidebands. This would allow the use of FM sideband receivers. Using such sidebands typically would require a lease from radio stations.

[000248] In one embodiment, information is transmitted to the glasses through a Wi-Fi network, or a WiMax network.

[000249] Also, the frequencies transmitted could be based on spread spectrum techniques. In other words, though the frequencies would constantly change, the transmitter and the receiver would be synchronized following the changing frequencies. In a number of countries, such embodiments do not require government license.

[000250] Information can typically reside within a few MHz. In one embodiment, the radio in the glasses is a narrow-band receiver, with a bandwidth of 3-6 MHz.

[000251] In yet another embodiment, the radio can receive signals from one of multiple and proximate AM modulated frequencies. For example, in a museum, information from adjacent artwork can be transmitted based on frequencies centered at the different frequencies. The radio receiver is a broader band AM receiver, which can be a receiver non-tunable by the user. Depending on proximity, the radio will adjust automatically to capture the frequency of the carrier for information regarding the particular artwork and excludes cross-talks from information regarding its immediate adjacent artworks.

[000252] Another embodiment considers the power level of the transmitted signals. If the power level of the transmitted signals is low, signals do not travel an excessive distance beyond the transmitter of the signals. For example, the low power level can be between ¼ to ½ watts. Or, the low power level is not more than 50 milliwatts. If the transmitted power level is low, it is relatively easier to meet government agencies, such as the FCC's, guidelines. Cost and complexity of the circuitry are usually also reduced. High power transmission typically requires special government approval.

[000253] In one embodiment, the transmission path between the transmitter and the receiver is primarily line of sight, and the information can be transmitted via, for example, infrared.

[000254] In yet another embodiment, there can be multiple transmitters. This can then keep transmission power low even if a large or unusually shaped area is to be covered. The corresponding radio will capture its signals from the transmitters based on proximity.

[000255] In one embodiment, the frequency of the radio cannot be tuned at the glasses by the user. The frequencies are fixed upon distribution of the glasses. In another embodiment, the frequencies of interest can be changed. For example, there can be an EPROM in the glasses that can be programmed. Or, one can replace a chip in the glasses to adjust the frequencies. In yet another embodiment, there can be one or more switches at the glasses to change the frequencies.

[000256] A number of embodiments have been described where the glasses include a radio to receive broadcast information. In another embodiment, the information to be received is previously programmed or recorded within a memory device. The glasses include a player to play the information stored in the memory device, and the player includes a speaker. The player is at least partially embedded in the glasses. In one embodiment, the glasses can include the memory device with the recorded information.

[000257] The memory can be on a printed-circuit board and, for example, can store up to 256 MB. The memory can be a built-in or removable flash memory. In one embodiment, the glasses include one or more connectors. The memory embedded in the glasses can be coupled to a device external to the glasses through the one or more connectors. As an example, a 256 MB flash memory is in one of the temples of a pair of glasses, and there is a USB connector at, for example, the end of that temple (close to the ear) to couple to an external device or instrument.

[000258] With the storage medium embedded, the glasses can upload information in the memory to or download information into the memory from an external device, such as a computer. A user can couple the glasses into the

computer through a connector, either directly or indirectly. For example, indirect coupling might use an intermediate wire between the computer and the glasses.

[000259] In yet another embodiment, the memory device is external to the glasses. The memory device is coupled to the glasses through a connector at the glasses. If such removable memories are deployed for an event, the memories can be rented out during the event. Again, such memories can be tracked based on, for example, identifiers stored in the memories, or attached to the memories.

[000260] FIG. 27 shows some of the electrical components for a player 3100 in a glasses according to an embodiment of the invention. The player includes a speaker 3102, a data bus 3104 to facilitate data transfer among, for example, a processor 3106, a storage device 3108, and a coder/decoder (CODEC) 3110. The processor 3106, which can be a microprocessor or controller, controls the operation of the player 3100. The storage device 3108 stores the information, which can be different types of appropriately-formatted media data. In one example, the information is digitally encoded audio signals. The storage device 3108 can include a number of separate storage elements. For example, the device can be a flash memory device, or a minidisk device, and a cache, which can improve the access time and reduce power consumption of the storage device 3108. The storage device 3108 typically also includes a Read-Only Memory (ROM), which stores programs, utilities or processes to be executed in a non-volatile manner. The player 3100 can also include a RAM, such as for the cache.

[000261] Once a piece of information is selected to be played, the processor 3106 would supply the piece of information to the CODEC 3110, which decompresses the media data and produces analog output signals for the speaker 3102. In one embodiment, the bus 3104 is also coupled to an input/output device 3112, which would allow information to be downloaded from an instrument to the glasses.

[000262] There are different approaches to identify a piece of information to be played. In one embodiment, different pieces of information in the storage device 3108 can be categorized, and the categorization can be hierarchical, with multiple levels in the hierarchy. To illustrate, assume that there are three levels.

The top level can be the name of the football team; the second level can be the names of the players on the team, and the third level can be scoring statistics or other attributes of the players. The entries, such as the name of the players, can be abbreviated. There can be a control knob or switch to allow the user to scroll down entries in a level. By pushing the knob, the user selects an entry, which can lead the user to the next level. There can be an entry for moving up a level also. In one embodiment, once an entry is selected, the identity of that entry will be announced. For example, a selected entry is about the statistics of Joe Smith. Once that entry is selected, the speaker will state, "Joe Smith statistics." If that is the one the user wants, the user can signal his preference by, for example, pushing a switch.

[000263] In another embodiment, the information can be searched. The search can be based on one or more key words. As an example, the information is related to songs. A user can search by the name of the song, the name of the artists or music genre. Entry for the search term can be through voice recognition applications in the glasses. Based on the term verbalized by the user, a song will be selected. The glasses can ask the user if that is the song the user has selected. If the response is positive, the song will be played. If not, the glasses will ask the user to verbalize the term again. In another embodiment, entering the search terms is through the key pad of a portable device, wired or wirelessly, coupled to the glasses. Additional descriptions regarding having a portable device linked to a pair of glasses will be further discussed below.

[000264] With the speaker relatively close to at least one ear of the user, the volume of the speaker does not have to be very high. In one embodiment, the volume of the speaker is limited, such as the maximum sound level is not more than 60 dB. If the glasses are powered by a battery, limiting the volume of the speaker would extend the lifetime of the battery. Such a limit can also reduce the chance of the speaker generating audio signals that might disturb people in the vicinity of the user. This, in turn, helps to provide information to the user in a relatively private manner.

[000265] In one embodiment, the glasses are powered by a battery. To extend its lifetime, the glasses include a timer. For example, if the glasses have a radio, after the radio is turned on for a preset amount of time, the timer will turn the radio off automatically. In another embodiment, the glasses include a speaker and the timer would turn the speaker off after the speaker has been turned on for a preset amount of time. The preset time can be determined by the timer.

[000266] In another embodiment, the glasses are powered by other types of sources, such as a solar cell or a fuel cell. Such other type of sources can be at one of temples of the glasses.

[000267] As explained, in a number of embodiments, the glasses include a switch, which typically is at least partially 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.

[000268] The switch in the glasses can have different attributes. It can be activated by different type of forces, including mechanical, radiation, magnetic, electrical, and temperature. The switch can also be activated remotely by a remote device. The switch can be based on one or more detectors. The switch can have different degrees or ranges of control, such as binary, multiple discrete steps or incremental control. The switch can be placed at different position on the glasses, such as on the side or top surface of a temple or at a joint. The control can take perception into consideration, such as based on texture, height and lateral position of multiple switches.

[000269] Fig. 28 illustrates a number of forces 3150 activating the switch according to different embodiments of the invention. They can be based on, for example, mechanical 3152, radiation 3154, magnetic 3156, electrical 3158, and temperature 3160.

[000270] FIG. 29 illustrates a number of mechanical forces 3152 activating the switch according to different embodiments of the invention. The mechanical switch

or sensor can be a conductive-elastomer switch 3202, a membrane switch 3204, a dome switch 3206, a relatively simple wire switch 3208, and a roller switch 3210, such as a switch including a wheel. Another type of mechanical force can be based on stress 3211, such as a switch based on piezoelectric force or a piezoelectric device.

[000271] In yet another embodiment, the mechanical switch is made so that the electrical circuitry in the glasses can be activated but not deactivated by the user. In other words, once activated, the switch is designed not to be deactivated by the user, and the circuit will remain on till the power source inside the glasses is depleted. One approach to implement such a switch is based on a piece of insulating material 3216 between a terminal of, for example, a battery and its contact with the circuit embedded in the glasses. When the battery is installed, at least one of its terminals is separated from its circuit contact. There can be a thin, flexible, insulating material, 3216, such as a ribbon, positioned between the terminal and the contact. Though the circuit is embedded in the glasses, the insulating material 3216 extends outwardly from inside the glasses through a hole, such as a small hole, in the side wall of, for example, a temple of the glasses. In one embodiment, the hole or slot is located above or below the terminal and the contact, or the hole is not directly inline with the terminal and the contact. By pulling the insulating material out from the glasses, the terminal will establish electrical connection with the contact, activating the circuit and turning the speaker on.

[000272] In another embodiment of a switch based on mechanical force 3152, the mechanical force is the force that is used to insert 3218 a battery into the glasses. Once the battery is inserted, the speaker in the glasses will be activated. The speaker will remain on until the battery is removed, or until the power in the battery is drained.

[000273] The switch can also be activated by radiation 3154, or energies in a type of radiation, according to a number of embodiments of the invention. The radiation 3154 can be in the optical, or infrared or ultraviolet range. For example, the switch includes a photodiode or photo sensor in the glasses, and there is an opening above the photodiode. In one embodiment, the diode is activated by light

getting to the diode through the opening. In another embodiment, the circuit is activated if the opening is covered to prevent light from getting to the diode.

[000274] The switch can be activated by magnetic forces 3156. 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. 30 shows a section of a pair of glasses 3250 with such a detector 3254. The detector 3254 is electrically connected to a printed circuit board 3255. When the temple 3252 is in its extended position, as when the glasses 3250 are ready to be worn, the detector 3254 will be directly adjacent to a magnet 3256 inside a lens holder 3258 at the corresponding joint 3260. The magnet 3256 would activate the Hall effect detector 3254. In another embodiment, a magnetic switch is activated based on changing the inductance of a coil. For example, the switch includes a steel rod that can be positioned in or out of a coil. The switch's range of control is based on the position of the rod with respect to the coil.

[000275] The switch can be activated depending on electrical forces 3158. 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.

[000276] In another embodiment, the electrical force 3158 is based on resistive effect. For example, the switch is made up of a slide or a rotary potentiometer. By changing the amount of coupling, the amount of resistance is changed to reflect the range of control of the switch.

[000277] In one embodiment, the switch's activation can depend on temperature 3160. For example, the switch includes a temperature sensor. When the temperature reaches a certain point, the switch is activated.

[000278] In yet another embodiment, the switch is controlled by a remote controller. For example, the glasses include an infrared detector. The remote controller can generate infrared radiation. By aiming the controller at the detector,

the infrared radiation can activate the infrared detector and the switch is activated. Or, if the user moves into the vicinity of a corresponding infrared transmitter, circuits in the glasses would be activated.

[000279] The switch can include one or more previously-described sensor or detector of different types of forces. For example, the switch can use two photo sensors. One sensor is exposed to light on the outside surface of the temple and the other is exposed to light on the inside surface of the temple, such as close to the ear. Based on their differential output, the switch is activated. As another example, there are two temperature sensors in the glasses. One is located close to a joint and the other is at the temple close to the ear. Again, the switching action depends on their differential outputs. In yet another embodiment, the glasses include more than one type of switch. There can be one type of switch, such as a mechanical switch, acting as an on/off switch, and another, such as a switch using electrical forces, as an incremental switch to change frequency.

[000280] As described, in a number of embodiments, the switch can provide different degrees or ranges of control. In one embodiment, there are two degrees of control, such as in an on/off switch. In another embodiment, there can be multiple discrete degrees, steps or positions. For example, the switch is a roller with discrete notches to indicate different discrete positions. Or, there can be two mechanical switches, placed side-by-side. Pushing one switch will increment one step, and pushing the other will decrement one step.

[000281] In yet another embodiment, the change from one degree to the next is gradual and not noticeably discrete. This can be achieved with 2 sensors arranged in quadrature. FIGs. 31A-31C show examples of different embodiments of such a switch based on two photodiodes or photo detectors.

[000282] FIG. 31A shows an embodiment 3300 with a wheel 3302 (roller) having clear strips, 3304, 3306 and 3308, alternating with black strips, 3310, 3312 and 3314, and two photodiodes, 3316 and 3318. Most of the wheel 3302 and the two diodes, after incorporated into the temple 3320, are covered by a piece of material 3322. The two diodes, 3316 and 3318, are exposed to ambient light through a clear window 3324. A part of the wheel 3302 is extended out of the

temple 3320, allowing the wheel 3302 to be turned about its axis 3326. The wheel 3302 can have teeth for friction turning. As the wheel 3302 rotates about the axis 3326, based on the differential outputs from the diodes, the direction of movement of the wheel 3302—clockwise or counterclockwise—is determined. For example, if the wheel 3302 is rotated clockwise, the top diode 3316 senses light before the bottom 3318 senses light. On the other hand, if the wheel 3302 is rotated counterclockwise, the bottom diode 3318 senses light before the top 3316. Based on the signals from the two diodes, one would be able to tell if the wheel is being turned clockwise or counterclockwise. Clockwise can denote increase and counterclockwise can denote decrease. This embodiment can be used, for example, to change frequency. By turning the wheel 3302 clockwise, the frequency of the radio goes up. And, by turning the wheel 3302 counter-clockwise, the frequency goes down. Such a wheel 3302 is also applicable for other purposes, such as controlling the volume of a speaker.

[000283] FIG. 31B shows an embodiment 3350 with a wheel 3352 having black 3354 and reflecting 3356 strips, two photodiodes, 3358 and 3360, and a LED 3362. Again, most of the wheel, the two diodes and the LED are covered by a sheet of material 3364. If a reflecting strip 3356, instead of a black strip 3354, goes over a diode, more light from the LED will be reflected back and received by the diode. If a black strip 3354 goes over a diode, output from the diode will be significantly reduced. Again based on the signals from the diodes, the direction of rotation can be determined, which, in turn, can be used to indicate incrementing or decrementing outputs.

[000284] FIG. 31C shows an embodiment 3400 again using two photodiodes, 3402 and 3404, but without a wheel. The two diodes, 3402 and 3404, are exposed to ambient light unless they are covered. In this embodiment, whether the finger 3406 or another object is moving from the first diode 3402 to the second diode 3404, or from the second diode 3404 to the first diode 3402 can be determined based on the signals from the diodes. For example, the finger 3406 sliding in a forward direction would trigger a signal from the first diode 3402 before the second diode 3404. On the other hand, sliding the finger in a backward direction would

trigger a signal from the second diode before the first diode. Thus, the outputs from the two diodes can show the direction of movement of the finger. One can then, for example, assign forward movement (from the first 3402 to the second 3404) as increment, and backward movement (from the second 3402 to the first 3402) as decrement.

[000285] A switch can be placed at different location on a pair of glasses. In one embodiment, the switch is positioned on one of the side surfaces of one of the temples, such as the side that is not facing the face of the user when the glasses are worn. In another embodiment, the switch is positioned on a top surface of one of the temples. The switch 3028 shown in FIG. 25 falls under this category. In yet another embodiment, the switch is positioned at one of the joints or hinges of the glasses. For example, there is a mechanical switch at a joint. If the corresponding temple is extended, as in the position when the glasses are worn, the switch will be pressed, which can indicate that the switch has been activated.

[000286] 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 position of the two switches has significance. For example, the two mechanical switches are on the top surface or edge of a temple. By pushing the switch closer to the lens holder, the volume of the speaker in the glasses goes up; and by pushing the switch further away from the lens holder, the volume of the speaker goes down. In another example, the two switches are under the two ends of a piece of materials, such as a rocker-lever, which can be plastic.

Rocking the plastic piece forward is an increment motion, and rocking the plastic piece backwards is a decrement motion.

[000287] A number of embodiments have been described where information is available only for a relatively short duration of time. In one embodiment, the information is available for a longer duration of time. For example, after the short duration of time, the battery in the glasses is drained. In order to continue on running the electronics inside the glasses to get the information, the user can replace the battery in the glasses with a new battery. In this embodiment, the glasses are designed so that the battery is replaceable by the user. Or, in another embodiment, the battery is rechargeable through a connector at the glasses.

[000288] A number of embodiments have been described regarding the glasses with a speaker for providing information to the user. In one embodiment, the glasses also include one or more light emitting diodes. The LEDs can be for entertaining purposes. For example, the information provided to the user is music. If the audio signals received are beyond a certain threshold, one or more of the LEDs will be activated. The activation of the one or more LEDs can then be synchronized to the sound of the speaker. In another example, a number of LEDs could be arranged as an array on the outside surface of one of the temples. The array could display graphics, pictures, or scrolling text. The array could also be located at other locations on the glasses, such as across the front surface or the top surface of the bridge or the lens-holders of the glasses.

[000289] One embodiment of the glasses includes a specially-designed surface texture, such as on the outside surface of a temple of the glasses. By scratching the surface texture, depending on its design, one can generate specific audio tones.

[000290] A number of embodiments have been described regarding electrical components in a temple of a pair of glasses. All of the electronic components can be self-contained inside the temple of the glasses. The components can be coupled to a printed circuit board. In other embodiments, some of the components are embedded fully or partially in other areas of the glasses, such as the lens

holders or the bridge of the glasses. Or, one or more electrical components can be in a shield of the glasses.

[000291] A number of embodiments have been described regarding information available for a pair of glasses. In one embodiment, a pair of glasses also includes an information input mechanism that allows its user to input information into the glasses. Such information allows the user to provide inputs or feedbacks.

[000292] The information input mechanism can be implemented by a switch at the glasses, such as one of the switches previously described. The user input can be stored in the glasses if the glasses include memory storage electrical components. The input can be wirelessly transmitted from the glasses to a remote device if the glasses include wireless transceiver electrical components. For example, the user is at a football game, and the referee has made a controversial call. A broadcaster at the event can instantaneously use such glasses to perform a simple polling. This can be done by the broadcaster as part of the wireless transmission of information (e.g., event information) to the wearer of the glasses. Alternatively, the broadcaster can transmit a message to the user. In one embodiment, there can be an indicator on the glasses to indicate that there is a message for the wearer of the glasses. The indicator can be a LED light flashing for a few seconds, a ringing tone that rings for a few seconds, or other types of indication at the glasses. In any case, if desired, the wearer can receive the message. The message asks the wearer to push a button (an information input mechanism) at the glasses one time, if the wearer believes the call was correct, and two times otherwise. Such input information from the glasses is then wirelessly transmitted from the glasses and received by the broadcaster. Statistics on the responses can then be automatically performed. Such statistics can be provided almost instantaneously to, for example, the referee.

[000293] In one embodiment, each pair of such glasses also includes an identifier that identifies the glasses, such as an identification number. When input information is transmitted from such a pair of glasses, such as back to the

broadcaster, its identifier can also be transmitted together with the corresponding input information.

[000294] Organizers of an event or a company affiliated with or related to the event also can use the glasses to gather other information from the wearers of the glasses, such as the audience of the event. For example, the audience can be electronically polled regarding ways to improve on the services they received.

[000295] The information input mechanism can include a microphone at the glasses. The organizers again can send a message to a user of a pair of such glasses. The message can be as follows: "If you like the ways we take food orders, say yes. If not, say no." The voice response from the user is transmitted to the organizers. Such simple yes/no responses can be automatically deciphered based on voice recognition mechanisms and then automatically tabulated for the organizers.

[000296] In one embodiment, not all of the electrical components in a number of the glasses previously described are in the glasses. Instead, at least one of the electrical components, such as its power source, is in a portable device, which can also be carried by the user of the glasses. In another embodiment, a pair of glasses can function as a headset and are wired or wirelessly coupled to a portable device. The portable device can provide additional areas for user input, or outputs to the user.

[000297] As an example of wireless coupling for a pair of glasses functioning as a headset, the glasses include a wireless transceiver that is based on, for example, Bluetooth, UWB, Zigbee, or other types of short-distance wireless transmission standards. Based on the transceiver, the glasses are wirelessly coupled to a corresponding portable device. Information from long distances can be received by the portable device, which can then re-transmit such information to the glasses.

[000298] As an example of wired coupling for a pair of glasses functioning as a headset, the glasses include a connector. The connector can be used to electrically connect to a portable device through, for example, a wire. In one embodiment, the connector at the glasses is a male connector and is located at

the tip of one temple of the glasses, such as at the tip position 3019 of the second temple 3018, shown in FIG. 25. When the male connector is not inserted into a female connector, the male connector can be covered, such as with a cap or a cover, to protect, encapsulate or shroud the connector. In one embodiment, at least a portion of the connector is covered.

[000299] Different embodiments of glasses functioning as a headset have been described in patent application, entitled, "EYEGLASSES WITH HEARING ENHANCED AND OTHER AUDIO SIGNAL-GENERATING CAPABILITIES", which was incorporated by reference above, and can be used with the various embodiments described herein.

[000300] A number of embodiments have been described regarding glasses with a number of structural elements. In one embodiment, the glasses can be rimless frames. The glasses can include two lenses held together by a bridge. A temple can be attached to each lens through a joint that is connected to the corresponding lens by one or more screws. For example, there can be two screws at each lens to hold onto a temple piece, which includes a joint for a corresponding temple. One or more electrical components can be fully or partially embedded in the glasses, such as in a temple of the glasses.

[000301] A number of embodiments have been described with glasses. In one embodiment, a device, which is not a pair of glasses, can provide information to a user, where the information can be directly relevant to an event attended by the user. There can also be a user input mechanism at the device to allow the user to provide user input, including user feedback. Different embodiments of electrical components previously described can be in the device. Advantageously, in one embodiment, the different embodiments of components have minimal impact on the design of the end product and no tedious wiring is required. For example, in the case in which the end product is an eyeglass frame, a temple of the eyeglass frame can have an opening, cavity or container to hold or encompass the different embodiments of components, whereby no other changes or complications to the eyeglass frames need be imposed. Other such end-products can include: hats,

shoes, watches, tee-shirt, swimming-suit, key-ring, purse, beer can holder, and other consumer products.

[000302] The various embodiments, implementations and features of the invention noted above can be combined in various ways or used separately. Those skilled in the art will understand from the description that the invention can be equally applied to or used in other various different settings with respect to various combinations, embodiments, implementations or features provided in the description herein.

[000303] A number of embodiments in the invention can be implemented in software, hardware or a combination of hardware and software. A number of embodiments of the invention can also be embodied as computer readable code on a computer readable medium. The computer readable medium is any data storage device that can store data which can thereafter be read by a computer system. Examples of the computer readable medium include read-only memory, random-access memory, CD-ROMs, magnetic tape, optical data storage devices, and carrier waves. The computer readable medium can also be distributed over network-coupled computer systems so that the computer readable code is stored and executed in a distributed fashion.

[000304] 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.

[000305] Also, in this specification, reference to "one embodiment" or "an embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiment can be included in at least one embodiment of the invention. The appearances of the phrase "in one embodiment" in various places in the specification are not necessarily all referring to the same

embodiment, nor are separate or alternative embodiments mutually exclusive of other embodiments. Further, the order of blocks in process flowcharts or diagrams representing one or more embodiments of the invention do not inherently indicate any particular order nor imply any limitations in the invention.

[000306] Other embodiments of the invention will be apparent to those skilled in the art from a consideration of this specification or practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with the true scope and spirit of the invention being indicated by the following claims.

What is claimed is:

CLAIMS

1. A head-worn wireless electronic apparatus at least configured for producing audio outputs for a user comprising:

a speaker in the head-worn wireless electronic apparatus;

an electrical connector at the head-worn wireless electronic apparatus,

wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on a surface of the head-worn wireless electronic apparatus, and

wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact;

a rechargeable battery in the head-worn wireless electronic apparatus;

a microphone in the head-worn wireless electronic apparatus; and

a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input.

2. A head-worn wireless electronic apparatus as recited in claim 1 comprising:

wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and

a storage medium configured to store at least computer program codes for voice recognition,

wherein at least the microphone is configured to receive a term, and

wherein the computer program codes for voice recognition are configured to facilitate recognizing the term for an operation of the head-worn wireless electronic apparatus.

3. A head-worn wireless electronic apparatus as recited in claim 1 comprising at least another microphone in the head-worn wireless electronic apparatus,

wherein the microphone is configured to be positioned closer to mouth of the user and the another microphone is configured to be positioned further from the mouth of the user, when the head-worn wireless electronic apparatus is worn by the user, and

wherein at least the microphone and the another microphone are configured to receive audio inputs, with at least some noise in the audio inputs configured to be cancelled based on using at least the microphone and the another microphone.

4. A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.

5. A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to determine whether the head-worn wireless electronic apparatus is being worn based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus.

6. A head-worn wireless electronic apparatus as recited in claim 1 comprising an accelerometer.

7. A head-worn wireless electronic apparatus as recited in claim 1 comprising an area configured for attachment via magnetic force.

8. A head-worn wireless electronic apparatus as recited in claim 7 comprising a magnet in the area.

9. A head-worn wireless electronic apparatus as recited in claim 1 comprising a force sensor.

10. A head-worn wireless electronic apparatus as recited in claim 3 comprising an area configured for attachment via magnetic force.

11. A head-worn wireless electronic apparatus as recited in claim 10 comprising an accelerometer.

12. A head-worn wireless electronic apparatus as recited in claim 11 comprising:

wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and

a storage medium configured to store at least computer program codes for voice recognition,

wherein at least the microphone is configured to receive a term, and

wherein the computer program codes for voice recognition are configured to facilitate recognizing the term for an operation of the head-worn wireless electronic apparatus.

13. A head-worn wireless electronic apparatus as recited in claim 12 comprising a controller configured to determine whether the head-worn wireless electronic apparatus is being worn based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus.

14. A head-worn wireless electronic apparatus as recited in claim 13, wherein the controller is configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.

ABSTRACT

In one embodiment, an eyewear frame for a user includes at least a front portion with two side portions; two speakers, one in each side portion; a connection region at one side portion, with an electrical connector having two conductive pads to connect to corresponding conductive contacts of a counterpart connector; a rechargeable battery; a microphone in the frame; and wireless communication circuitry in the frame. The connection region can be provided at an inside surface of one of the side portions. The eyewear frame can also include a touch-sensitive input surface on the eyewear frame configured to provide an input to the frame to perform a function. Another embodiment includes a headset with a touch-sensitive input surface and an electrical connector having a conductive pad to connect to a corresponding conductive contact of a counterpart connector.

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: IngenioSpec, LLC

Application No./Patent No.: Not Yet Assigned Filed/Issue Date: Filed Herewith

Titled: HEADSET WITH CONNECTION REGION

IngenioSpec, LLC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: HOWELL et al. To: IpVenture, Inc.

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2. From: IpVenture, Inc. To: Peter P. Tong and C. Douglass Thomas

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This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: Peter P. Tong To: Smart iGlasses, LLC

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4. From: Smart iGlasses, LLC To: IngenioSpec, LLC

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5. From: _____ To: _____

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6. From: _____ To: _____

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Peter P. Tong/	July 21, 2023
Signature	Date
Peter P. Tong	35757
Printed or Typed Name	Title or Registration Number

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The information provided by you in this form will be subject to the following routine uses:

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.	Attorney Docket No.: IPVCP006X1C10D1
Application No.: Not Yet Assigned	Examiner: Not Yet Assigned
Filed: Herewith	Group: Not Yet Assigned
Title: HEADSET WITH CONNECTION REGION	

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449 may be material to examination of the above-identified patent application. Applicants submit the list of these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. The above-identified application is a Divisional of prior application U.S. Patent Application No. 18/129,660. This prior application is being relied upon for an earlier filing date under 35 U.S.C. § 120. Because the listed references (to the extent that copies are required) were either cited by the PTO, or submitted to the PTO in the prior application, under 37 CFR § 1.98(d) Applicants submit that copies need not be provided.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVCP006X1C10D1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVCP006X1C10D1

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1820**

Electronic Acknowledgement Receipt	
EFS ID:	48325644
Application Number:	18224793
International Application Number:	
Confirmation Number:	5028
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVCP006X1C10D1
Receipt Date:	21-JUL-2023
Filing Date:	
Time Stamp:	14:36:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1820
RAM confirmation Number	E20237KE37057601
Deposit Account	503874
Authorized User	Angela Nijim
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Drawings-only black and white line drawings	IPVCP006X1C10D1_AllFigs.pdf	1952076 2583401976d89185ce81b090859e38594e233b9e	no	42
Warnings:					
Information:					
2	Oath or Declaration filed	IPVCP006X1C10D1-DecFromParent-CUTE.pdf	4159799 a03322953 1fff3ab56ea081fa1d82340311e6f4c	no	4
Warnings:					
Information:					
3	Power of Attorney	IPVCP006X1C10D1_PoA.pdf	486823 19e0454bbb3c6b752dd7b964879e4065da80148a	no	2
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	IPVCP006X1C10D1_1449.pdf	142798 9b0a96e32cd2d34710bfbe7e11381966ab51c6c0	no	16
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
5	Application Data Sheet	WebADS.pdf	300006 fc76994b7493c797858be1fbcbca45173563855e	no	10
Warnings:					
Information:					
6	Transmittal of New Application	IPVCP006X1C10D1_AppTrans.pdf	294770 93a37801ae386018df19e8d2fff68183e9e21e30	no	2
Warnings:					

Information:					
7		IPVCP006X1C10D1-Application.pdf	398059 c46dd26eed215b46ea2f77b98dda3fdd48c7d9ba	yes	78
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	74	
	Claims		75	77	
	Abstract		78	78	
Warnings:					
Information:					
8	Assignee showing of ownership per 37 CFR 3.73	IPVCP006X1C10D1-Statement373c.pdf	121751 012e6b97569c0ae2461722d7955b7a8008fa03ec	no	3
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Information:					
9	Transmittal Letter	IPVCP006X1C10D1_IDSTrans.pdf	20639 ea7c1091812ebb52f37d80195f211503980 98f4b	no	2
Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	44005 a9dd84a218a4249787822 8a79067ed0b093eb213	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	7920726		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

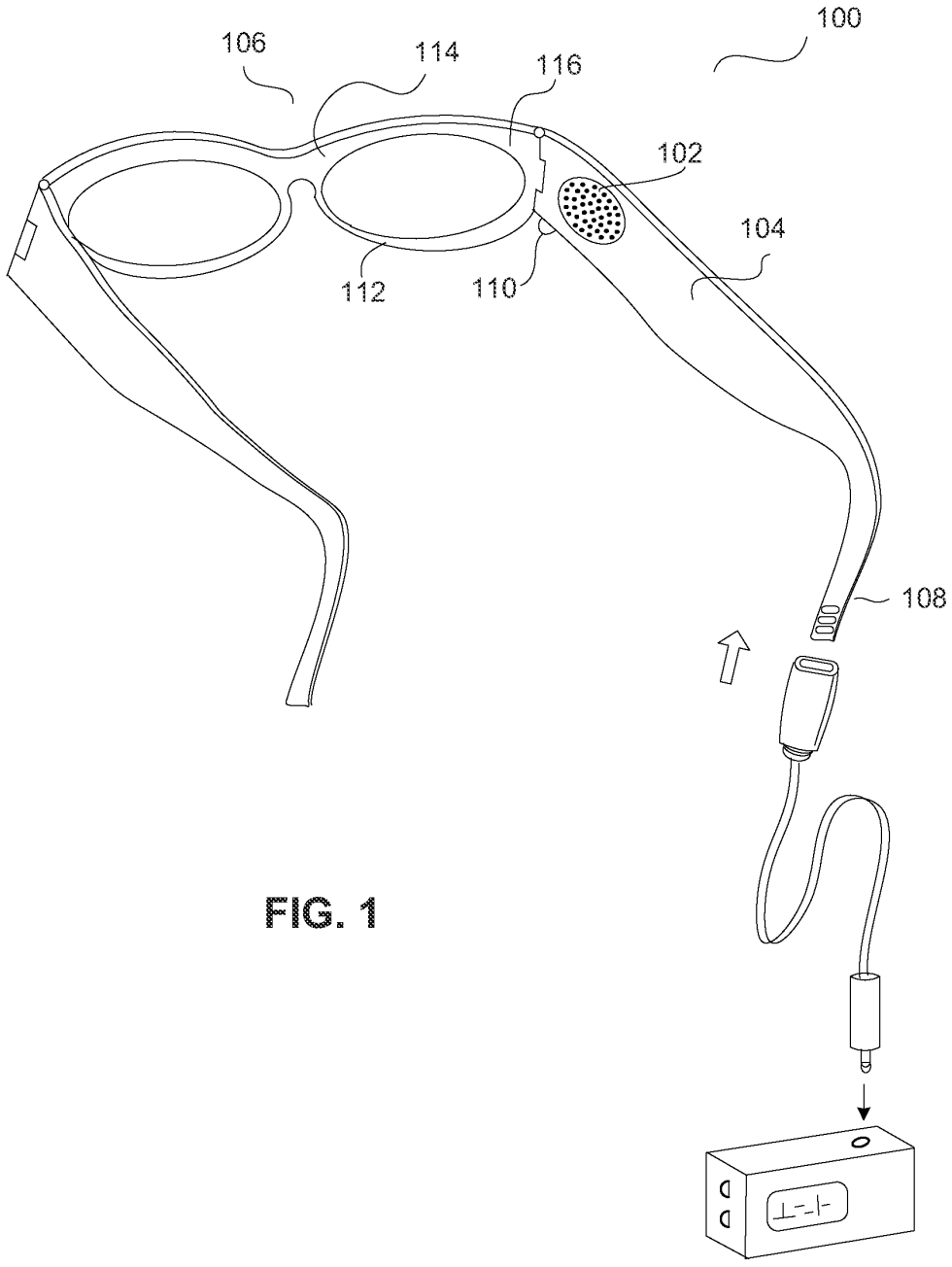


FIG. 1

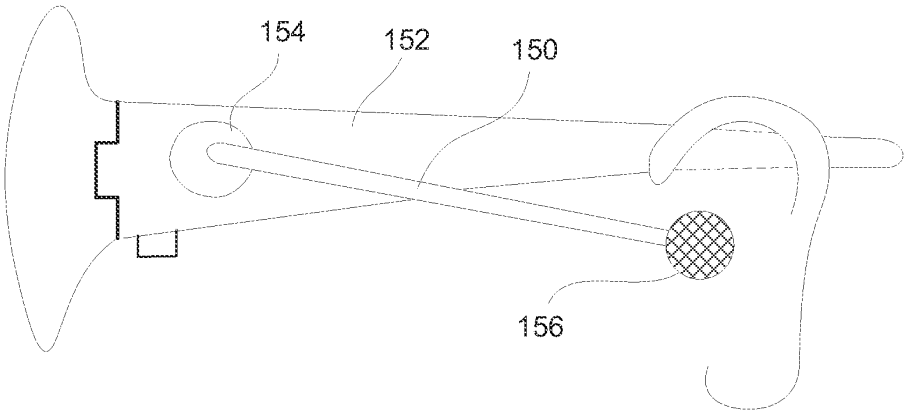


FIG. 2

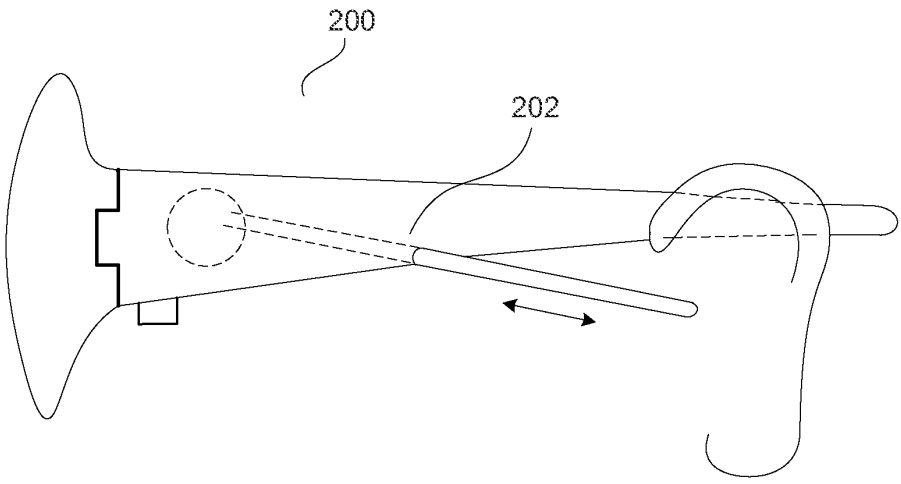


FIG. 3

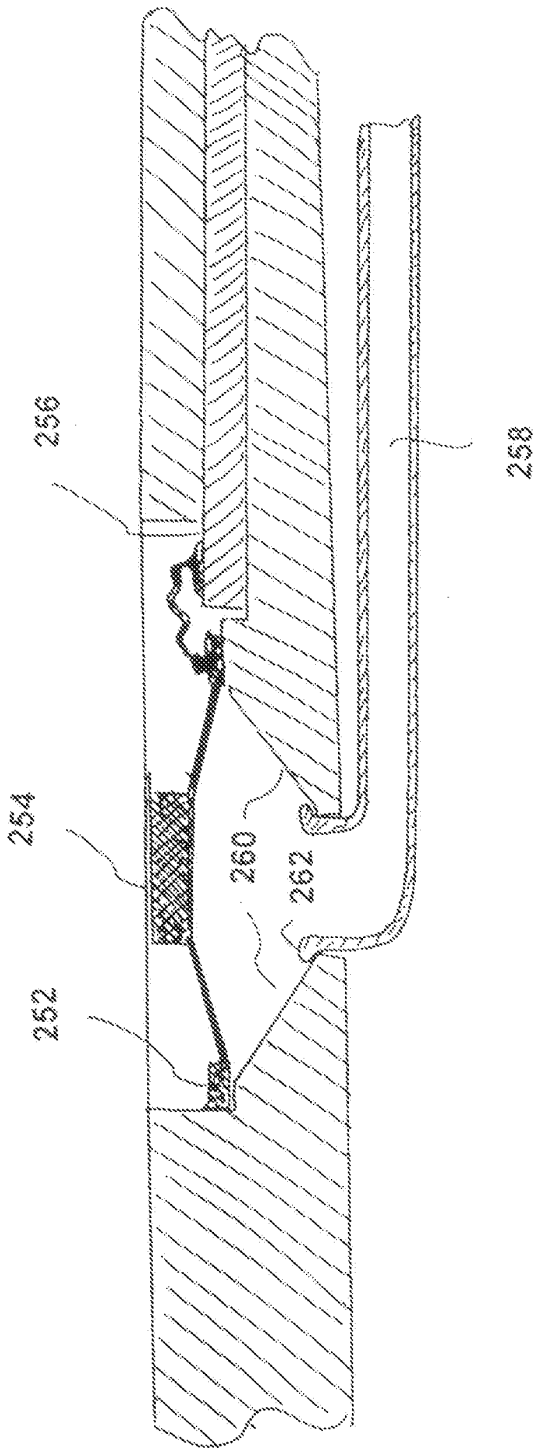


FIG. 4

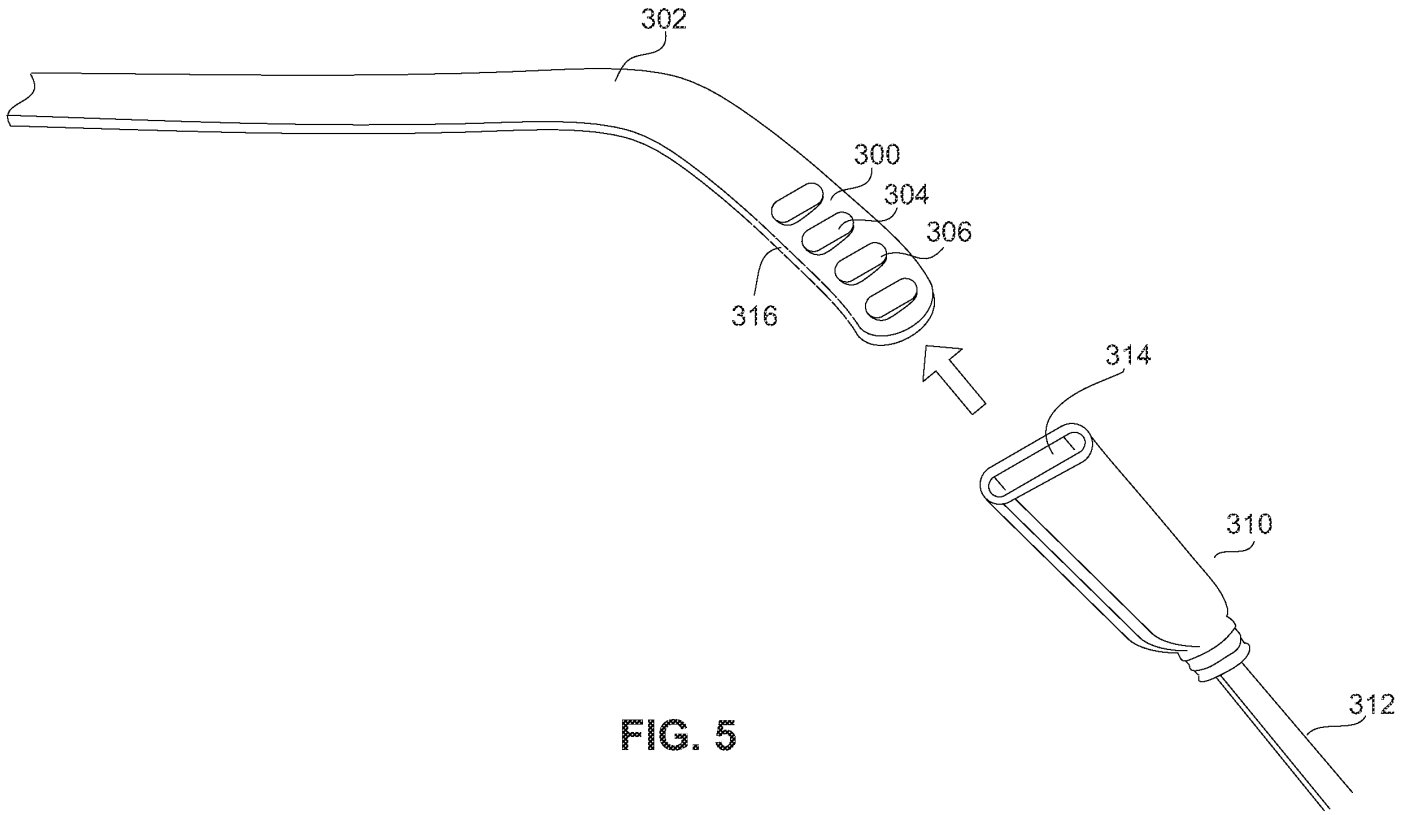


FIG. 5

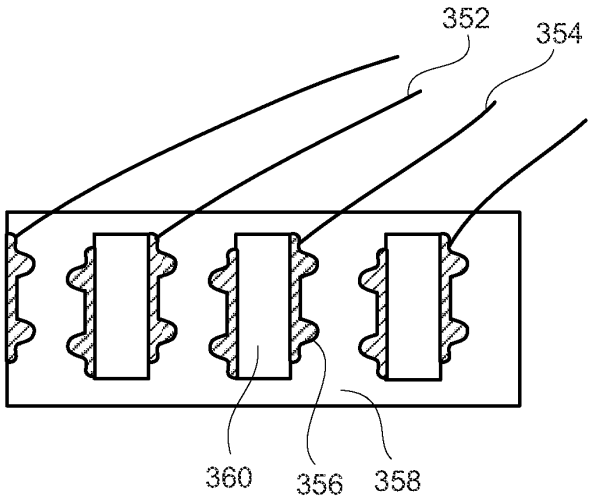


FIG. 6A

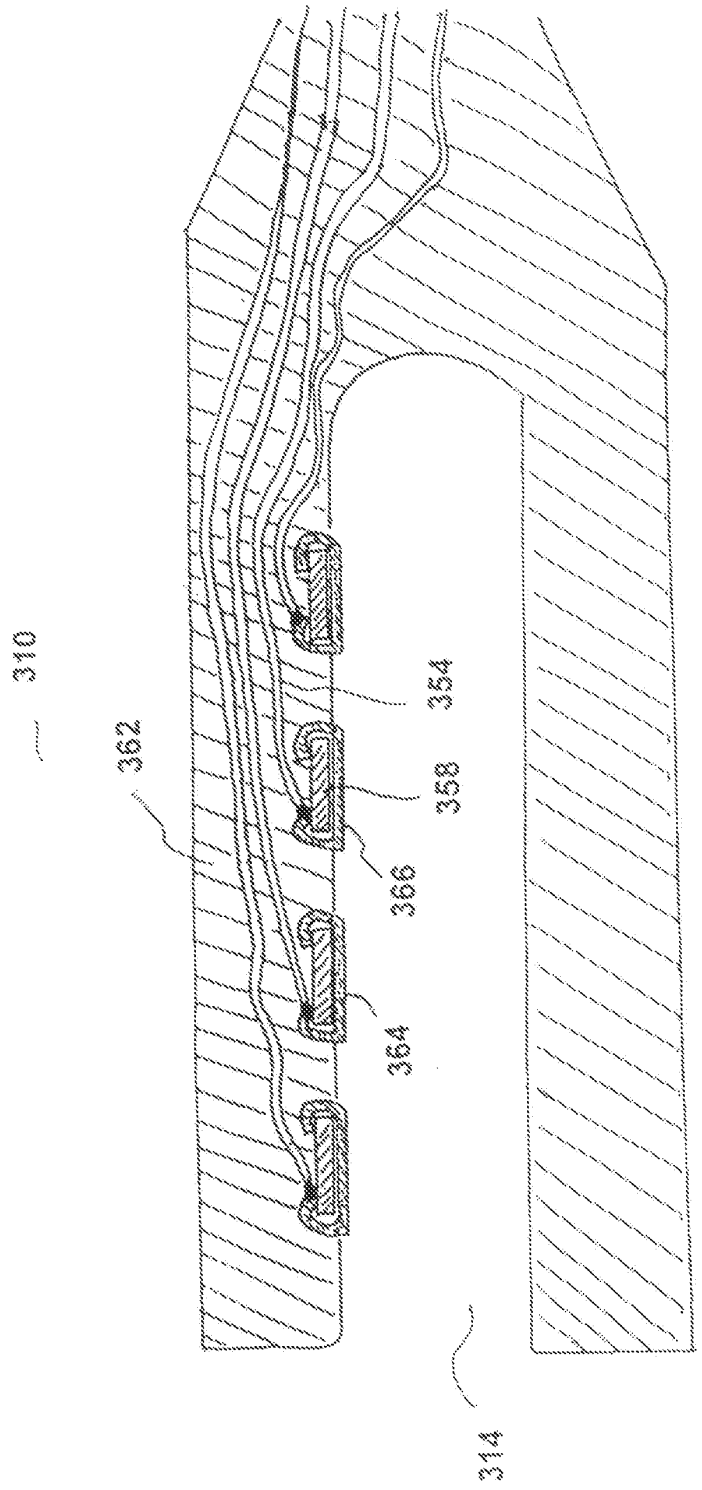


FIG. 6B

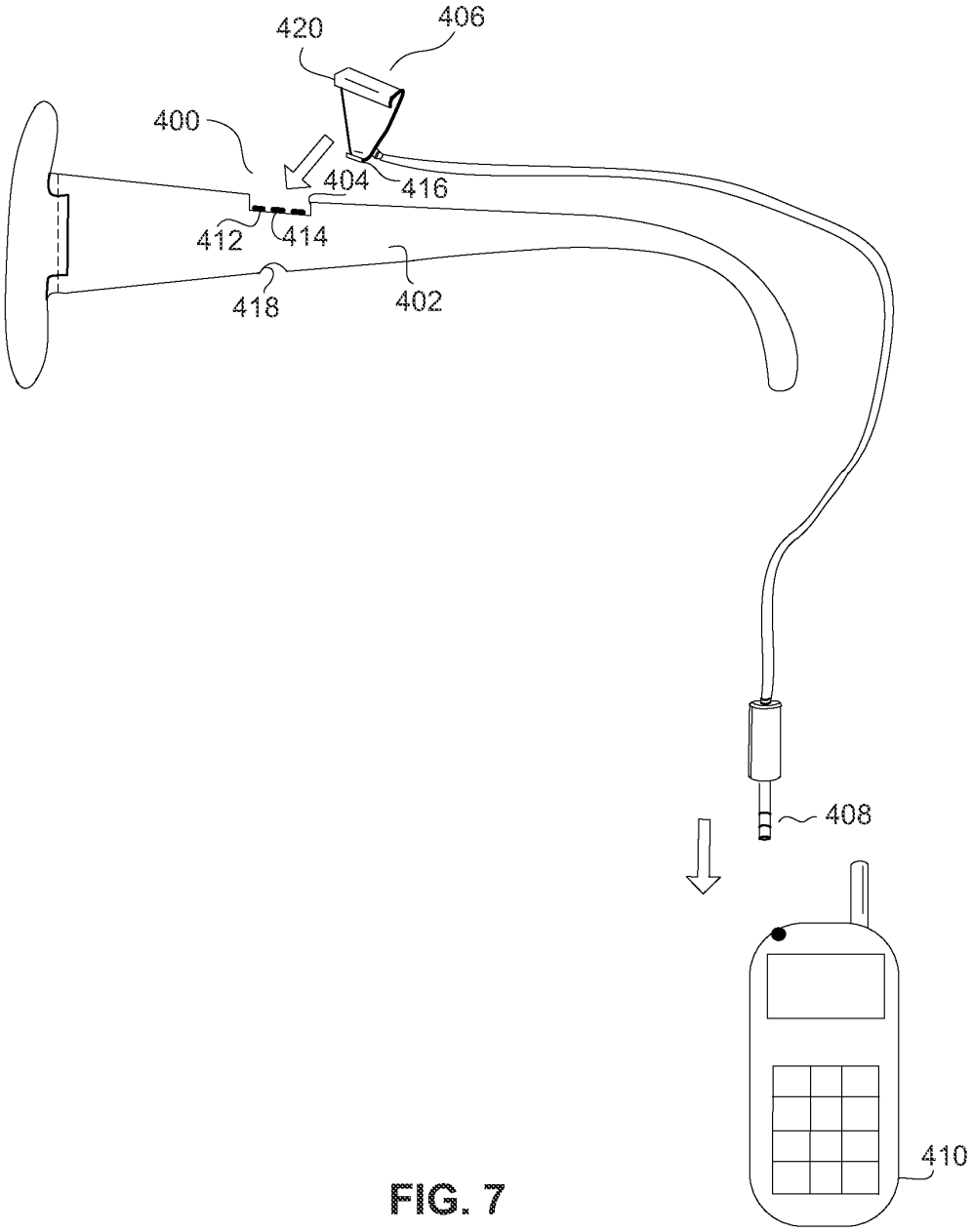


FIG. 7

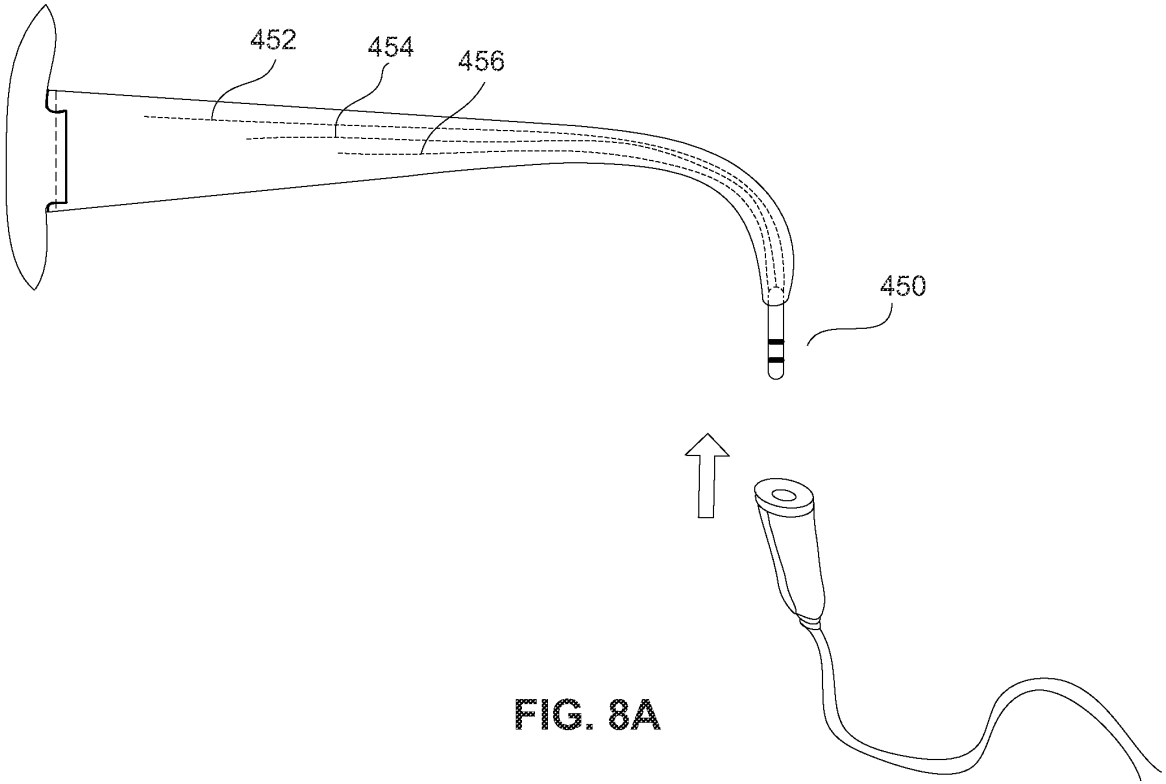


FIG. 8A

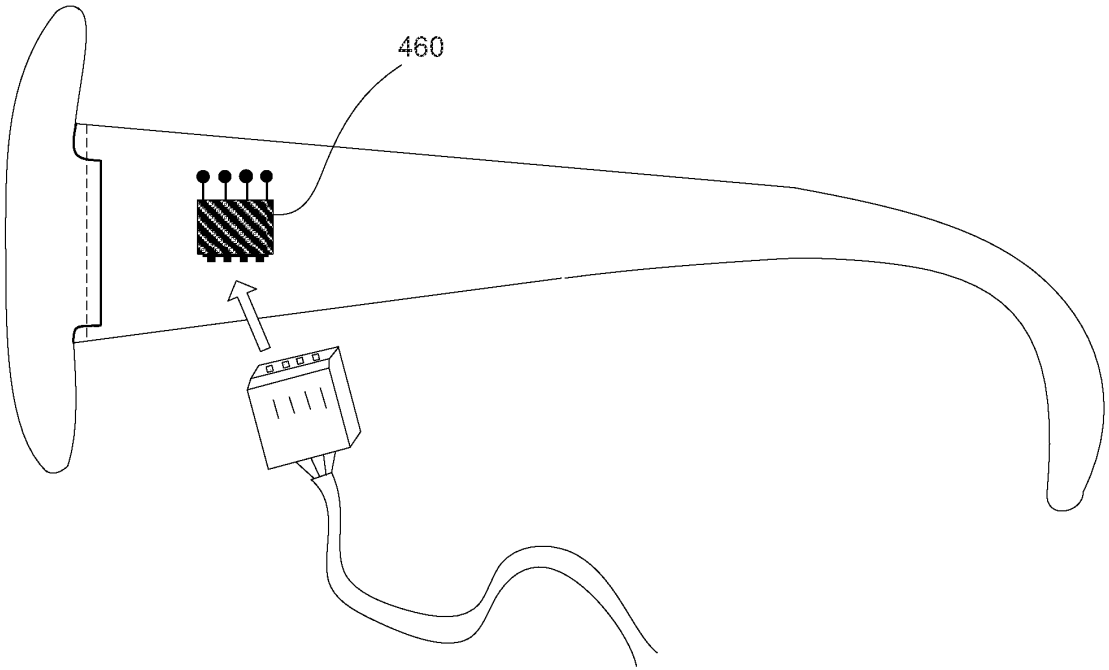


FIG. 8B

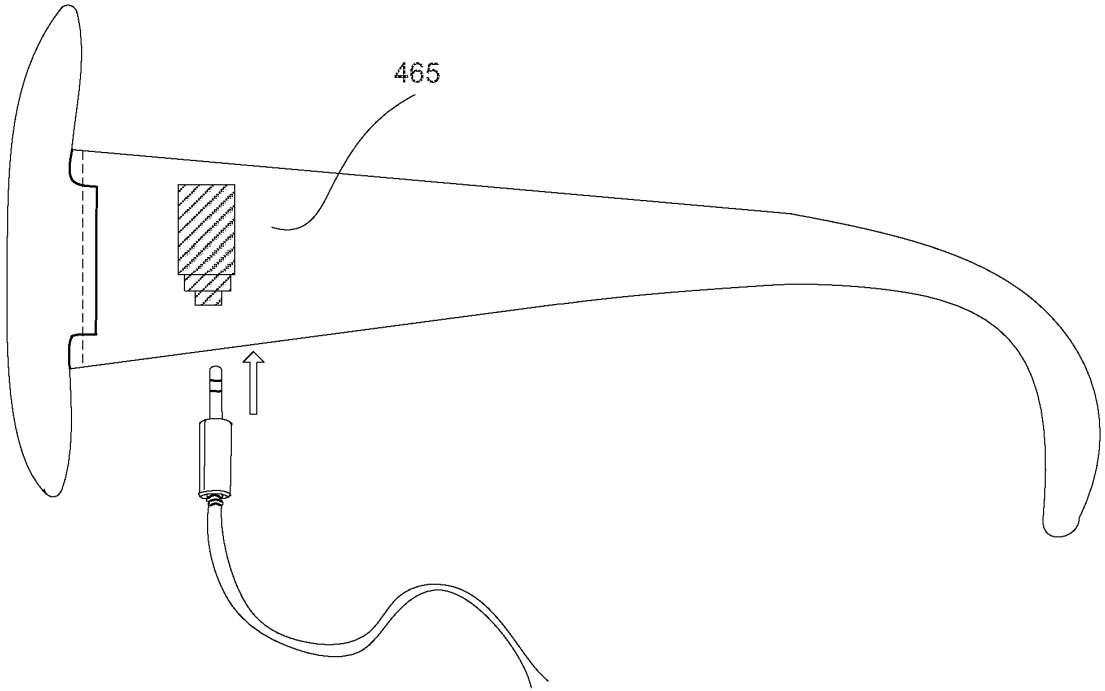


FIG. 8C

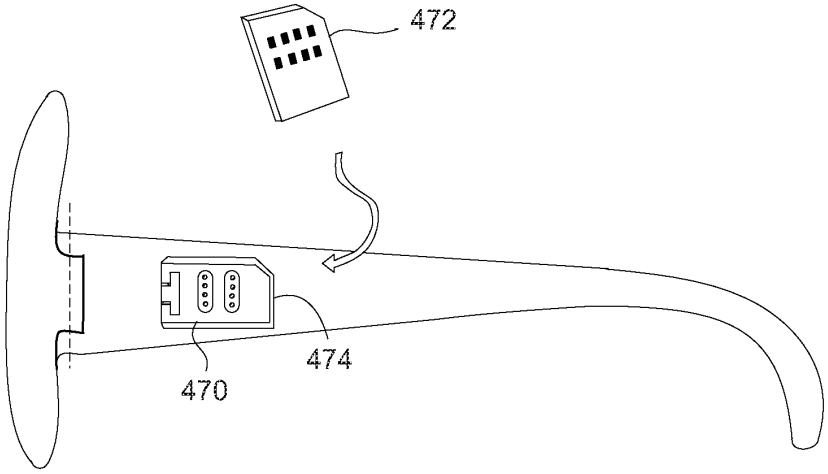


FIG. 8D

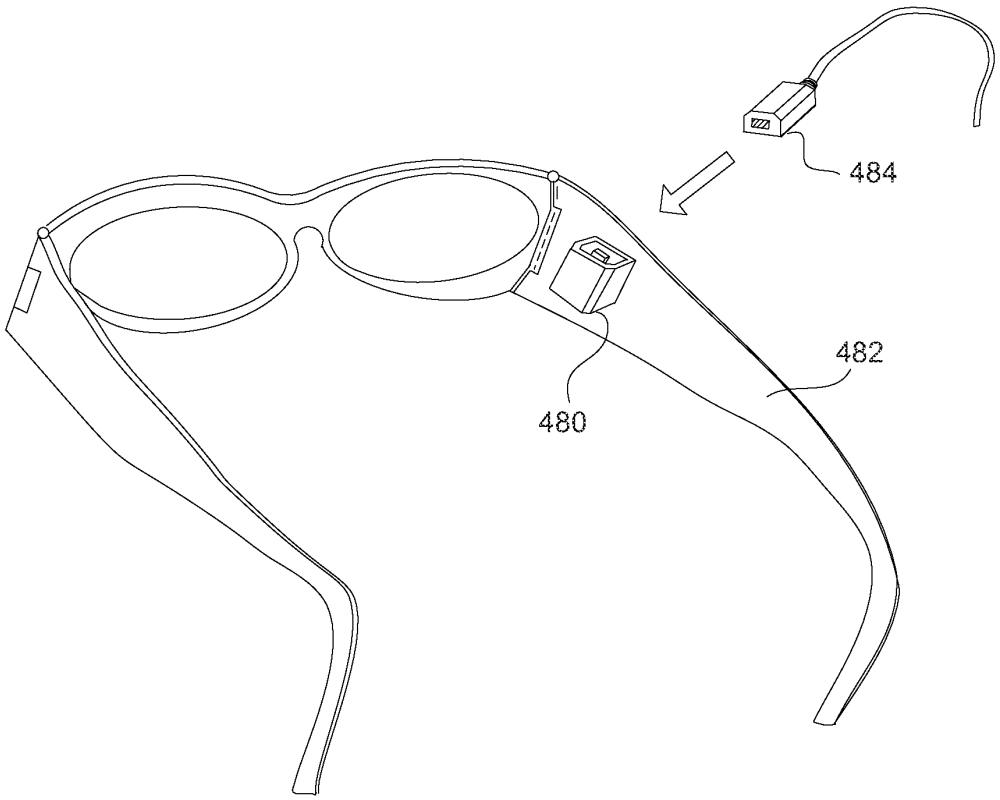


FIG. 8E

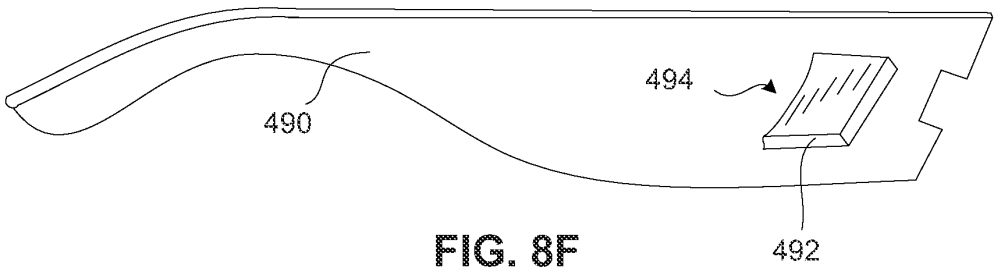


FIG. 8F

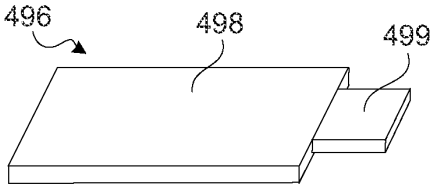


FIG. 8G

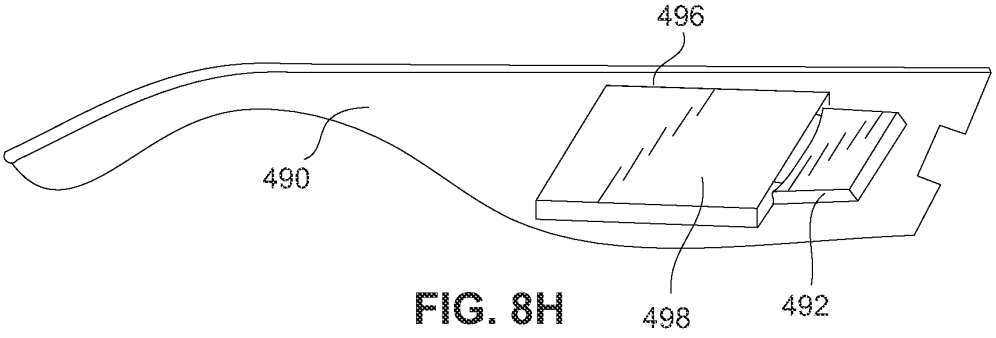


FIG. 8H

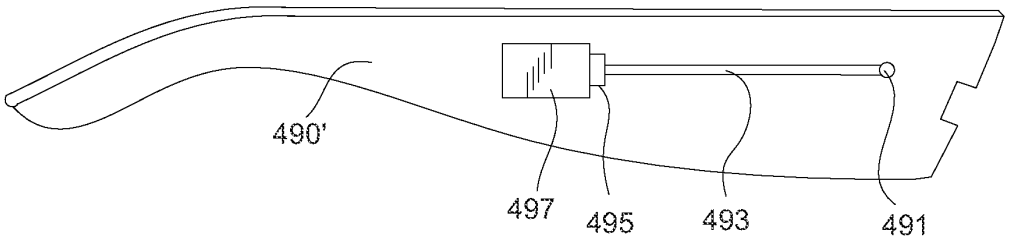


FIG. 8I

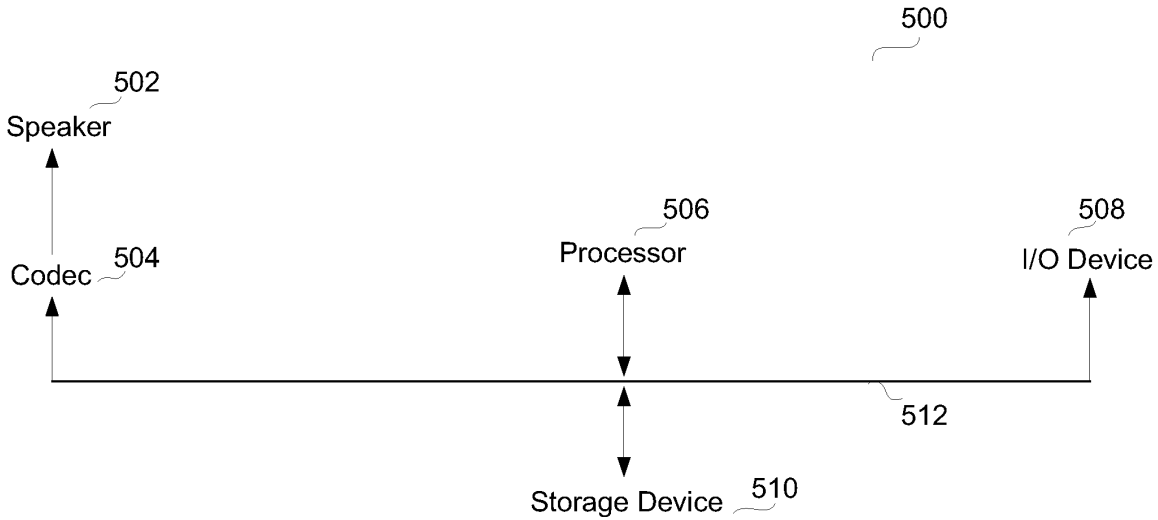

500
502
Speaker
504
Codec
506
Processor
508
I/O Device
512
510
Storage Device

FIG. 9

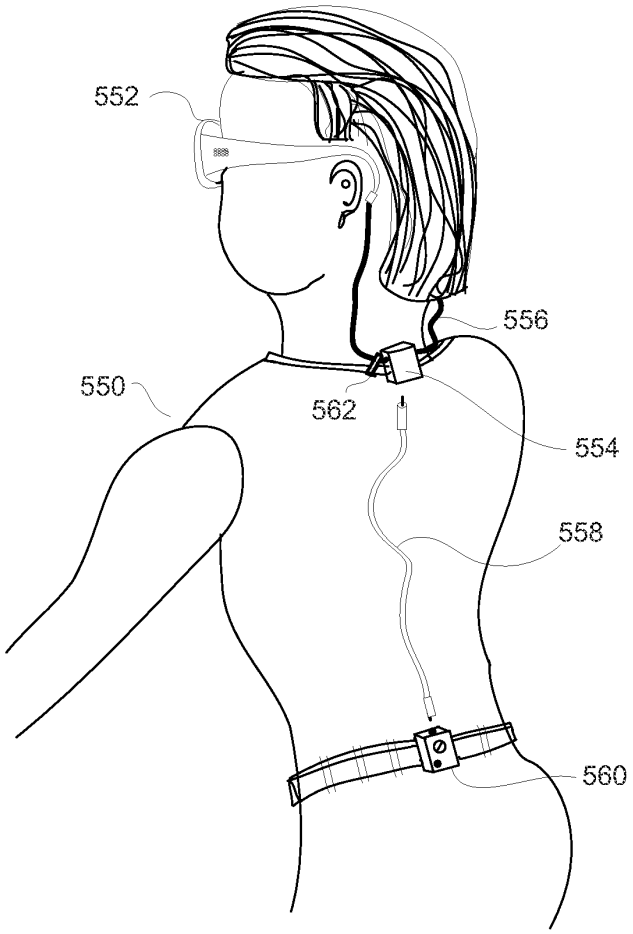


FIG. 10

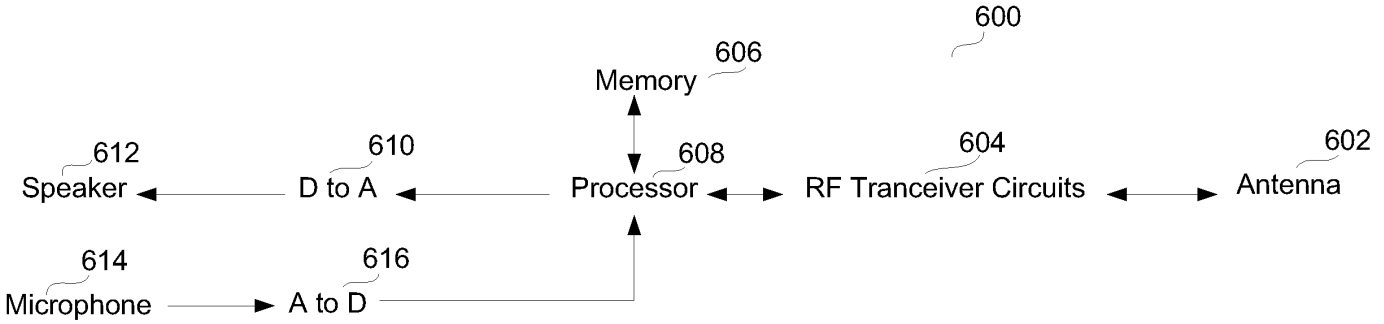


FIG. 11A

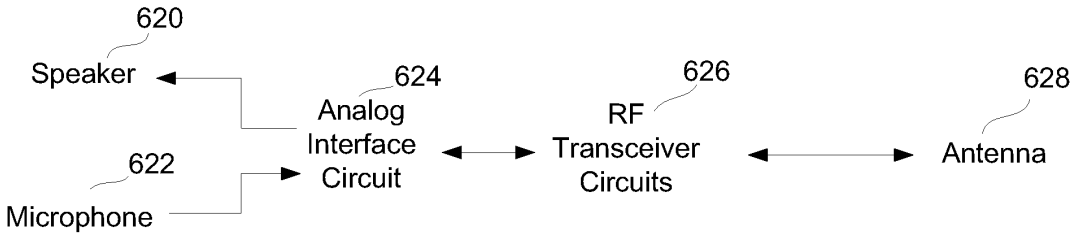


FIG. 11B

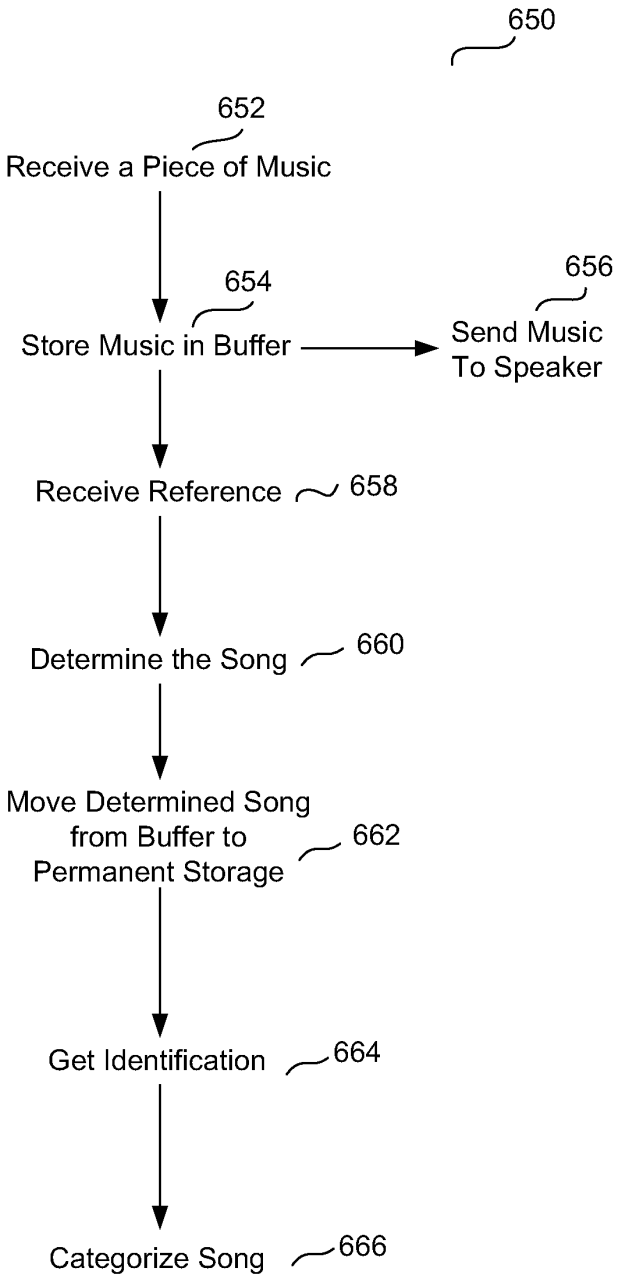

650
652
Receive a Piece of Music
654
Store Music in Buffer
656
Send Music
To Speaker
Receive Reference
658
Determine the Song
660
Move Determined Song
from Buffer to
Permanent Storage
662
Get Identification
664
Categorize Song
666

FIG. 12

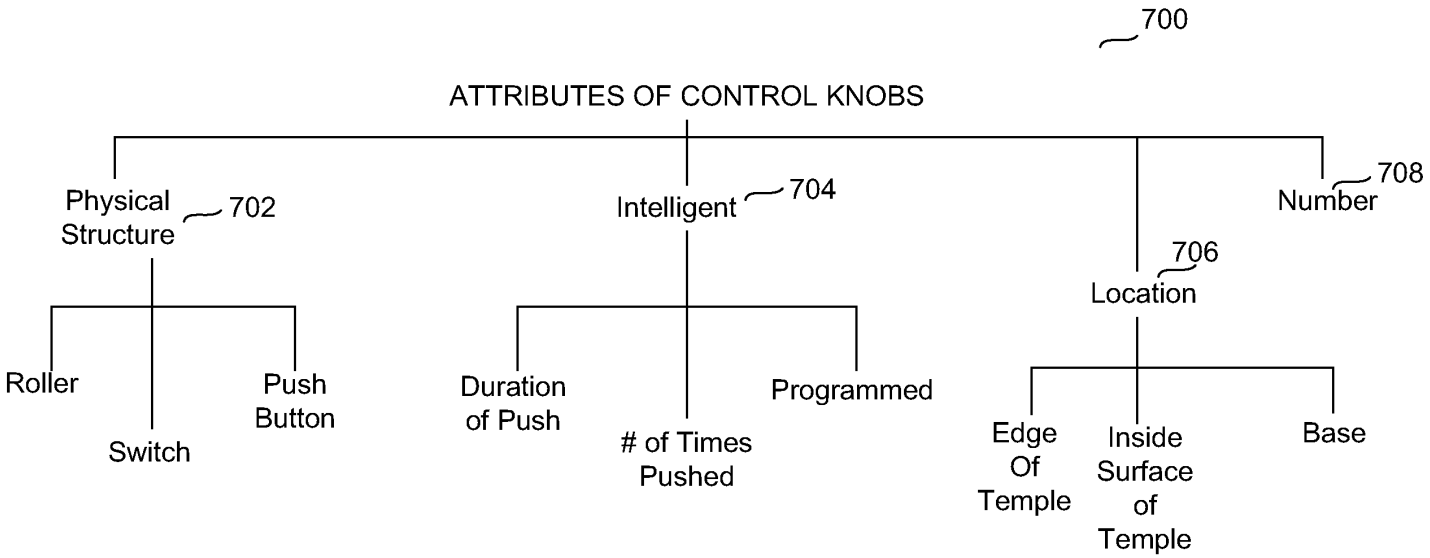

700
ATTRIBUTES OF CONTROL KNOBS
Physical Structure
702
Intelligent
704
Number
708
706
Location
Roller
Switch
Push Button
Duration of Push
of Times Pushed
Programmed
Edge Of Temple
Inside Surface of Temple
Base

FIG. 13

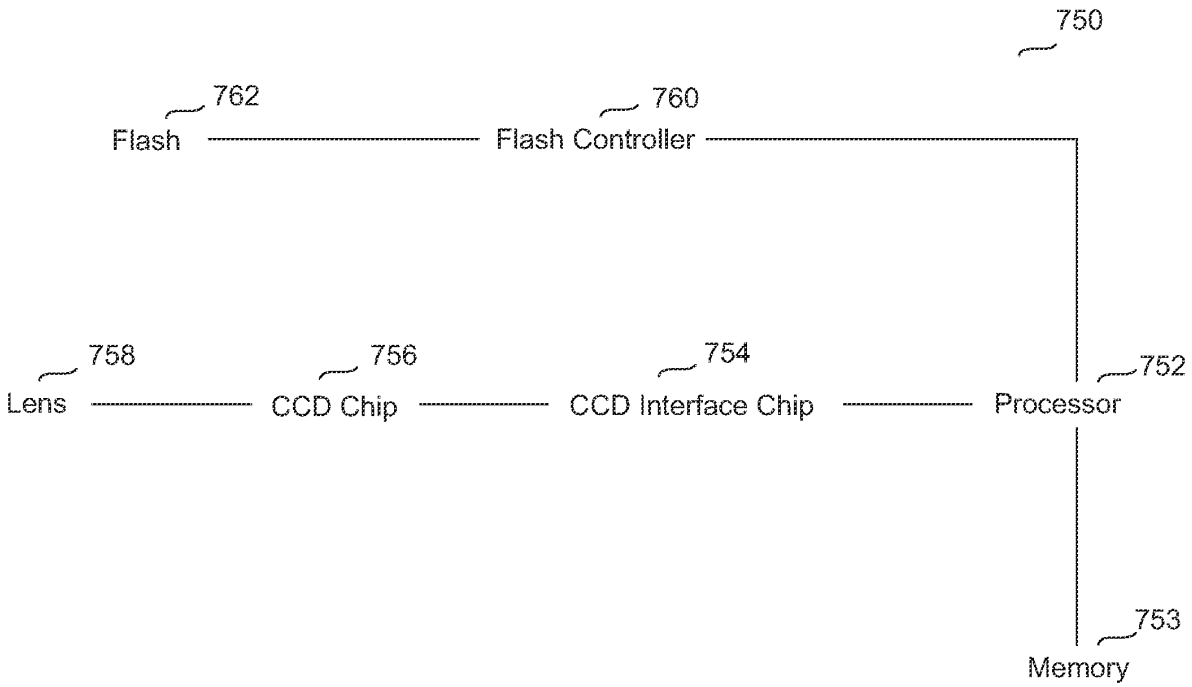

750
762
760
Flash
Flash Controller
758
756
754
752
Lens
CCD Chip
CCD Interface Chip
Processor
753
Memory

Fig. 14

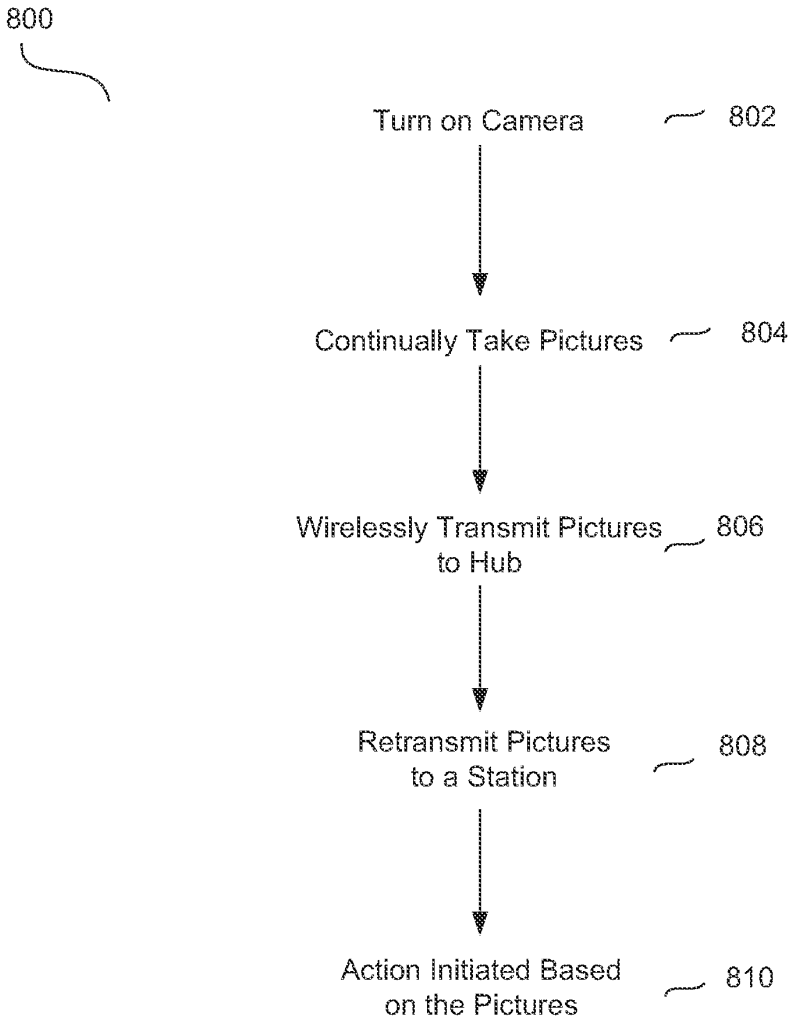

800
Turn on Camera
802
Continually Take Pictures
804
Wirelessly Transmit Pictures to Hub
806
Retransmit Pictures to a Station
808
Action Initiated Based on the Pictures
810

Fig. 15

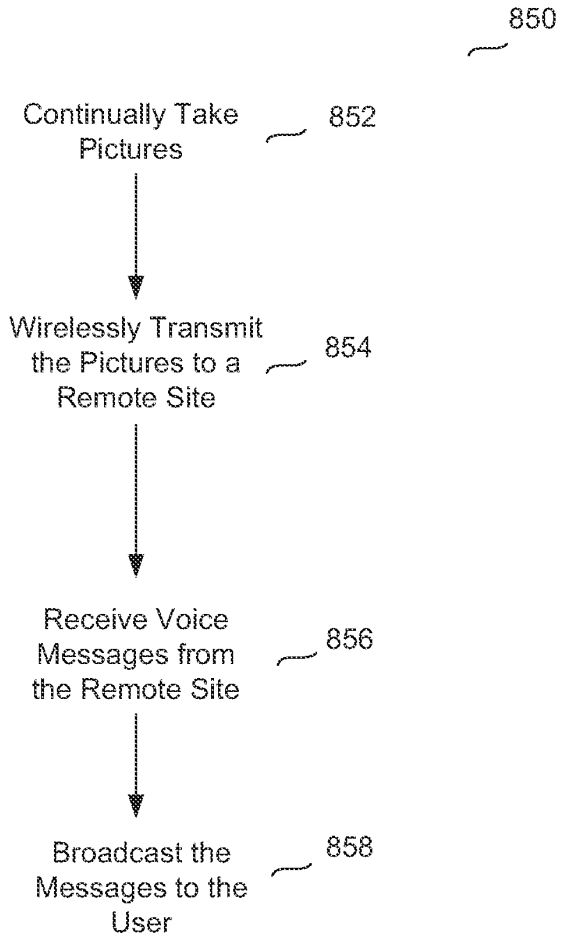

850
Continually Take Pictures
852
Wirelessly Transmit the Pictures to a Remote Site
854
Receive Voice Messages from the Remote Site
856
Broadcast the Messages to the User
858

Fig. 16

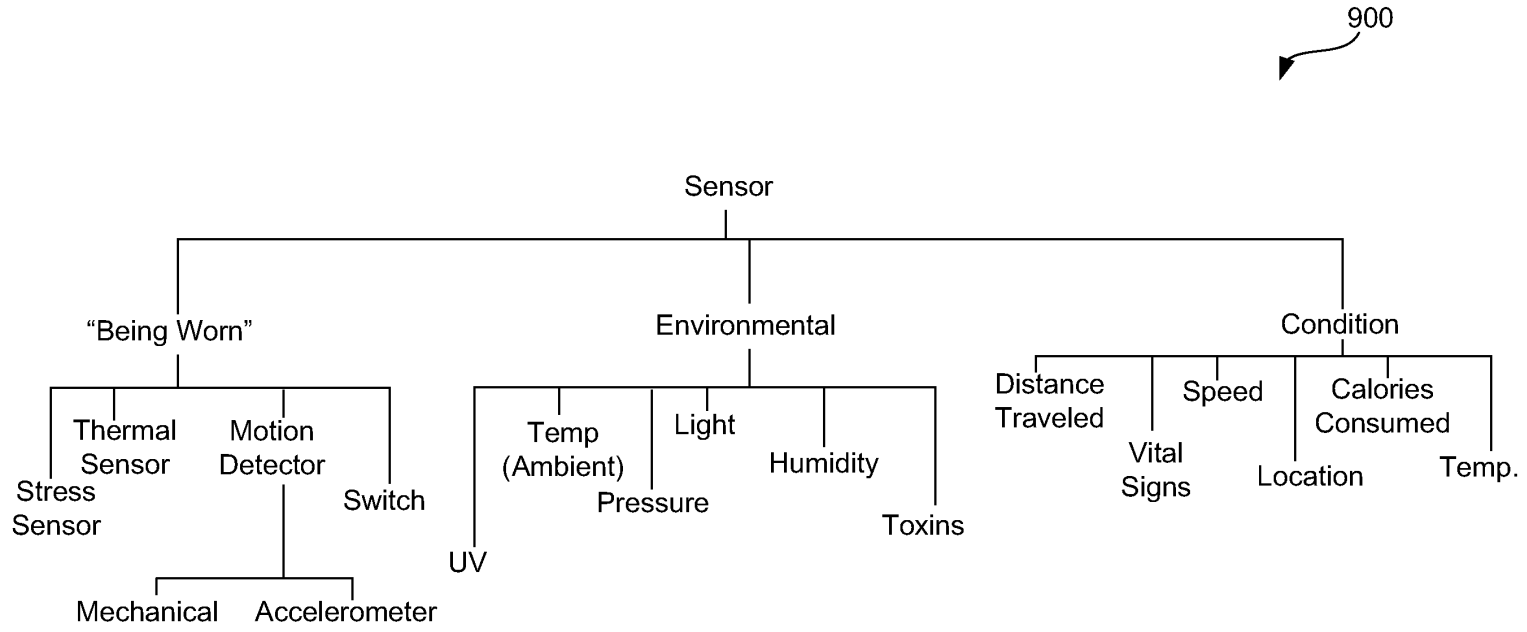

900
Sensor
"Being Worn"
Environmental
Condition
Thermal Sensor
Motion Detector
Stress Sensor
Switch
Mechanical
Accelerometer
Temp (Ambient)
Light
Humidity
Pressure
UV
Toxins
Distance Traveled
Speed
Calories Consumed
Vital Signs
Location
Temp.

FIG. 17A

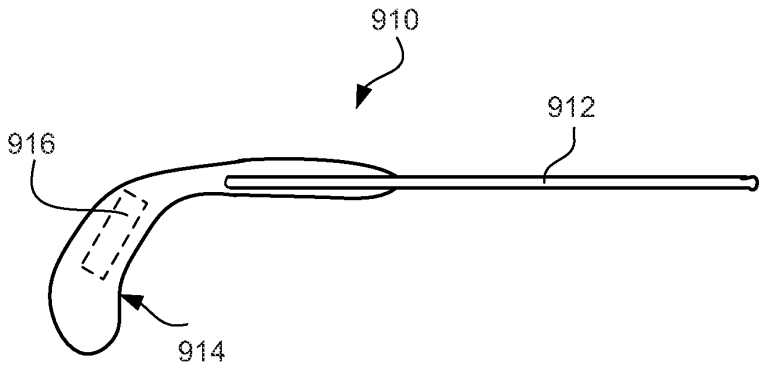


FIG. 17B

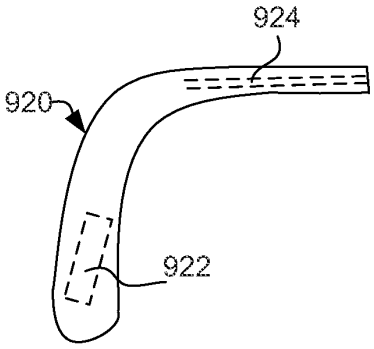


FIG. 17C

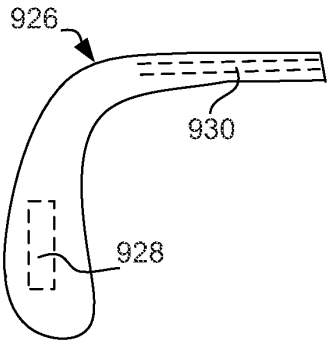


FIG. 17D

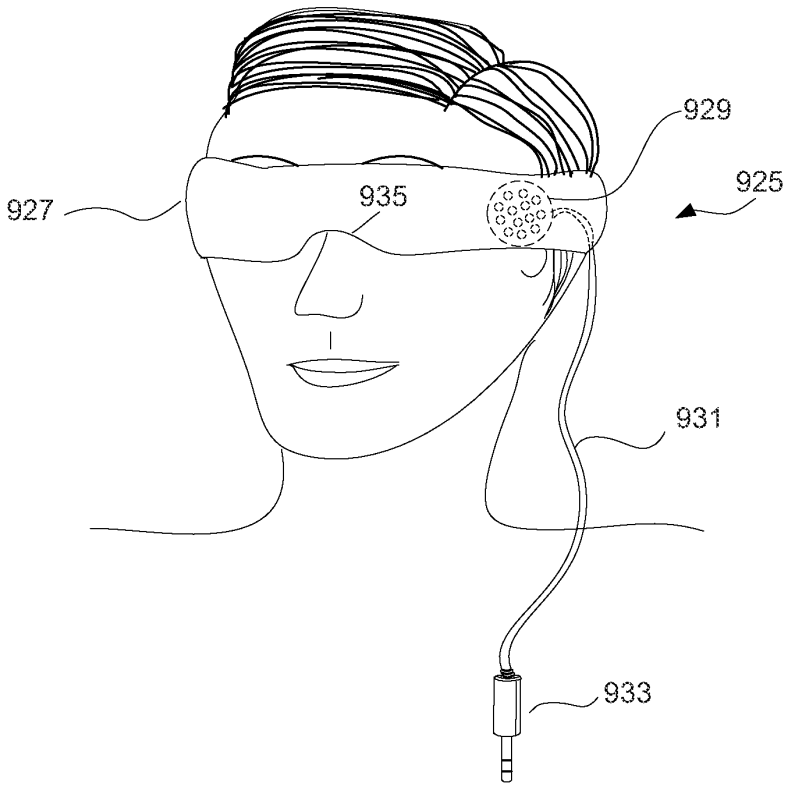


FIG. 18

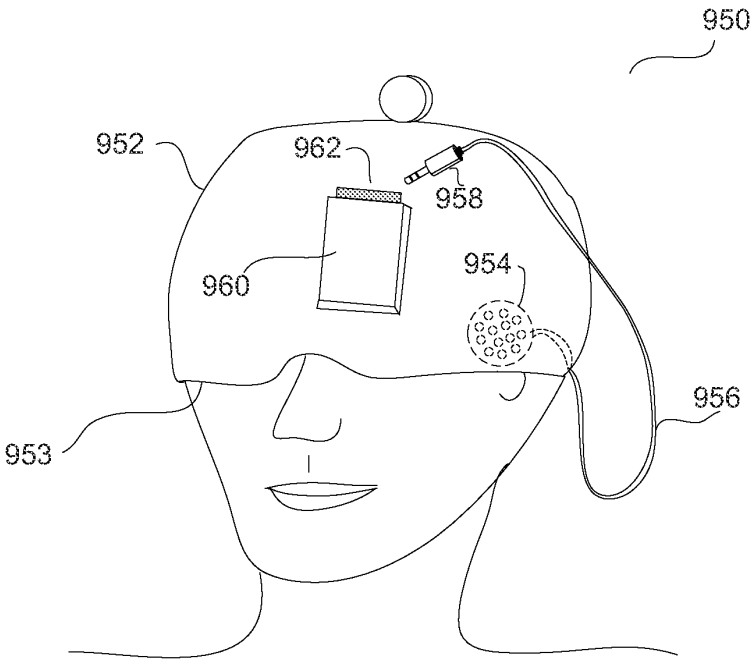


FIG. 19

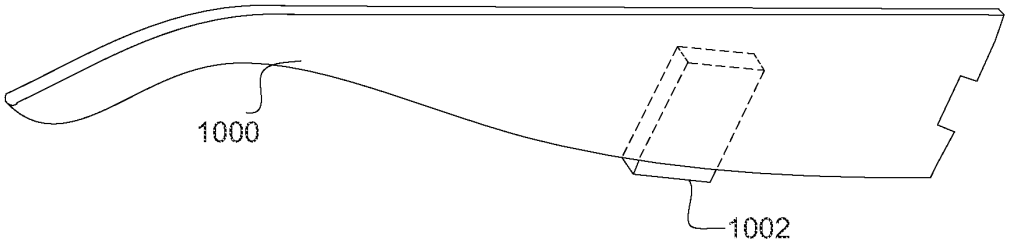


FIG. 20A

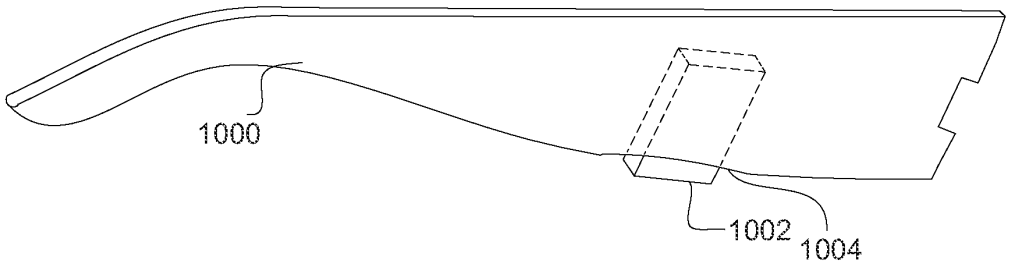


FIG. 20B

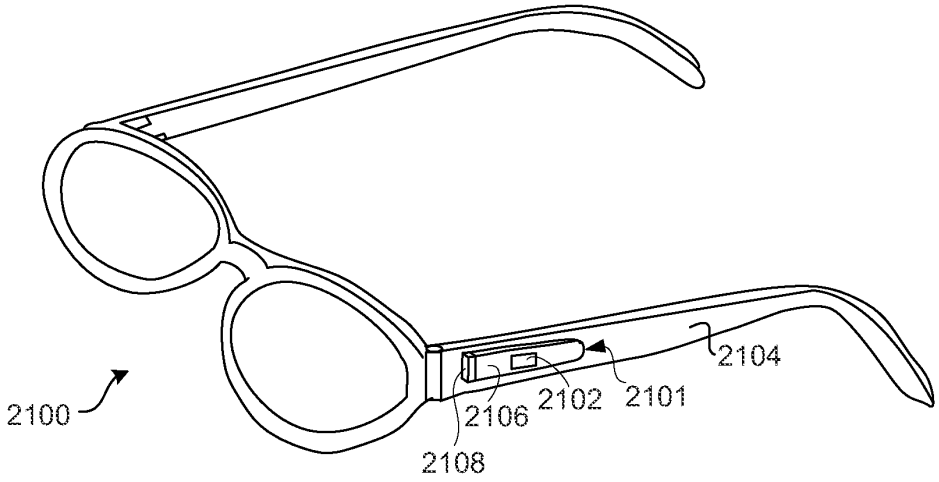


FIG. 21A

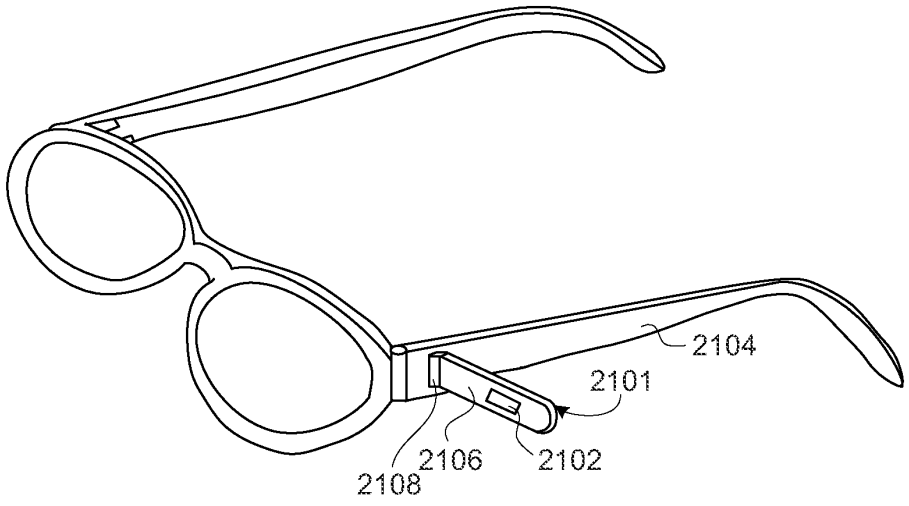


FIG. 21B

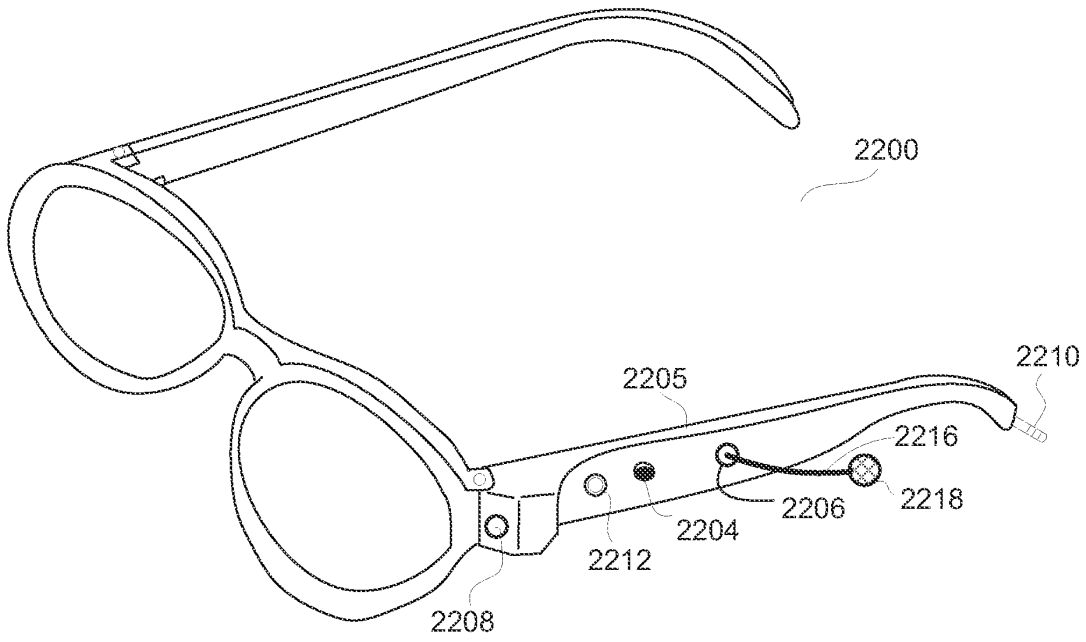


FIG. 22

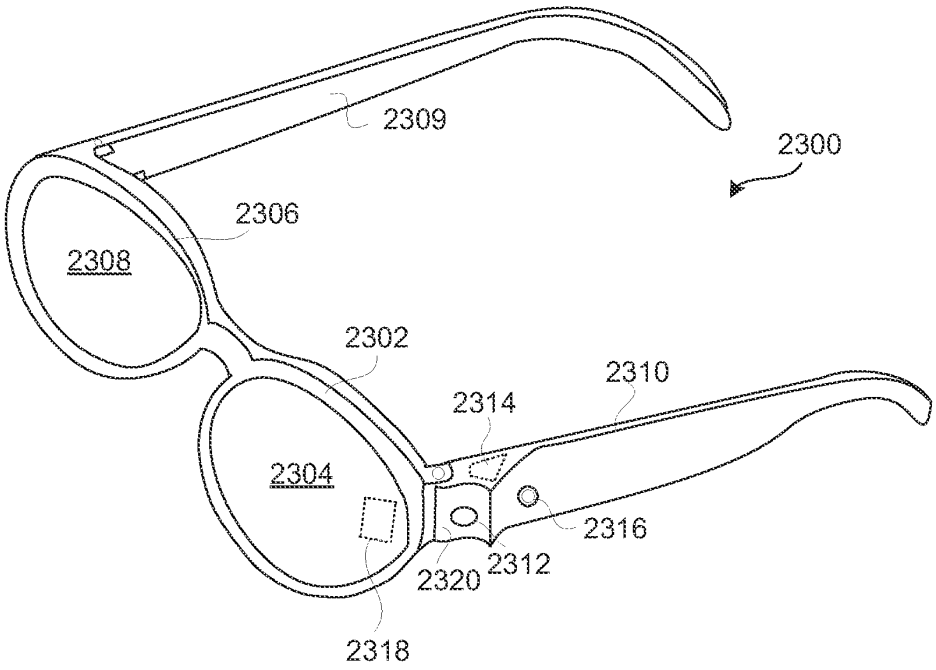


FIG. 23A

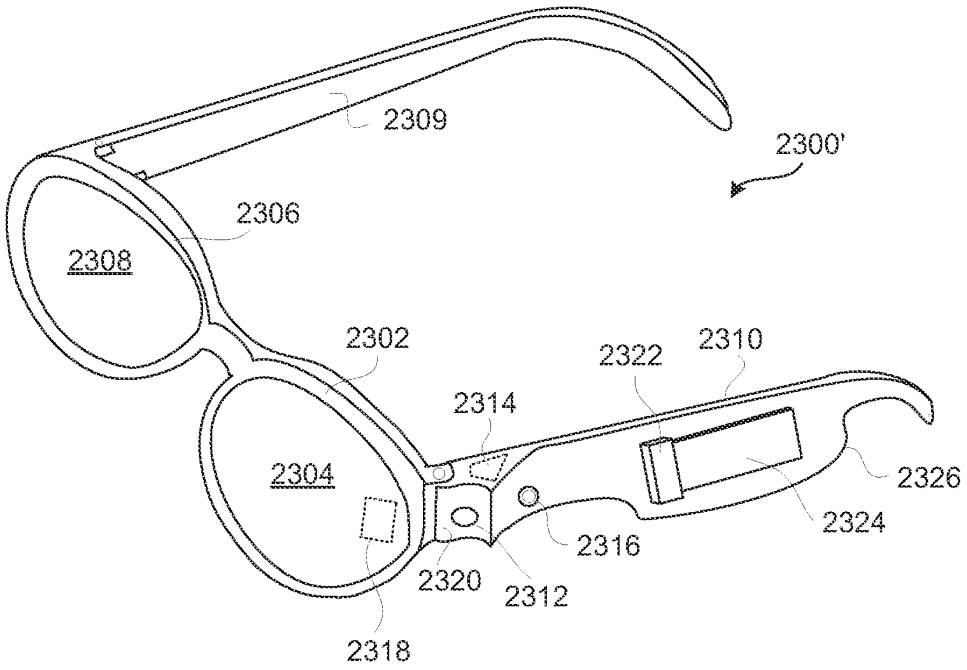

2309
2300'
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2302
2322
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2314
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2324
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2312
2318

FIG. 23B

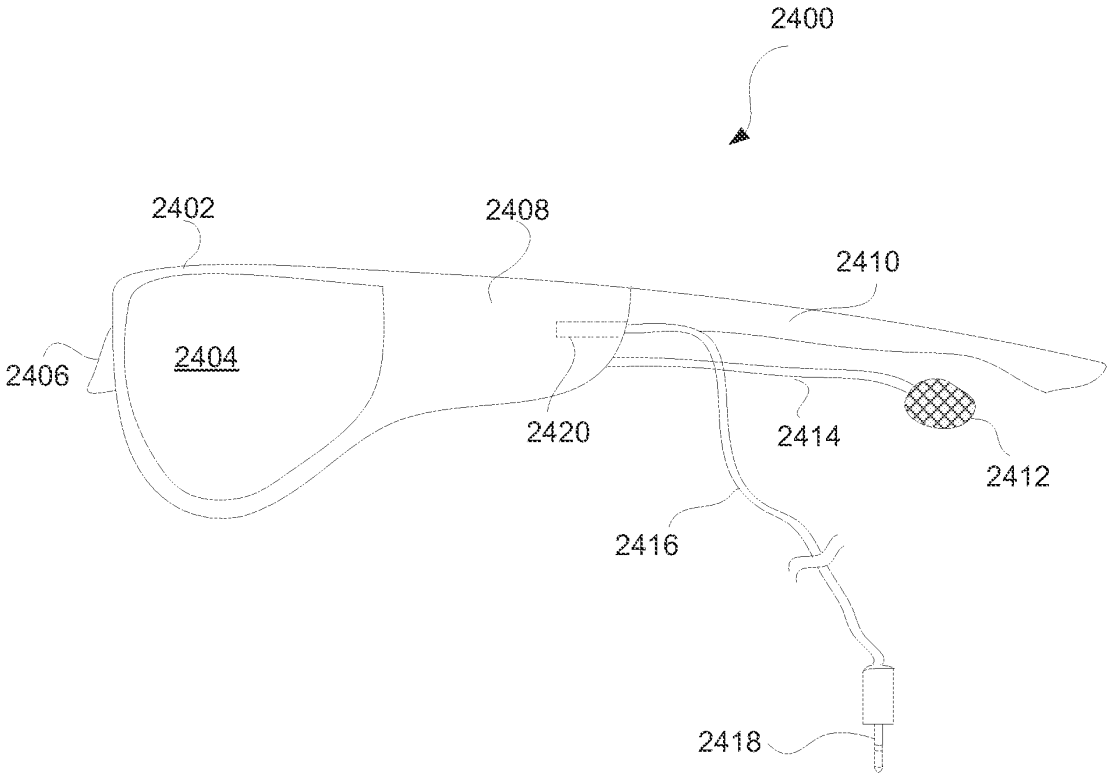


FIG. 24

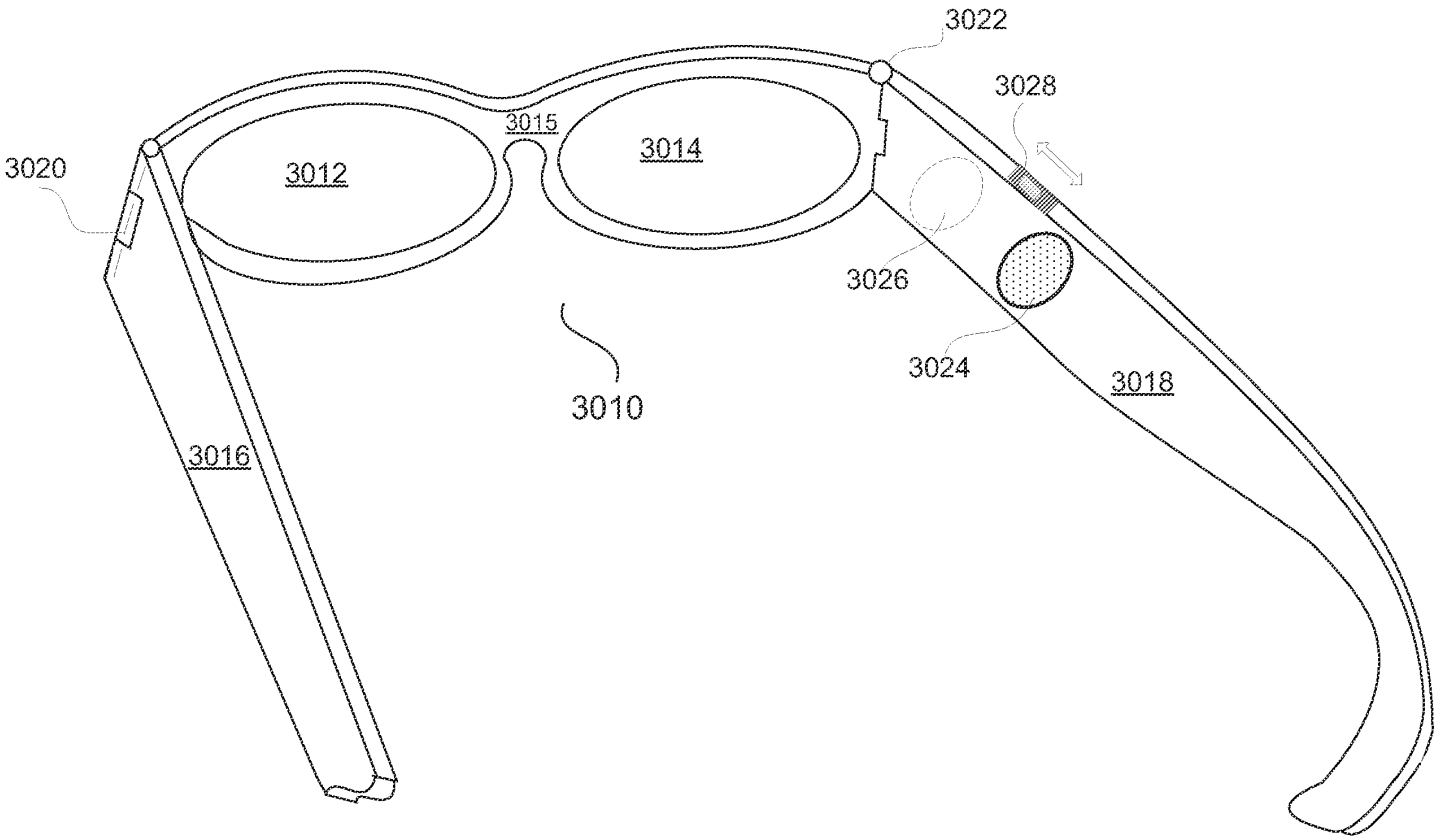


FIG. 25

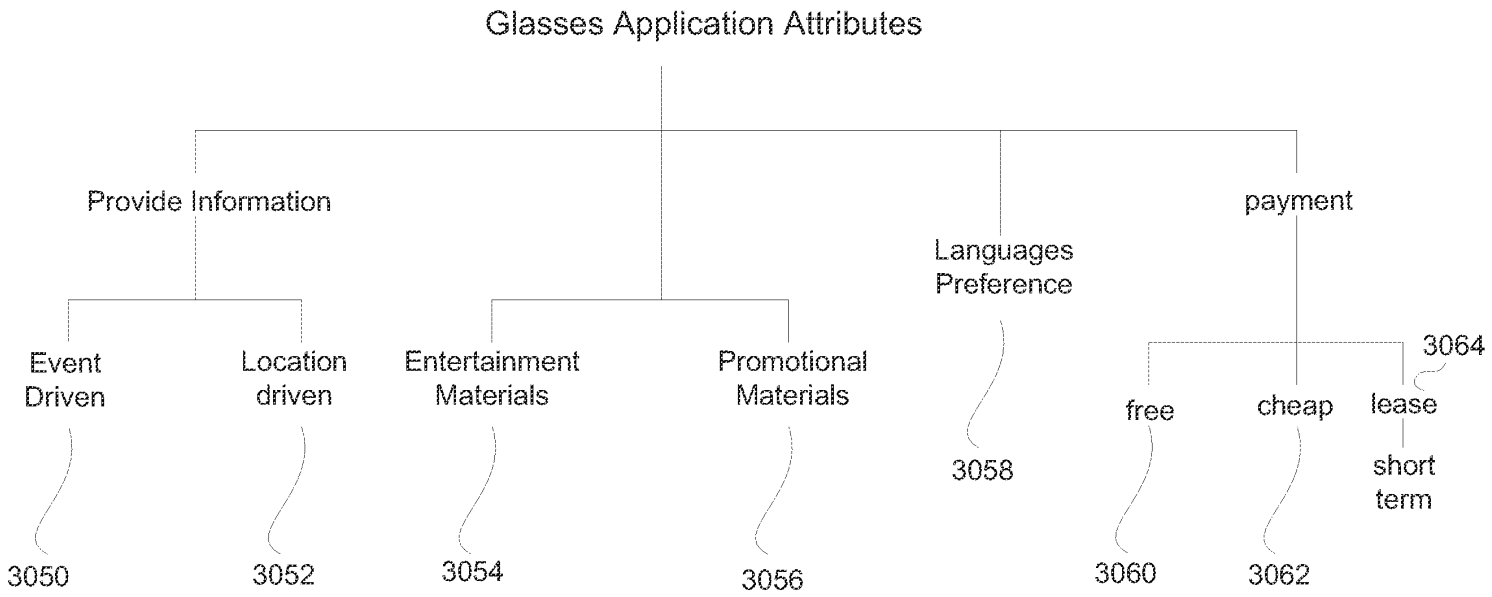

Glasses Application Attributes
Provide Information
Event Driven
Location driven
Entertainment Materials
Promotional Materials
Languages Preference
payment
free
cheap
lease
3064
short term
3050
3052
3054
3056
3058
3060
3062

FIG. 26

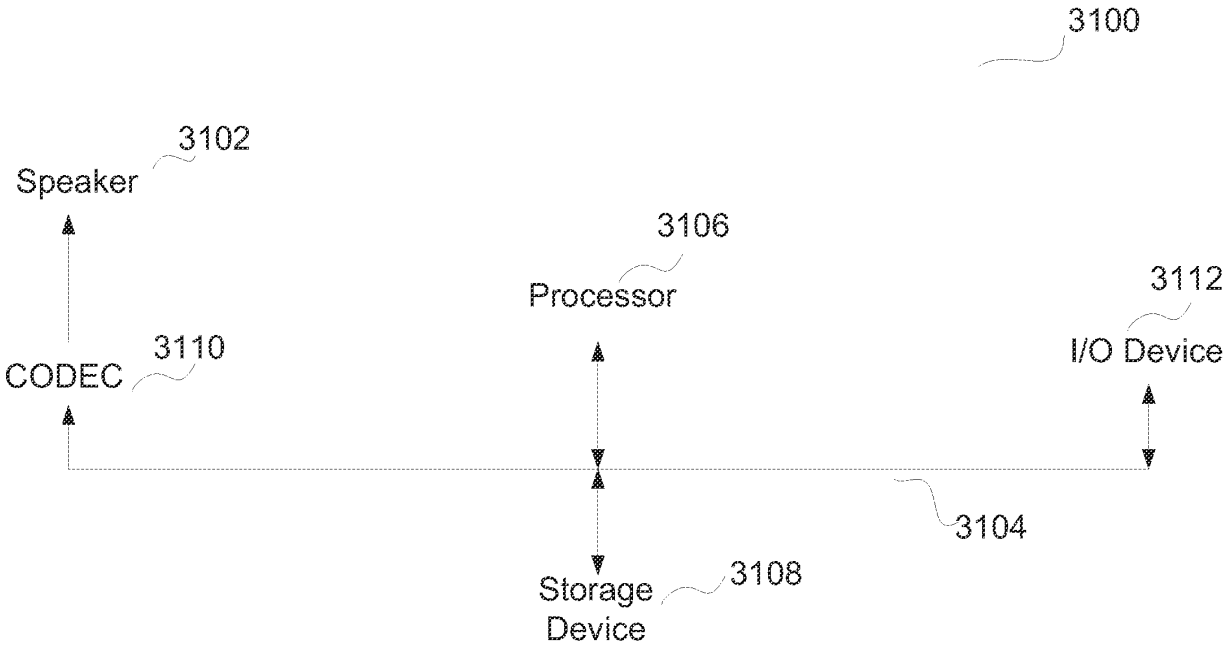

3100
3102
Speaker
3106
Processor
3112
I/O Device
3110
CODEC
3104
3108
Storage
Device

FIG. 27

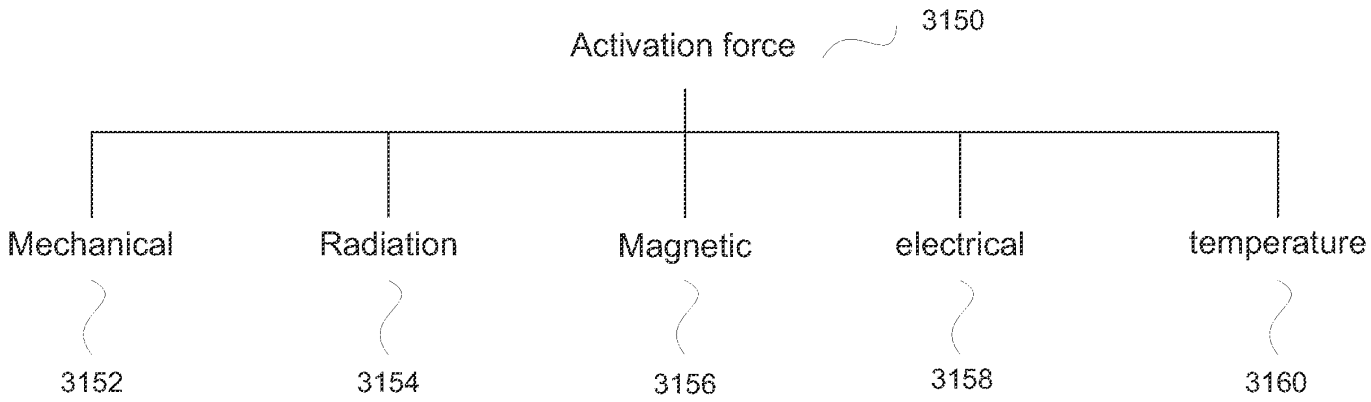

Activation force
3150
Mechanical
Radiation
Magnetic
electrical
temperature
3152
3154
3156
3158
3160

Fig. 28

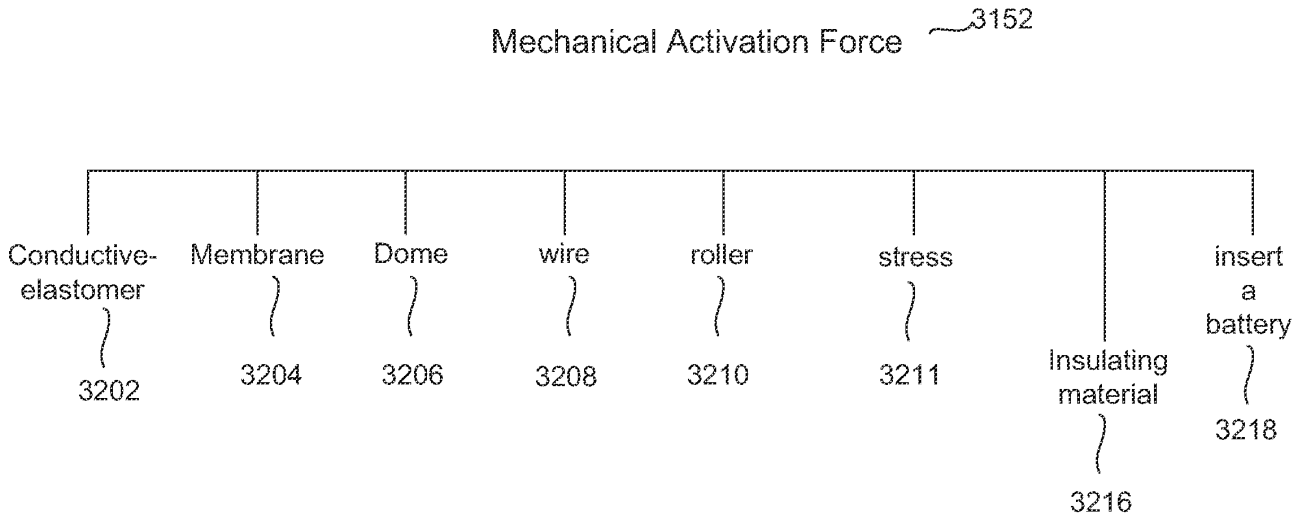

Mechanical Activation Force
3152
Conductive-elastomer
3202
Membrane
3204
Dome
3206
wire
3208
roller
3210
stress
3211
Insulating material
3216
insert a battery
3218

Fig. 29

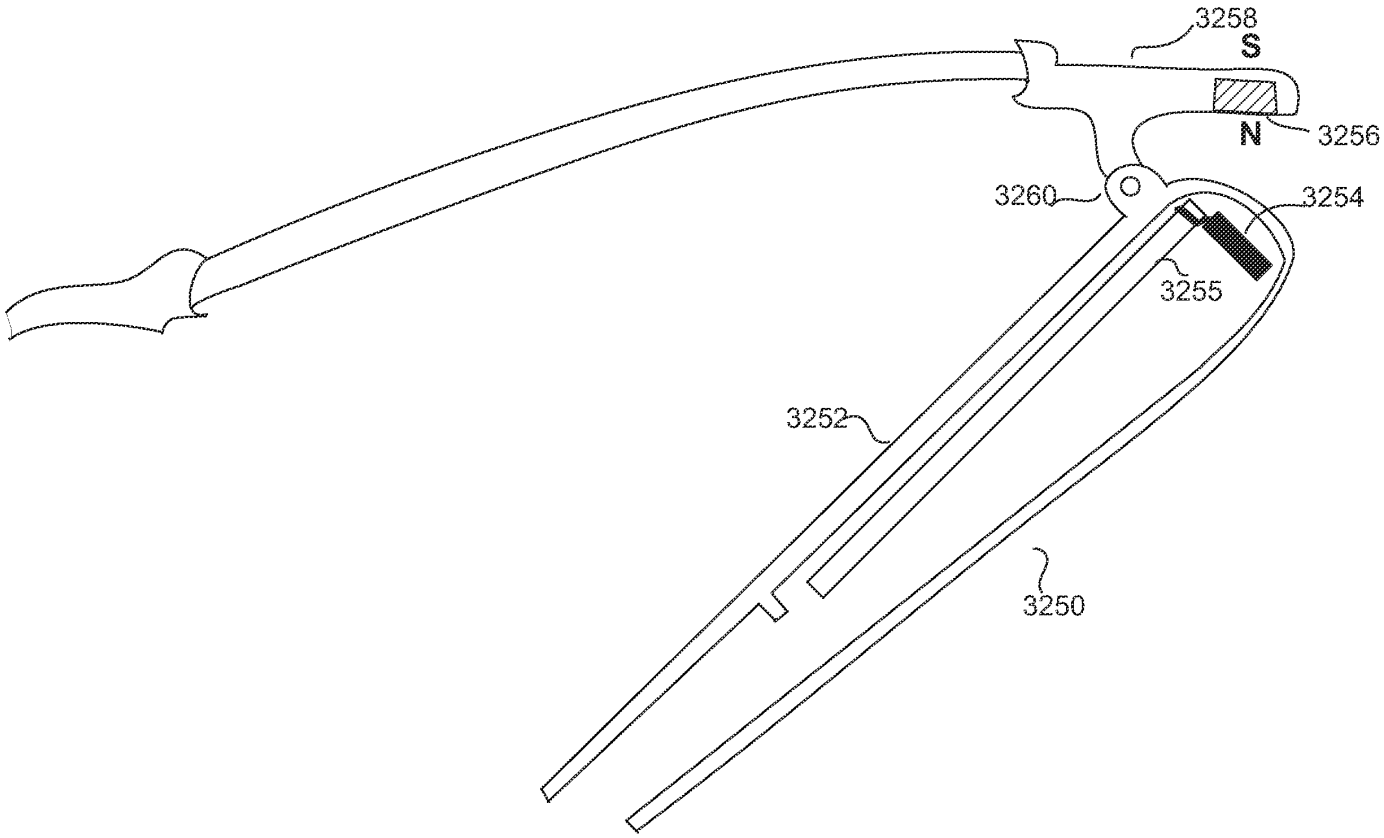


Fig. 30

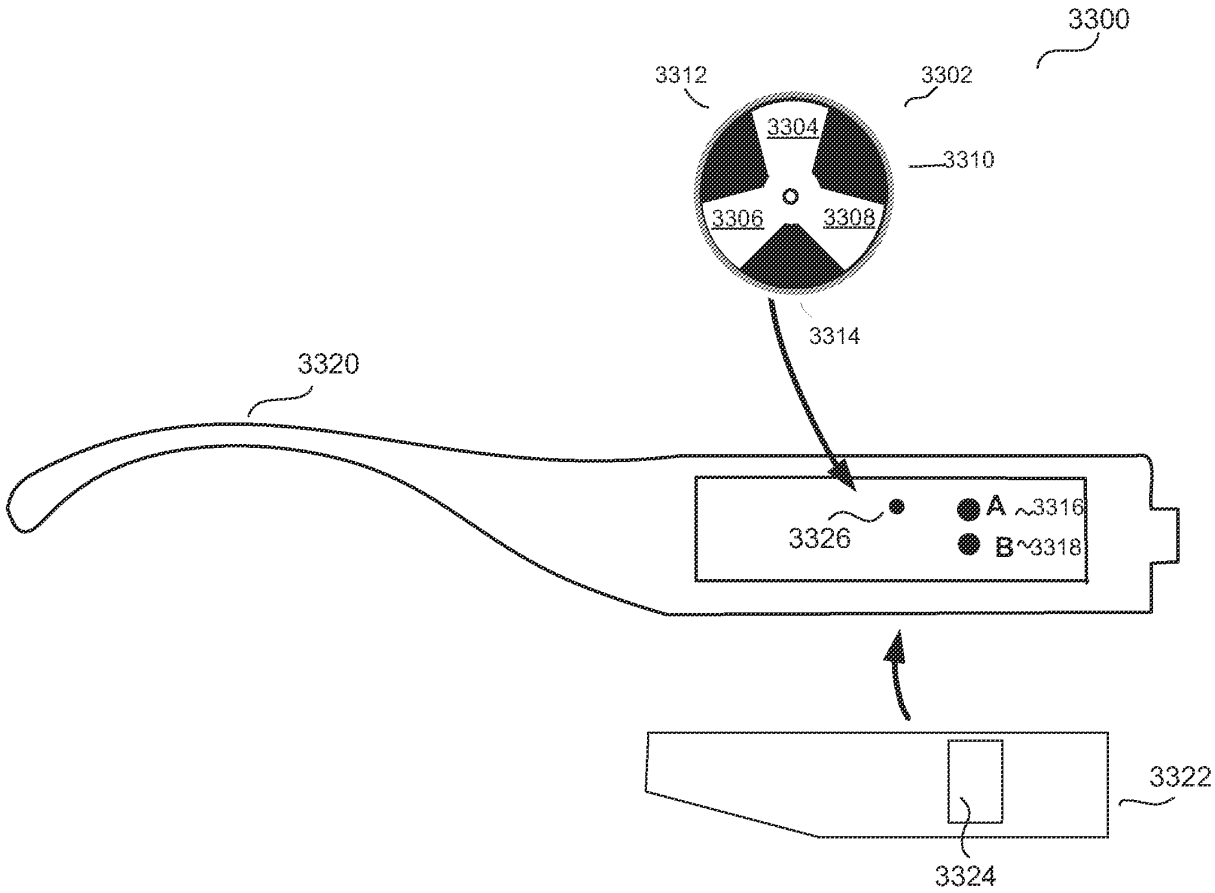

3300
3312
3302
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A
3316
B
3318
3322
3324

Fig. 31A

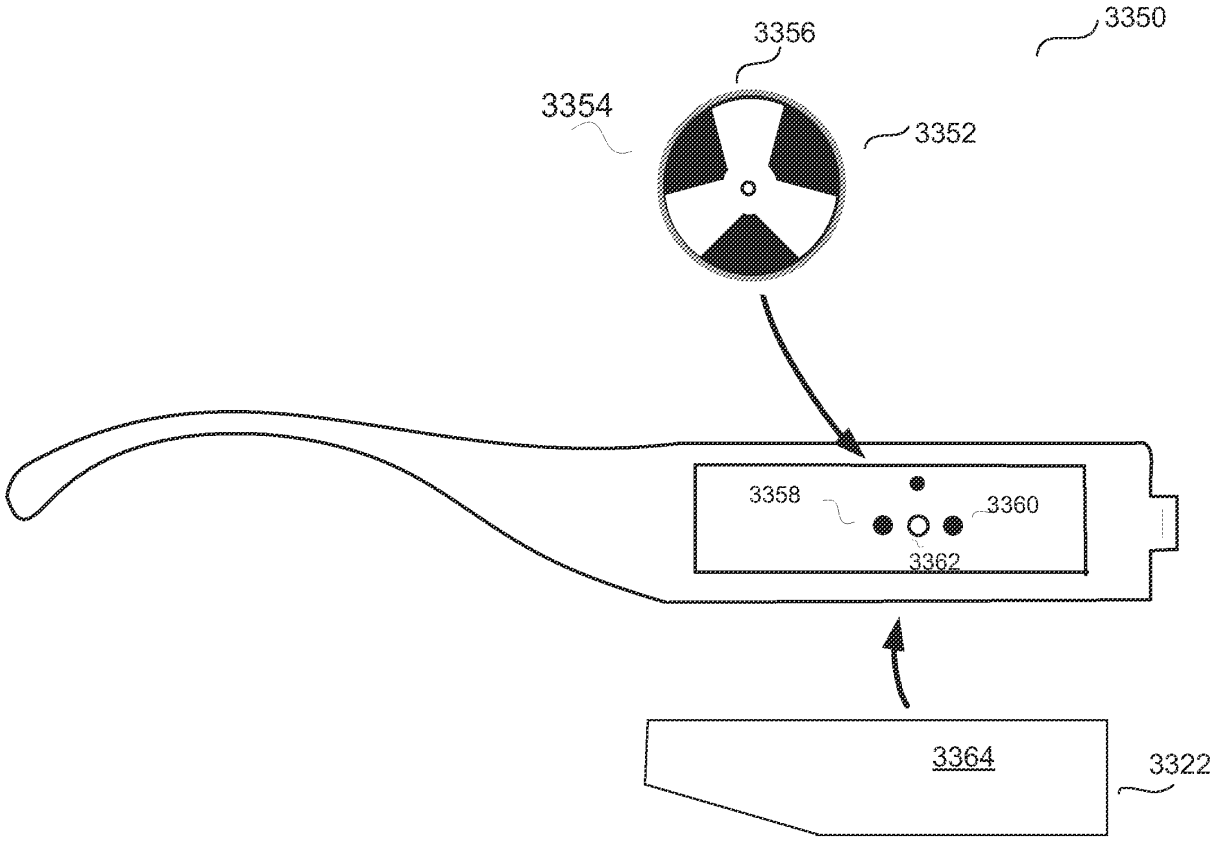


Fig. 31B

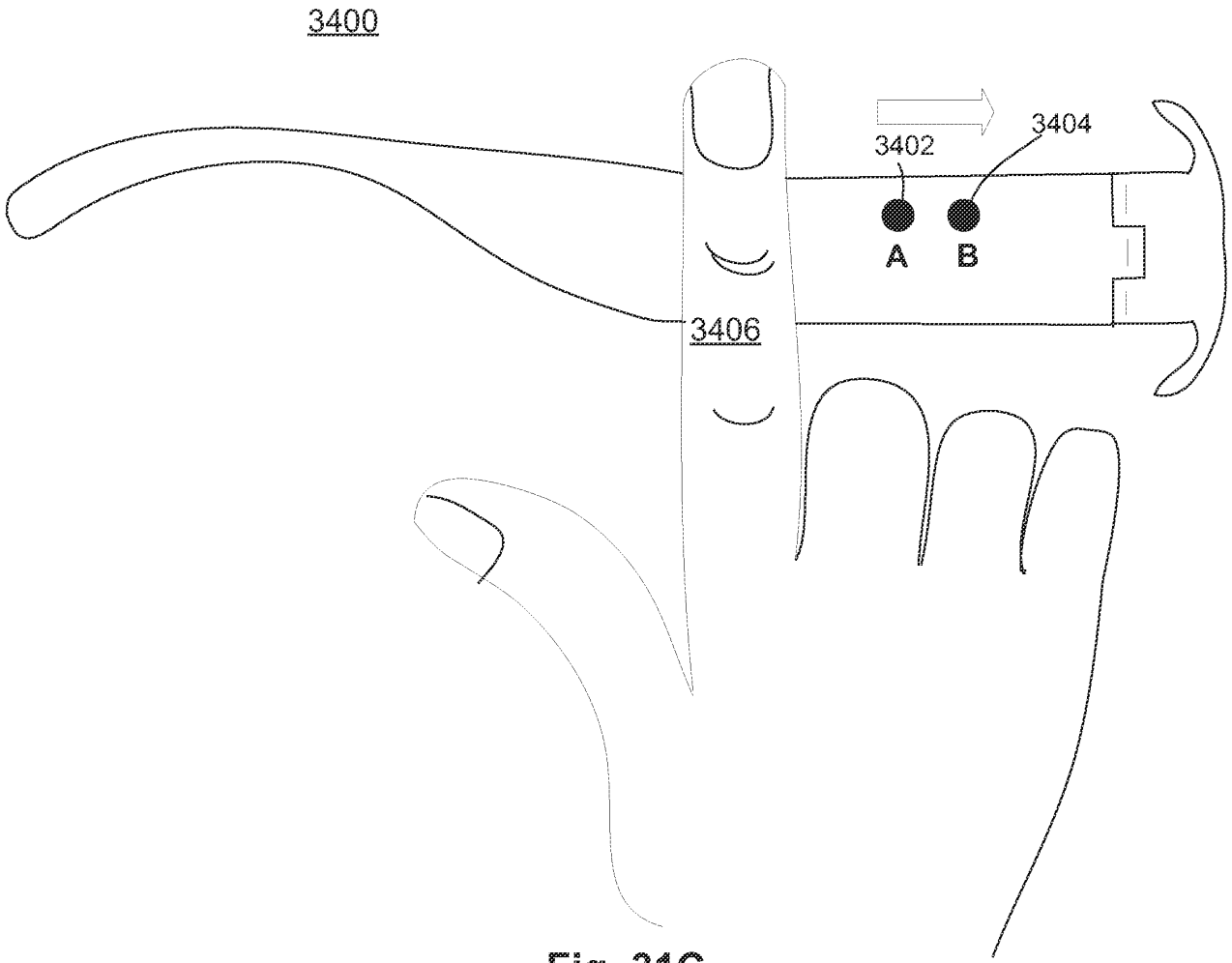


Fig. 31C

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	EYEWEAR WITH TOUCH-SENSITIVE INPUT SURFACE

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 13/831,419

filed on March 14, 2013

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: THOMAS A. HOWELL Date (Optional): 6/22/15

Signature: Thomas A. Howell

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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LEGAL NAME OF INVENTOR

Inventor: DAVID CHAO Date (Optional): _____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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LEGAL NAME OF INVENTOR

Inventor: PETER P. TONG Date (Optional): 6/18/2013

Signature: Peter Tong

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

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☐ The attached application, or

☒ United States application or PCT international application number 13/831,419 filed on March 14, 2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: C. DOUGLASS THOMAS Date (Optional): 6-17-2015

Signature: C. Douglass Thomas

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 34071

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 34071

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: IngenioSpec, LLC
4010 Moorpark Avenue
Suite 211
San Jose, ca 95117

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature /Peter P. Tong/	Date July 21, 2023
Name Peter P. Tong	Telephone 650-903-9200, x102
Title Member	

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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	274.	5,585,871	Dec.-96	Linden			
	275.	5,589,398	Dec-96	Krause et al.			
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	281.	5,686,727	Nov-97	Reenstra et al.			
	282.	5,694,475	Dec-97	Boyden			
	283.	5,715,323	Feb-98	Walker			
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	286.	5,818,381	Oct-98	Williams			
	287.	5,819,183	Oct-98	Voroba et al.			
	288.	5,835,185	Nov-98	Kallman et al.			

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	Not Yet Assigned
Information Disclosure	Applicant	HOWELL et al.
Statement By Applicant	Filing Date	Filed Herewith
	Group	Not Yet Assigned
(Use Several Sheets if Necessary)		Page 11 of 16

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	290.	5,903,395	May-99	Rallison et al.			
	291.	5,923,398	Jul-99	Goldman			
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	301.	6,091,546	Jul-00	Spitzer			
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Examiner	Date Considered

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Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
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Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	Filed Herewith
	Group	Not Yet Assigned
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	319.	6,259,367 B1	Jul-01	Klein			
	320.	6,270,466 B1	Aug-01	Weinstein et al.			
	321.	6,292,213 B1	Sep-01	Jones			
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	340.	6,517,203 B1	Feb-03	Blum et al.			
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	344.	6,554,763 B1	Apr-03	Amano et al.			
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	346.	6,619,799 B1	Sep-03	Blum et al.			

Examiner	Date Considered

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Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
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Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	Filed Herewith
	Group	Not Yet Assigned
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	348.	6,678,381 B1	Jan-04	Manabe			
	349.	6,717,737 B1	Apr-04	Haglund			
	350.	6,729,726 B2	May-04	Miller et al.			
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	353.	6,769,767 B2	Aug-04	Swab et al.			
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	355.	6,788,309 B1	Sep-04	Swan et al.			
	356.	6,792,401 B1	Sep-04	Nigro et al.			
	357.	6,816,314 B2	Nov-04	Shimizu et al.			
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	359.	6,857,741 B2	Feb-05	Blum et al.			
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	366.	7,004,582 B2	Feb-06	Jannard et al.			
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Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
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Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	Filed Herewith
	Group	Not Yet Assigned
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	377.	7,255,437 B2	Aug-07	Howell et al.			
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Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
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Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	Filed Herewith
	Group	Not Yet Assigned
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	407.	7,922,321 B2	Apr-11	Howell et al.			
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Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
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Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	Filed Herewith
	Group	Not Yet Assigned
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	435.	10,359,311 B2	Jul-19	Howell et al.			
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	438.	10,624,790 B2	Apr-20	Chao et al.			
	439.	10,571,715 B2	Feb-20	Rizzo, III et al.			
	440.	10,777,048 B2	Sep-20	Howell et al.			
	441.	10,802,582 B1	Oct-20	Clements			
	442.	10,964,190 B2	Mar-21	Peyrard			
	443.	11,042,045 B2	Jun-21	Chao et al.			
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	445.	11,086,147 B2	Aug-21	Howell et al.			
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	447.	11,243,416 B2	Feb-22	Howell et al.			
	448.	11,326,941 B2	May-22	Howell et al.			
	449.	11,513,371 B2	Nov-22	Howell et al.			
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Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Residence Information (Select One)	◉ US Residency	○ Non US Residency	○ Active US Military Service		
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Residence Information (Select One)	◉ US Residency	○ Non US Residency	○ Active US Military Service		
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City	Mountain View	**State/Province**	CA
Postal Code	94040	**Country** i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

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Email Address	peter@ipventure.com	Add Email	Remove Email

Application Information:

Title of the Invention	HEADSET WITH CONNECTION REGION		
Attorney Docket Number	IPVCP006X1C10D1	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	42	**Suggested Figure for Publication (if any)**	1

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

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Registration Number					
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Division of	18129660	2023-03-31

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
18129660	Continuation of	16424018	2019-05-28	11630331	2023-04-18

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16424018	Continuation of	13831419	2013-03-14	10345625	2019-07-09

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13831419	Continuation of	13291020	2011-11-07	8430507	2013-04-30

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13291020	Continuation of	12803732	2010-07-01	8434863	2013-05-07

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12803732	Continuation of	11546685	2006-10-11	7806525	2010-10-05

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11546685	Continuation in part of	11183256	2005-07-15	7500747	2009-03-10

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11183256	Claims benefit of provisional	60592045	2004-07-28

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11183256	Claims benefit of provisional	60605191	2004-08-28

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11183256	Claims benefit of provisional	60618107	2004-10-12

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11183256	Claims benefit of provisional	60620238	2004-10-18

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11183256	Claims benefit of provisional	60647836	2005-01-31

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11183256	Claims benefit of provisional	60647826	2005-01-31

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11546685	Claims benefit of provisional	60725896	2005-10-11

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11546685	Claims benefit of provisional	60725999	2005-10-11

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11546685	Claims benefit of provisional	60787850	2006-04-01

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11546685	Claims benefit of provisional	60846150	2006-09-20

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country	Filing Date (YYYY-MM-DD)	Access Code (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

PTO/AIA/14 (08-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (08-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	IngenioSpec, LLC		
Mailing Address Information For Applicant:			
Address 1	4010 Moorpark Avenue		
Address 2	Suite 211		
City	San Jose	**State/Province**	CA
Country[i]	US	Postal Code	95117
Phone Number	650-903-9200	Fax Number	650-903-9800
Email Address	peter@ipventure.com		

Additional Applicant Data may be generated within this form by selecting the Add button.

PTO/AIA/14 (08-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country [i]		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

PTO/AIA/14 (08-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	IPVCP006X1C10D1
	Application Number	
Title of Invention	HEADSET WITH CONNECTION REGION	

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e. g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Peter P. Tong/			Date (YYYY-MM-DD)	
First Name	Peter	Last Name	Tong	Registration Number	35757

Additional Signature may be generated within this form by selecting the Add button.

Doc code : PET.OP.AGE
Description : Petition to make special based on Age/Health

PTO/SB/130 (07-09)

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

PETITION TO MAKE SPECIAL BASED ON AGE FOR ADVANCEMENT OF EXAMINATION UNDER 37 CFR 1.102(c)(1)

Application Information

Application Number	18224793	Confirmation Number	5028	Filing Date	
Attorney Docket Number (optional)	IPVCP006X1C10D1	Art Unit		Examiner	
First Named Inventor	Thomas A. Howell				
Title of Invention	HEADSET WITH CONNECTION REGION				

Attention: Office of Petitions

An application may be made special for advancement of examination upon filing of a petition showing that the applicant is 65 years of age, or more. No fee is required with such a petition. See 37 CFR 1.102(c)(1) and MPEP 708.02 (II).

APPLICANT HEREBY PETITIONS TO MAKE SPECIAL FOR ADVANCEMENT OF EXAMINATION IN THIS APPLICATION UNDER 37 CFR 1.102(c)(1) and MPEP 708.02 (II) ON THE BASIS OF THE APPLICANT'S AGE.

A grantable petition requires one of the following items:
(1) Statement by one named inventor in the application that he/she is 65 years of age, or more; or
(2) Certification by a registered attorney/agent having evidence such as a birth certificate, passport, driver's license, etc. showing one named inventor in the application is 65 years of age, or more.

Name of Inventor who is 65 years of age, or older

Given Name	Middle Name	Family Name	Suffix
Peter	P.	Tong	

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the format of the signature.

Select (1) or (2) :

○ (1) I am an inventor in this application and I am 65 years of age, or more.

◉ (2) I am an attorney or agent registered to practice before the Patent and Trademark Office, and I certify that I am in possession of evidence, and will retain such in the application file record, showing that the inventor listed above is 65 years of age, or more.

Signature	/Peter P. Tong/		
Name	Peter P. Tong	Registration Number	35757

EFSWeb 1.0.18

PTO/SB/130 (07-09)
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Fr eedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about indivi duals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of
Thomas A. Howell

Application No. 18224793

Filed:

Attorney Docket No. IPVCP006X1C10D1

:
:
:DECISION ON PETITION TO MAKE SPECIAL
:UNDER 37 CFR 1.102(c)(1)
:

This is a decision on the electronic petition under 37 CFR 1.102 (c)(1), filed 25-JUL-2023 to make the above-identified application special based on applicant's age as set forth in MPEP § 708.02, Section II.

The petition is **GRANTED**.

A grantable petition to make an application special under 37 CFR 1.102(c)(1), MPEP § 708.02, Section II : Applicant's Age must include a statement by applicant or a registered practitioner having evidence that applicant is at least 65 years of age. No fee is required.

Accordingly, the above-identified application has been accorded "special" status and will be taken up for action by the examiner upon the completion of all pre-examination processing.

Telephone inquiries concerning this electronic decision should be directed to the Electronic Business Center at 866-217-9197.

All other inquiries concerning either the examination or status of the application should be directed to the Technology Center.

Electronic Acknowledgement Receipt

EFS ID:	48345632
Application Number:	18224793
International Application Number:	
Confirmation Number:	5028
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVCP006X1C10D1
Receipt Date:	25-JUL-2023
Filing Date:	
Time Stamp:	21:46:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	ePetition Request Form	petition-request.pdf	44872 6d7e046f223f1b9c105d82f9288ec4228ad3a186	no	2
Warnings:					

Information:	
Total Files Size (in bytes):	44872

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	Not Yet Assigned
(Use Several Sheets if Necessary)		Page 1 of 10

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						
	2.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No
		CA 2 487 391	Dec-03	Canada				
		CN 88203065	Nov-88	China			X abstract	
		CN 89214222.7	Mar-90	China			X abstract	
		CN 90208199.3	Nov-90	China			X abstract	
		DE 10123226 A1	Nov-02	Germany			X	
		EP 1027626 B1	Mar-16	Europe				
		EP 1134491 A2	Sep-01	Europe				
		EP 2290433 B1	Apr-16	Europe				
		FR 2530039 A1	Jan-84	France			X abstract	
		GB 1467982	Mar-77	Great Britain				
		JP 02-181722	Jul-90	Japan			X abstract	
		JP 09-017204	Jan-97	Japan			X	
		JP 10-161072	Jun-98	Japan			X	
		JP 2000-039595	Feb-00	Japan			X	
		JP 2002 341059 A	Nov-02	Japan			X	
		JP 2002-02511706 A	Apr-02	Japan			X	
		JP 2005-151292	Jun-05	Japan			X abstract	
		JP 2005-167902	Jun-05	Japan			X	
		JP 58-113912	Jul-83	Japan			X	
		JP-58-113914	Jul-83	Japan			X abstract	
		KR 2002-0044416 A	Jun-02	Korea			X	
		TW 484711	Jun-01	Taiwan			X abstract	
		WO 97/12205 A1	Apr-97	WIPO				

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

		WO 01/06298 A1	Jan-01	WIPO				
		WO 01/24576 A1	Apr-01	WIPO				
		WO 02/06881 A2	Jan-02	WIPO				
		WO 03/069394 A1	Aug-03	WIPO			X abstract	
		WO 03/100368 A1	Dec-03	WIPO				
		WO 03/100503 A2	Dec-03	WIPO				
		WO 04/012477 A2	Feb-04	WIPO				
		WO 04/025554 A1	Mar-04	WIPO				
		WO 99/50706 A1	Oct-99	WIPO				

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Notice of Allowance for U.S. Patent Application No. 11/183,269, dated December 10, 2010.
	B	Office Action for U.S. Patent Application No. 11/183,269, dated May 25, 2010.
	C	Final Office Action for U.S. Patent Application No. 11/183,269, dated February 17, 2010.
	D	Office Action for U.S. Patent Application No. 11/183,269, dated June 23, 2009.
	E	Office Action for U.S. Patent Application No. 11/183,269, dated December 4, 2008.
	F	Final Office Action for U.S. Patent Application No. 11/183,269, dated June 5, 2008.
	G	Office Action for U.S. Patent Application No. 11/183,269, dated October 18, 2007.
	H	Restriction Requirement for U.S. Patent Application No. 11/183,269, dated June 25, 2007.
	I	Office Action for U.S. Patent Application No. 13/085,402, dated April 19, 2012.
	J	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated August 2, 2012.
	K	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated November 13, 2012.
	L	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated February 20, 2013.
	M	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated June 14, 2013.
	N	Office Action for U.S. Patent Application No. 13/955,336, dated December 5, 2013.
	O	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated April 28, 2014.
	P	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated August 18, 2014.
	Q	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated October 7, 2014.
	R	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated November 3, 2014.
	S	Office Action for U.S. Patent Application No. 14/557,409, dated June 11, 2015.
	T	Notice of Allowance for U.S. Patent Application No 14/557,409, dated January 14, 2016.
	U	Notice of Allowance for U.S. Patent Application No. 14/557,409, dated April 28, 2016.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	Not Yet Assigned
		Page 3 of 10

	V	Notice of Allowance for U.S. Patent Application No. 14/557,409, dated August 8, 2016.
	W	Notice of Allowance for U.S. Patent Application No. 14/557,409, dated November 4, 2016.
	X	Corrected Notice of Allowance for U.S. Patent Application No. 14/557,409, dated December 12, 2016.
	Y	Office Action for U.S. Patent Application No. 15/375,423, dated March 27, 2017.
	Z	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated July 5, 2017.
	AA	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated October 31, 2017.
	AB	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated March 23, 2018.
	AC	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated July 13, 2018.
	AD	Office Action for U.S. Patent Application No. 16/049,120, dated February 28, 2020.
	AE	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated June 3, 2020.
	AF	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated September 21, 2020.
	AG	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated February 23, 2021.
	AH	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated June 3, 2021.
	AI	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated September 20, 2021.
	AJ	Notice of Allowance for U.S. Patent Application No. 16/574,254, dated April 16, 2021.
	AK	Notice of Allowance for U.S. Patent Application No. 16/574,254, dated August 9, 2021.
	AL	Office Action for U.S. Patent Application No. 16/821,810, dated February 2, 2022.
	AM	Notice of Allowance for U.S. Patent Application No. 16/821,810, dated April 6, 2022.
	AN	Notice of Allowance for U.S. Patent Application No. 16/821,810, dated October 19, 2022.
	AO	Office Action for U.S. Patent Application No. 17/484,080, dated January 21, 2022.
	AP	Notice of Allowance for U.S. Patent Application No. 17/484,080, dated May 31, 2022.
	AQ	Notice of Allowance for U.S. Patent Application No. 17/484,080, dated September 13, 2022.
	AR	Notice of Allowance for U.S. Patent Application No. 17/484,080, dated January 31, 2023.
	AS	Office Action for U.S. Patent Application No. 17/949,029, dated November 23, 2022.
	AT	Notice of Allowance for U.S. Patent Application No. 17/949,029, dated March 1, 2023.
	AU	Notice of Allowance for U.S. Patent Application No. 17/873,104, dated December 16, 2022.
	AV	Notice of Allowance for U.S. Patent Application No. 17/873,104, dated March 22, 2023.
	AW	Restriction Requirement for U.S. Patent Application No. 11/580,222, dated June 18, 2008.
	AX	Office Action for U.S. Patent Application No. 11/580,222, dated September 12, 2008.
	AY	Office Action for U.S. Patent Application No. 11/580,222, dated January 28, 2009.
	AZ	Notice of Allowance for U.S. Patent Application No. 11/580,222, dated April 20, 2009.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

	BA	U.S. Patent Application No. 12/462,286, filed July 31, 2009.
	BB	Restriction Requirement for U.S. Patent Application No. 12/462,286, dated September 17, 2010.
	BC	Office Action for U.S. Patent Application No. 12/462,286, dated January 13, 2011.
	BD	Notice of Allowance for U.S. Patent Application No. 12/462,286, dated June 24, 2011.
	BE	Notice of Allowance for U.S. Patent Application No. 12/462,286, dated November 22, 2011.
	BF	Office Action for U.S. Patent Application No. 13/367,346, dated May 15, 2013.
	BG	Notice of Allowance for U.S. Patent Application No. 13/367,346, dated October 10, 2013.
	BH	Office Action for U.S. Patent Application No. 13/367,346, dated January 28, 2014.
	BI	Notice of Allowance for U.S. Patent Application No. 13/367,346, dated August 15, 2014.
	BJ	Notice of Allowance for U.S. Patent Application No. 13/367,346, dated March 19, 2015.
	BK	Office Action ffor U.S. Patent Application No. 14/715,501, dated September 23, 2015.
	BL	Office Action for U.S. Patent Application No. 14/715,501, dated March 25, 2016.
	BM	Office Action for U.S. Patent Application No. 14/715,501, dated October 17, 2016.
	BN	Office Action for U.S. Patent Application No. 14/715,501, dated July 20, 2017.
	BO	Office Action for U.S. Patent Application No. 14/715,501, dated January 8, 2018.
	BP	Notice of Allowance for U.S. Patent Application No. 14/715,501, dated May 9, 2018.
	BQ	Notice of Allowance for U.S. Patent Application No. 14/715,501, dated September 11, 2018.
	BR	Office Action for U.S. Patent Application No. 16/127,957, dated June 4, 2020.
	BS	Office Action for U.S. Patent Application No. 16/127,957, dated September 30, 2020.
	BT	Notice of Allowance for U.S. Patent Application No. 16/127,957, dated December 21, 2020.
	BU	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated May 6, 2022.
	BV	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated September 9, 2022.
	BW	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated December 19, 2022.
	BX	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated April 26, 2023.
	BY	Notice of Allowance for U.S. Patent Application No. 17/737,866, dated January 17, 2023.
	BZ	Notice of Allowance for U.S. Patent Application No. 16/182,969, dated January 28, 2022.
	CA	Notice of Allowance for U.S. Patent Application No. 16/182,969, dated October 14, 2020.
	CB	Notice of Allowance for U.S. Patent Application No. 16/182,969, dated September 1, 2021.
	CC	Office Action for U.S. Patent Application No. 16/182,969, dated January 24, 2023.
	CD	U.S. Patent Application No. 12/806,312, filed August 10, 2010.

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	CE	Office Action for U.S. Patent Application No. 12/806,312, dated April 20, 2012.
	CF	Office Action for U.S. Patent Application No. 12/806,312, dated September 25, 2012.
	CG	Notice of Allowance for U.S. Patent Application No. 12/806,312, dated December 14, 2012.
	CH	Notice of Allowance for U.S. Patent Application No. 12/806,312, dated March 29, 2013.
	CI	U.S. Patent Application No. 13/831,512, filed March 14, 2013.
	CJ	Office Action for U.S. Patent Application No. 13/831,512, dated June 4, 2013.
	CK	Office Action for U.S. Patent Application No. 13/831,512, dated February 24, 2014.
	CL	Office Action for U.S. Patent Application No. 13/831,512, dated July 2, 2014.
	CM	Office Action for U.S. Patent Application No. 13/831,512, dated January 21, 2015.
	CN	Office Action for U.S. Patent Application No. 13/831,512, dated May 29, 2015.
	CO	Office Action for U.S. Patent Application No. 13/831,512, dated February 24, 2016.
	CP	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated August 1, 2016.
	CQ	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated October 25, 2016.
	CR	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated January 30, 2017.
	CS	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated February 21, 2017.
	CT	Office Action for U.S. Patent Application No. 15/396,428, dated February 16, 2018.
	CU	Office Action for U.S. Patent Application No. 15/396,428, dated June 21, 2018.
	CV	Office Action for U.S. Patent Application No. 15/409,723, dated April 23, 2018.
	CW	Office Action for U.S. Patent Application No. 15/409,723, dated October 31, 2018.
	CX	Notice of Allowance for U.S. Patent Application No. 11/183,256, dated January 13, 2009.
	CY	Office Action for U.S. Patent Application No. 11/183,256, dated September 12, 2008.
	CZ	Notice of Allowance for U.S. Patent Application No. 11/183,256, dated July 8, 2008.
	DA	Office Action for U.S. Patent Application No. 11/183,256, dated January 25, 2008.
	DB	Restriction Requirement for U.S. Patent Application No. 11/183,256, dated October 17, 2007.
	DC	Restriction Requirement for U.S. Patent Application No. 11/183,256, dated June 28, 2007.
	DD	Notice of Allowance for U.S. Patent Application No. 11/546,685, dated February 17, 2010.
	DE	Notice of Allowance for U.S. Patent Application No. 11/546,685, dated September 18, 2009.
	DF	Office Action for U.S. Patent Application No. 11/546,685, dated March 5, 2009.
	DG	Restriction Requirement for U.S. Patent Application No. 11/546,685, dated January 27, 2009.
	DH	US Patent Application No. 12/803,732, filed July 1, 2010.
	DI	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated September 1, 2011.

Examiner	Date Considered

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Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
	Applicant	HOWELL et al.
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	DJ	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated November 15, 2011.
	DK	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated January 30, 2012.
	DL	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated April 17, 2012.
	DM	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated July 5, 2012.
	DN	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated October 19, 2012.
	DO	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated February 13, 2013.
	DP	Office Action for U.S. Patent Application No. 13/291,020, dated June 4, 2012.
	DQ	Office Action for U.S. Patent Application No. 13/291,020, dated April 23, 2012.
	DR	Notice of Allowance for U.s. Patent Application No. 13/291,020, dated August 2, 2012.
	DS	Notice of Allowance for U.S. Patent Application No. 13/291,020, dated November 2, 2012.
	DT	Notice of Allowance for U.S. Patent Application No. 13/291,020, dated February 11, 2013.
	DU	U.S. Patent Application No. 13/831,419, filed March 14, 2013.
	DV	Office Action for U.S. Patent Application No. 13/831,419, dated April 27, 2015.
	DW	Office Action for U.S. Patent Application No. 13/831,419, dated August 12, 2015.
	DX	Notice of Allowance for U.S. Patent Application No. 13/831,419, dated January 28, 2016.
	DY	Office Action for U.S. Patent Application No. 13/831,419, dated April 28, 2016.
	DZ	Office Action for U.S. Patent Application No. 13/831,419, dated November 17, 2016.
	EA	Office Action for U.S. Patent Application No. 13/831,419, dated February 1, 2017.
	EB	Notice of Allowance for U.S. Patent Application No. 13/831,419, dated June 6, 2017.
	EC	Office Action for U.S. Patent Application No. 13/831,419, dated October 20, 2017.
	ED	Office Action for U.S. Patent Application No. 13/831,419, dated June 8, 2018.
	EE	U.S. Patent Application No. 13/831,445, filed March 14, 2013.
	EF	Office Action for U.S. Patent Application No. 13/831,445, dated February 20, 2015.
	EG	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated October 21, 2016.
	EH	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated January 9, 2017.
	EI	Corrected Notice of Allowance for U.S. Patent Application No. 13/831,445, dated January 23, 2017.
	EJ	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated April 25, 2017.
	EK	Office Action for U.S. Patent Application No. 13/831,445, dated February 6, 2018.
	EL	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated August 8, 2018.
	EM	Office Action for U.S. Patent Application No. 16/429,181, dated September 30, 2020.
	EN	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated February 1, 2021.
	EO	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated June 17, 2021.

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	EP	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated August 19, 2021.
	EQ	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated October 4, 2021.
	ER	Office Action for U.S. Patent Application No. 16/429,181, dated February 9, 2022.
	ES	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated August 10, 2022.
	ET	Office Action for U.S. Patent Application No. 16/424,018, dated June 10, 2020.
	EU	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated October 20, 2020.
	EV	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated March 8, 2021.
	EW	Office Action for U.S. Patent Application No. 16/424,018, dated May 13, 2021.
	EX	Office Action for U.S. Patent Application No. 16/424,018, dated September 3, 2021.
	EY	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated November 2, 2021
	EZ	Office Action for U.S. Patent Application No. 16/424,018, dated January 24, 2022.
	FA	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated June 10, 2022.
	FB	Office Action for U.S. Patent Application No. 16/424,018, dated September 6, 2022.
	FC	Office Action for U.S. Patent Application No. 16/424,018, dated November 25, 2022.
	FD	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated February 21, 2023.
	FE	Notice of Allowance for U.S. Patent Application No. 17/942,347, dated April 19, 2023.
	FF	Notice of Allowance for U.S. Patent Application No.17/964,853, dated March 8, 2023.
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Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
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	Group	Not Yet Assigned
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	FR	"Motorola and Oakley Introduce First Bluetooth Sunglasses-Cutting Edge RAZRWire Line Offers Consumers On-The-Go Connections", Motorola Mediacenter-Press Release, February 14, 2005, pp. 1-2.
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	Application No.:	18/224,793
	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	Not Yet Assigned
		Page 9 of 10

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Form 1449 (Modified) **Information Disclosure Statement By Applicant** (Use Several Sheets if Necessary)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	Not Yet Assigned
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Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Electronic Acknowledgement Receipt	
EFS ID:	48345660
Application Number:	18224793
International Application Number:	
Confirmation Number:	5028
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVCP006X1C10D1
Receipt Date:	25-JUL-2023
Filing Date:	
Time Stamp:	21:48:20
Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	IPVCP006X1C10D1_IDSTrans_7-23.pdf	20631 13bd7eda826f6af4a3a0917390875c7623c88830	no	2

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2	Information Disclosure Statement (IDS) Form (SB08)	IPVCP006X1C10D1_1449_7-23.pdf	90583 514e4e90ca7d96009582b6c21cca83ddc5bf5781	no	10
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.	Attorney Docket No.: IPVCP006X1C10D1
Application No.: 18/224,793	Examiner: Not Yet Assigned
Filed: July 21, 2023	Group: Not Yet Assigned
Title: HEADSET WITH CONNECTION REGION	

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449 may be material to examination of the above-identified patent application. Applicants submit the list of these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application. The above-identified application is a Divisional of prior application U.S. Patent Application No. 18/129,660. This prior application is being relied upon for an earlier filing date under 35 U.S.C. § 120. Because the listed references (to the extent that copies are required) were either cited by the PTO, or submitted to the PTO in the prior application, under 37 CFR § 1.98(d) Applicants submit that copies need not be provided.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVCP006X1C10D1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
18/224,793	07/21/2023		1820	IPVCP006X1C10D1	14	1

CONFIRMATION NO. 5028

FILING RECEIPT

34071
IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117



Date Mailed: 08/03/2023

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Thomas A. Howell, Palo Alto, CA;
David Chao, Saratoga, CA;
C. Douglass Thomas, Saratoga, CA;
Peter P. Tong, Mountain View, CA;

Applicant(s)

IngenioSpec, LLC, San Jose, CA;

Power of Attorney: The patent practitioners associated with Customer Number 34071

Domestic Priority data as claimed by applicant

This application is a DIV of 18/129,660 03/31/2023
which is a CON of 16/424,018 05/28/2019 PAT 11,630,331
which is a CON of 13/831,419 03/14/2013 PAT 10,345,625
which is a CON of 13/291,020 11/07/2011 PAT 8,430,507
which is a CON of 12/803,732 07/01/2010 PAT 8,434,863
which is a CON of 11/546,685 10/11/2006 PAT 7,806,525
which is a CIP of 11/183,256 07/15/2005 PAT 7,500,747
which claims benefit of 60/592,045 07/28/2004
and claims benefit of 60/605,191 08/28/2004
and claims benefit of 60/618,107 10/12/2004
and claims benefit of 60/620,238 10/18/2004
and claims benefit of 60/647,836 01/31/2005
and claims benefit of 60/647,826 01/31/2005

and said 11/546,685 10/11/2006 claims benefit of 60/725,896 10/11/2005
and claims benefit of 60/725,999 10/11/2005
and claims benefit of 60/787,850 04/01/2006
and claims benefit of 60/846,150 09/20/2006

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/01/2023

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/224,793**

Projected Publication Date: 11/09/2023

Non-Publication Request: No

Early Publication Request: No

Title

HEADSET WITH CONNECTION REGION

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application

serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 18/224,793

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	14 minus 20 =	* 0			OR	x =	0
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*				x =	0
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.	Attorney Docket No.: IPVCP006X1C10D1
Application No.: 18/224,793	Examiner: DOCKET CENTRAL
Filed: July 21, 2023	Group: OPAP
Title: HEADSET WITH CONNECTION REGION	

INFORMATION DISCLOSURE STATEMENT
37 CFR §§1.56 AND 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449, copies of which are attached, may be material to examination of the above-identified patent application. Applicants submit these references in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

This Information Disclosure Statement is: (i) filed within three (3) months of the filing date of the above-referenced application, (ii) believed to be filed before the mailing date of a first Office Action on the merits, or (iii) believed to be filed before the mailing of a first Office Action after the filing of a Request for Continued Examination under §1.114.

Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVCP006X1C10D1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.	Attorney Docket No.: IPVCP006X1C10D1
Application No.: 18/224,793	Examiner: DOCKET CENTRAL
Filed: July 21, 2023	Group: OPAP
Title: HEADSET WITH CONNECTION REGION	

PRELIMINARY AMENDMENT TRANSMITTAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir: 3

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	14	MINUS	20	00	x 40 =	x 100 =
Independent Claims	1	MINUS	3	00	x 192 =	x 480 =
Multiple Dependent Claim Present and Fee Not Previously Paid					$	$
				Total	$0.00	$

☐ Applicant(s) hereby petition for a _____- month extension(s) of time to respond to the aforementioned Office Action.

☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVCP006X1C10D1).

☒ Any fees due are being paid electronically herewith.

☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No. IPVCP006X1C10D1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	OPAP
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	2003/0063763 A1	Apr-03	Allred et al.			
	2.	2022/0415338 A1	Dec-22	Howell et al.			
	3.	2023/0017635 A1	Jan-23	Howell et al.			
	4.	2023/0236444 A1	Jul-23	Howell et al.			
	5.	11,721,183 B2	Aug-23	Howell et al.			
	6.	11,733,549 B2	Aug-23	Howell et al.			
	7.						
	8.						
	9.						
	10.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Notice of Allowance for U.S. Patent Application No. 17/484,080, dated June 1, 2023.
	B	Notice of Allowance for U.S. Patent Application No. 17/949,029, dated July 3, 2023.
	C	Office Action for U.S. Patent Application No. 17/873,104, dated November 4, 2022.
	D	Notice of Allowance for U.S. Patent Application No. 17/737,866, dated September 16, 2022.
	E	Notice of Allowance for U.S. Patent Application No. 17/737,866, dated May 15, 2023.
	F	Office Action for U.S. Patent Application No. 16/182,969, dated June 24, 2020.
	G	Notice of Allowance for U.S. Patent Application No. 16/182,969, dated June 30, 2023.
	H	Notice of Allowance for U.S. Patent Application No 17/942,347, dated July 3, 2023.
	I	Office Action for U.S. Patent Application No. 18/129,660, dated July 7, 2023.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Electronic Acknowledgement Receipt	
EFS ID:	48411432
Application Number:	18224793
International Application Number:	
Confirmation Number:	5028
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVCP006X1C10D1
Receipt Date:	08-AUG-2023
Filing Date:	21-JUL-2023
Time Stamp:	15:55:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Preliminary Amendment	IPVCP006X1C10D1_PrelAmd_8-23.pdf	36200 74505fbecb7c4d6bf4fde7cce1703c6037e6ca53	no	7

Warnings:

Information:					
2	Transmittal Letter	IPVCP006X1C10D1_IDSTrans_8-23.pdf	19584 7e7e9deae1b6ccbeb08aa131ebc3b53409fcf1f7	no	2
Warnings:					
Information:					
3	Transmittal Letter	IPVCP006X1C10D1_PrelAmdTrans_8-23.pdf	17631 cc9907ef8f7a38484a21aec802d450bb829e1bf8	no	1
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	IPVCP006X1C10D1_1449_8-23.pdf	22359 9f55487644deebd58112dee29c3723559e1101ec	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
		Total Files Size (in bytes):	95774		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.

Attorney Docket No.: IPVCP006X1C10D1

Application No.: 18/224,793

Examiner: DOCKET CENTRAL

Filed: July 21, 2023

Group: OPAP

Title: HEADSET WITH CONNECTION REGION

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being transmitted electronically to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on August 8, 2023.

Signed: /Angela D. Nijim/ Printed Name: Angela D. Nijim

PRELIMINARY AMENDMENT

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Prior to an Office Action on the merits, please amend the above-identified as follows:

Amendments to the Specification begins on page 2 of this paper.

Amendments to the claims are reflected in the listing of claims which begins on page 3 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Amendments to the Specification:

Please change the title of the application from

“HEADSET WITH CONNECTION REGION”

to

--HEAD-WORN DEVICE WITH CONNECTION REGION--

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A head-worn wireless electronic apparatus at least configured for producing audio outputs for a user comprising:

a speaker in the head-worn wireless electronic apparatus;

an electrical connector at the head-worn wireless electronic apparatus,

wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on a surface of the head-worn wireless electronic apparatus, and

wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact;

a rechargeable battery in the head-worn wireless electronic apparatus;

a microphone in the head-worn wireless electronic apparatus; and

a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input.

2. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 1 comprising:

wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and

a storage medium configured to store at least computer program codes for facilitating voice recognition,

wherein at least the microphone is configured to receive at least a word ~~term~~, and

wherein the computer program codes for facilitating voice recognition are configured to facilitate recognizing at least the ~~term~~ word for an operation of the head-worn wireless electronic apparatus.

3. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising at least another microphone in the head-worn wireless electronic apparatus,

wherein the microphone is configured to be positioned closer to mouth of the user and the another microphone is configured to be positioned further from the mouth of the user, when the head-worn wireless electronic apparatus is worn by the user, and

wherein at least the microphone and the another microphone are configured to receive audio inputs, with at least some noise in the audio inputs configured to be cancelled based on using at least the microphone and the another microphone.

4. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.

5. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to determine regarding whether the head-worn wireless electronic apparatus is being ~~worn~~ used based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus.

6. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising an accelerometer.

7. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising an area configured for attachment via magnetic force.

8. (Original) A head-worn wireless electronic apparatus as recited in claim 7 comprising a magnet in the area.

9. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising a force sensor.

10. (Original) A head-worn wireless electronic apparatus as recited in claim 3 comprising an area configured for attachment via magnetic force.

11. (Original) A head-worn wireless electronic apparatus as recited in claim 10 comprising an accelerometer.

12. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 10 ~~claim 11~~ comprising:

wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and

a storage medium configured to store at least computer program codes for facilitating voice recognition,

wherein at least the microphone is configured to receive at least a ~~term~~ word, and

wherein the computer program codes for facilitating voice recognition are configured to facilitate recognizing at least the ~~term~~ word for an operation of the head-worn wireless electronic apparatus.

13. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 12 comprising a controller configured to determine regarding whether the head-worn wireless electronic apparatus is being ~~worn~~ used based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus.

14. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 12 ~~claim 13~~, wherein the controller is configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.

REMARKS

Please enter this Amendment prior to examination on the merits.

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/224,793	07/21/2023	Thomas A. Howell	IPVCP006X1C10D1	5028

34071 7590 09/07/2023

IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

EXAMINER	
HAMID, AMMAR T	

ART UNIT	PAPER NUMBER
2654	

MAIL DATE	DELIVERY MODE
09/07/2023	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 18/224,793	**Applicant(s)** Howell et al.	
	Examiner AMMAR T HAMID	**Art Unit** 2654	**AIA (FITF) Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 8/8/2023.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-14 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-14 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 7/21/2023 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The filing of a terminal disclaimer by itself is not a complete reply to a nonstatutory double patenting (NSDP) rejection. A complete reply requires that the terminal disclaimer be accompanied by a

reply requesting reconsideration of the prior Office action. Even where the NSDP rejection is provisional the reply must be complete. See MPEP § 804, subsection I.B.1. For a reply to a non-final Office action, see 37 CFR 1.111(a). For a reply to final Office action, see 37 CFR 1.113(c). A request for reconsideration while not provided for in 37 CFR 1.113(c) may be filed after final for consideration. See MPEP §§ 706.07(e) and 714.13.

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The actual filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/apply/applying-online/eterminal-disclaimer.

Claims 1-5 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 3-7 of copending U.S. Patent Application No. 18129660. Although the claims at issue are not identical, they are not patentably distinct from each other because the claim of the application under examination are broader in scope than the claims of the copending application as shown in the claim mapping table below:

Application under examination	**Copending application 18129660**
1. A head-worn wireless electronic apparatus at least configured for producing audio outputs for a user comprising: a speaker in the head-worn wireless electronic apparatus; an electrical connector at the head-worn wireless electronic apparatus, wherein the electrical connector	3. (Previously presented) An eyewear frame as recited in claim 1 comprising a touch-sensitive input surface on the eyewear frame, wherein the touch-sensitive input surface is configured to facilitate generating at least an electrical signal

includes at least two conductive pads, with the at least two conductive pads both on a surface of the head- worn wireless electronic apparatus, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact; a rechargeable battery in the head-worn wireless electronic apparatus; a microphone in the head-worn wireless electronic apparatus; and a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input.	for an operation of the eyewear frame based on receiving at least a touch input.
2. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 1 comprising: wireless communication circuitry in the head-worn wireless electronic apparatus	6. (Currently amended) An eyewear frame as recited in claim 1 comprising a storage medium configured to store at least computer program codes for facilitating voice recognition, wherein

configured for coupling to at least a Bluetooth network; and a storage medium configured to store at least computer program codes for facilitating voice recognition, wherein at least the microphone is configured to receive at least a word term, and wherein the computer program codes for facilitating voice recognition are configured to facilitate recognizing at least the term word for an operation of the head-worn wireless electronic apparatus.	at least the microphone is configured to receive at least a word term, and wherein the computer program codes for facilitating voice recognition are configured to facilitate recognizing at least the word term for an operation of the eyewear frame. 7. (Previously presented) An eyewear frame as recited in claim 1 comprising: a motion sensor; and wireless communication circuitry in the eyewear frame configured for coupling to at least a Bluetooth network.
3. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising at least another microphone in the head-worn wireless electronic apparatus, wherein the microphone is configured to be positioned closer to mouth of the user and the another microphone is configured to be positioned further from the mouth of the user, when the head-worn wireless electronic apparatus is worn by the user, and wherein at least the microphone and the another microphone are configured to receive audio inputs, with at least some noise in the audio inputs configured to be cancelled based on using	5. (Currently amended) An eyewear frame as recited in claim 1 comprising at least another microphone in the eyewear frame, wherein the microphone is configured to be positioned closer to mouth of the user and the another microphone is configured to be positioned further from the mouth of the user, when the headset is worn by the user

at least the microphone and the another microphone.	
4. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.	4. (Previously presented) An eyewear frame as recited in claim 3 comprising a controller configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the eyewear frame based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.
5. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to determine regarding whether the head-worn wireless electronic apparatus is being used based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus.	7. (Previously presented) An eyewear frame as recited in claim 1 comprising: a motion sensor; and wireless communication circuitry in the eyewear frame configured for coupling to at least a Bluetooth network.

Claim 6 is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 3 of copending U.S. Patent application No. 18224793 in view of Kutina et al. (US 20190117121 A1) hereinafter Kutina.

Regarding claim 6, claim 3 of the copending application teaches all the limitations of the claim except the limitations wherein the device further comprises an accelerometer however,

Since it is known in the art as evidenced by Kutina for a device to further comprise an accelerometer in ("An inertial measurement unit is an electronic device that measures and reports movement and positioning data (e.g., an inertial data set), velocity, acceleration, and angular rate using a combination of accelerometers and gyroscopes" in ¶[0037]),

An ordinary skilled in the art would be motivated to modify the invention of claim 3 of the copending application with the teachings of Kutina for the benefit of minimizing the size of the device, therefore it would have been obvious to a person of ordinary skill in the art prior to the effective filing date of the claimed invention to modify claim 3 of the copending application with Kutina.

Claims 7, 8, 10, 12-14 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 3 of copending U.S. Patent application No. 18224793 in view of Chang (US 20040150986 A1) hereinafter Chang.

Regarding claim 7, claim 3 of the copending application teaches all the limitations of the claim except the limitations wherein the device further comprises an area configured for attachment via magnetic force however,

Since it is known in the art as evidenced by Chang for a device to further comprise an area configured for attachment via magnetic force in ("The corresponding second magnetic element 702 in the glasses is on the top surface of an area the glasses to ensure a top-down magnetic attachment. In FIG. 23, shaded region represents the glasses" in ¶[0072]).

An ordinary skilled in the art would be motivated to modify the invention of claim 3 of the copending application with the teachings of Chang for the benefit of minimizing the coupling size, therefore it would have been obvious to a person of ordinary skill in the art prior to the effective filing date of the claimed invention to modify claim 3 of the copending application with Chang.

Regarding claim 8, Claim 3 of the copending application as modified by Chang teaches the device of claim 7, Chang further teaches the device further comprising a magnet in the area ("The corresponding second magnetic element 702 in the glasses is on the top surface of an area the glasses to ensure a top-down magnetic attachment. In FIG. 23, the shaded region represents the glasses. " in ¶[0072]).

Regarding claim 10, claim 5 of the copending application teaches all the limitations of claim 10 except the limitations wherein the device further comprises an area configured for attachment via magnetic force in ("The corresponding second magnetic element 702 in the glasses is on the top surface of an area the glasses to ensure a top-down magnetic attachment. In FIG. 23, the shaded region represents the glasses" in ¶[0072]),

An ordinary skilled in the art would be motivated to modify the invention of claim 5 of the copending application with the teachings of Chang for the benefit of minimizing the coupling size, therefore it would have been obvious to a person of ordinary skill in the art prior to the effective filing date of the claimed invention to modify claim 3 of the copending application with Chang.

Regarding claim 12, Claim 5 of the copending application as modified by Chang teaches the device of claim 10, claim 5 of the copending application as modified by Chang does not specifically disclose the device further comprising wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and a storage medium configured to store at least computer program codes for facilitating voice recognition, wherein at least the microphone is configured to receive at least a word, and wherein the computer program codes for facilitating voice recognition are configured to facilitate recognizing at least the word for an operation of the head-worn wireless electronic apparatus however,

Since it is known in the art as evidenced by claim 2 of the copending application for a device to further comprise wireless communication circuitry in the head-worn wireless electronic apparatus

configured for coupling to at least a Bluetooth network; and a storage medium configured to store at least computer program codes for facilitating voice recognition, wherein at least the microphone is configured to receive at least a word, and wherein the computer program codes for facilitating voice recognition are configured to facilitate recognizing at least the word for an operation of the head-worn wireless electronic apparatus (see claim 2 of the copending application above).

Regarding claim 13, claim 5 of the copending application as modified by Chang and claim 2 of the copending application teaches the device of claim 12, claim 5 of the copending application further teaches a controller configured to determine regarding whether the head-worn wireless electronic apparatus is being used based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus. ("An eyewear frame as recited in claim 1 comprising: a motion sensor; and wireless communication circuitry in the eyewear frame configured for coupling to at least a Bluetooth network." in claim 7).

Regarding claim 14, claim 5 of the copending application as modified by Chang and claim 7 of the copending application teaches the device of claim 12, claim 5 of the copending application as modified by Chang and claim 7 of the copending application does not specifically disclose the device further comprising wherein the controller is configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface however,

Since it is known in the art as evidenced by claim 4 of the copending application for a device to further comprise a controller configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the eyewear frame based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction

across the at least a portion of the touch-sensitive input surface (see claim 4 of copending application above).

Claim 11 is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 5 of copending U.S. Patent application No. 18224793 in view of Chang (US 20040150986 A1) hereinafter Chang and further in view of Kutina et al. (US 20190117121 A1) hereinafter Kutina.

Regarding claim 11, Claim 5 of the copending application as modified by Chang teaches the device of claim 10, Claim 5 of the copending application as modified by Chang does not specifically disclose the device further comprising an accelerometer however,

Since it is known in the art as evidenced by Kutina for a device to further comprise an accelerometer in ("An inertial measurement unit is an electronic device that measures and reports movement and positioning data (e.g., an inertial data set), velocity, acceleration, and angular rate using a combination of accelerometers and gyroscopes" in ¶[0037]),

An ordinary skilled in the art would be motivated to modify the invention of claim 5 of the copending application as modified by Chang with the teachings of Kutina for the benefit of minimizing the size of the device, therefore it would have been obvious to a person of ordinary skill in the art prior to the effective filing date of the claimed invention to modify claim 5 of the copending application as modified by Chang with Kutina.

Regarding claim

Claim 9 is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 3 of copending U.S. Patent application No. 18224793 in view of Saminathan et al (US 20210399691 A1) hereinafter Saminathan.

Regarding claim 9, claim 3 of the copending application teaches all the limitations of the claim except the limitations wherein the device further comprises an accelerometer however,

Since it is known in the art as evidenced by Saminathan for a device to further comprise a force sensor in ("smart glasses or similar device) or the like, a haptic transducer such as a resonant actuator or the like, an ultrasonic transducer, a sensor such as a force sensor" in ¶[0078]),

An ordinary skilled in the art would be motivated to modify the invention of claim 3 of the copending application with the teachings of Saminathan for the benefit of minimizing the device size, therefore it would have been obvious to a person of ordinary skill in the art prior to the effective filing date of the claimed invention to modify claim 3 of the copending application with Saminathan.

Allowable Subject Matter

Claims 1-14 would be allowed over prior art of record if the nonstatutory double patenting rejection is overcome.

Most relevant prior art of record is *Swab et al. (US 6769767 B2)* hereinafter Swab.

Regarding claim 1, Swab teaches A head-worn wireless electronic apparatus (12 in Fig. 1) in at least configured for producing audio outputs for a user comprising: a speaker in the head-worn wireless electronic apparatus (60 and 62 in Fig. 10); an electrical connector at the head-worn wireless electronic apparatus (42, 44, 46, and 48 in Fig. 2a), Swab does not specifically disclose the apparatus further comprising wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on a surface of the head- worn wireless electronic apparatus, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact; a rechargeable battery in the head-worn wireless electronic apparatus; a microphone in the head-worn wireless electronic apparatus; and a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is

configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input.

The following is the reason for would be allowance of claim 1:

Swab alone or in combination with any other prior art of record does not specifically disclose, suggest nor render obvious the limitations wherein the apparatus further comprises wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on a surface of the head- worn wireless electronic apparatus, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact; a rechargeable battery in the head-worn wireless electronic apparatus; a microphone in the head-worn wireless electronic apparatus; and a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input, therefore the claim would be allowed for the limitations above in combination with all the other limitations of the claim if the nonstatutory double patenting rejection is overcome.

Regarding claim 2-14, claims would be allowed for their dependency on would be allowed claim 1 if the nonstatutory double patenting rejection is overcome.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMMAR T HAMID whose telephone number is (571)272-1953. The examiner can normally be reached M-F 9-5, Eastern time.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 5712727848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMMAR T. HAMID
Primary Examiner
Art Unit 2654

/AMMAR T HAMID/
Primary Examiner, Art Unit 2654

Notice of References Cited	Application/Control No. 18/224,793	Applicant(s)/Patent Under Reexamination Howell et al.	
	Examiner AMMAR T HAMID	Art Unit 2654	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20230236444-A1	07-2023	Howell; Thomas A.	G02C5/001	351/158
*	B	US-20190117121-A1	04-2019	Kutina; Krista Lee	G16H40/67	1/1
*	C	US-20040150986-A1	08-2004	Chang, Hsien-Tsung	G02C11/04	362/103
*	D	US-20210399691-A1	12-2021	SAMINATHAN; Pradeep	H03F3/217	1/1
	E					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/224,793	Howell et al.
	Examiner	Art Unit
	AMMAR T HAMID	2654

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F3/01	09/05/2023	AH
G02C5/001	09/05/2023	AH
G02C5/14	09/05/2023	AH
G02C5/143	09/05/2023	AH
G02C11/10	09/05/2023	AH
G06F1/163	09/05/2023	AH
G10L15/22	09/05/2023	AH

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
381	110	09/05/2023	AH

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
Consulted with examiner Jason Kurr for class subclass search	09/05/2023	AH
Text search using P2E2	09/05/2023	AH
Inventor and applicant search in P2E2	09/05/2023	AH
Concept search using IP.com	09/05/2023	AH

/AMMAR T HAMID/ Primary Examiner, Art Unit 2654	/AMMAR T HAMID/ Primary Examiner, Art Unit 2654

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/224,793	Howell et al.
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	AMMAR T HAMID	2654

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/AMMAR T HAMID/ Primary Examiner, Art Unit 2654	/AMMAR T HAMID/ Primary Examiner, Art Unit 2654

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant					☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		**DATE**								
Final	Original	09/05/2023								
	1	✓								
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Report Run Date: 2023-09-05 UTC
Searches: 1
Markers: 0

Search #	Timestamp	Results	Page
1	2023-09-05 21:44 UTC	~32,579,504	3

Content: Patent Publications (169)

US Patents | US Designs | US Applications | EPO Patents | EPO Applications | China Patents | China Applications | Japan Patents | Japan Applications | Korea Patents | Korea Applications | WIPO Applications | Argentina Patents | Argentina Applications | Brazil Patents | Brazil Applications | Canada Patents | Canada Applications | Chile Patents | Chile Applications | Colombia Applications | Costa Rica Applications | Cuba Patents | Cuba Applications | Dominican Republic Applications | Ecuador Patents | Ecuador Applications | El Salvador Applications | Guatemala Applications | Honduras Applications | Mexico Patents | Mexico Applications | Nicaragua Patents | Panama Applications | Peru Applications | Trinidad & Tobago Patents | Uruguay Applications | Austria Patents | Austria Applications | Belarus Patents | Belgium Patents | Belgium Applications | Bosnia & Herzegovina Patents | Bosnia & Herzegovina Applications | Bulgaria Patents | Bulgaria Applications | Croatia Patents | Croatia Applications | Czech Republic Patents | Czech Republic Applications | Czechoslovakia Patents | Czechoslovakia Applications | Denmark Patents | Denmark Applications | Estonia Patents | Estonia Applications | EUIPO Patents | Finland Patents | Finland Applications | France Patents | France Applications | Germany Patents | Germany Applications | Great Britain Patents | Great Britain Applications | Greece Patents | Greece Applications | Hungary Patents | Hungary Applications | Iceland Patents | Iceland Applications | Ireland Patents | Ireland Applications | Italy Patents | Italy Applications | Latvia Patents | Latvia Applications | Lithuania Patents | Lithuania Applications | Luxembourg Patents | Luxembourg Applications | Malta Patents | Monaco Patents | Montenegro Patents | Montenegro Applications | Netherlands Patents | Netherlands Applications | Norway Patents | Norway Applications | Poland Patents | Poland Applications | Portugal Patents | Portugal Applications | Republic of Moldova Patents | Republic of Moldova Applications | Romania Patents | Romania Applications | San Marino Patents | San Marino Applications | Serbia Patents | Serbia Applications | Slovakia Patents | Slovakia Applications | Slovenia Patents | Spain Patents | Spain Applications | Sweden Patents | Sweden Applications | Switzerland Patents | Switzerland Applications | Ukraine Patents | Yugoslavia/Serbia and Montenegro Patents | Yugoslavia/Serbia and Montenegro Applications | Armenia Patents | Australia Patents | Australia Applications | Cyprus Patents | Gulf Cooperation Council Patents | Hong Kong Patents | India Patents | India Applications | Indonesia Patents | Indonesia Applications | Israel Patents | Israel Applications | Jordan Patents | Jordan Applications | Kyrgyzstan Patents | Macao Applications | Malaysia Patents | Mongolia Patents | New Zealand Patents | Philippines Patents | Philippines Applications | Saudi Arabia Patents | Saudi Arabia Applications | Singapore Patents | Singapore Applications | Taiwan Patents | Taiwan Applications | Tajikistan Patents | Tajikistan Applications | Thailand Patents | Thailand Applications | Uzbekistan Patents | Vietnam Patents | Algeria Patents | ARIPO Patents | ARIPO Applications | Egypt Patents | Kenya Patents | Malawi Patents | Morocco Patents | Morocco Applications | OAPI Patents | South Africa Patents | Tunisia Applications | Zambia Patents | Zimbabwe Patents | EAPO Patents | EAPO Applications | Georgia Patents | Georgia Applications | Kazakhstan Patents | Kazakhstan Applications | Russia Patents | Russia Applications | Turkey Patents | Turkey Applications

3 **2023-09-05 21:44 UTC | ~32,579,504 results from**

De-Dup: Extended Family Numbers | **Relevance Cut-off:** None | **Sort:** Relevance

Main Concept: Text

1. (Currently amended) An eyewear frame for a user comprising:a first side portion; a second side portion; a lens holder having a left side and a right side, with the first side portion coupled to the left side of the lens holder, and the second side portion coupled to the right side of the lens holder; a first speaker in the first side portion; a second speaker in the second side portion; a connection region at the eyewear frame; an electrical connector at the connection region, wherein the electrical connector includes at least two conductive pads provided at the connection region, with the at least two conductive pads both on a surface of the connection region, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the eyewear frame, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact; a rechargeable battery in the eyewear frame; and a microphone in the eyewear frame.

Concept Modifiers: None

Filters: None

Bibliographic Data

Application No: 18/224,793

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /AMMAR T HAMID/ (Examiner's Signature) | (Initials)

Title: HEADSET WITH CONNECTION REGION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/21/2023	381	2654	IPVCP006X1C10D1
RULE			

APPLICANTS

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CONTINUING DATA

This application is a DIV of 18129660 03/31/2023

18129660 is a CON of 16424018 05/28/2019 PAT 11630331

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FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/01/2023

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Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	OPAP
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							Translation	
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	C	Office Action for U.S. Patent Application No. 17/873,104, dated November 4, 2022.
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	H	Notice of Allowance for U.S. Patent Application No 17/942,347, dated July 3, 2023.
	I	Office Action for U.S. Patent Application No. 18/129,660, dated July 7, 2023.

Examiner /AMMAR T HAMID/	Date Considered 09/05/2023

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.T.H/

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	2	"20030063763"	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:48 AM
L2	803	(head ADJ worn glasses) WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:50 AM
L3	1	(head ADJ worn) WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:50 AM
L4	2131	head WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L5	528	head WITH force ADJ sensor AND microphone	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L6	453	head WITH force ADJ sensor AND microphone AND speaker	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L7	412	head WITH force ADJ sensor AND microphone AND speaker AND touch	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L8	295	head WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:52 AM
L9	259	glasses WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:56 AM
L10	259	"glasses" WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 11:00 AM
L11	2	(glasses) WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:01 AM
L12	0	(glasses) WITH magnetic WITH attachement AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:53 AM
L13	18	(glasses) WITH magnetic WITH attach$5 AND	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:54 AM

		microphone AND speaker AND touch AND bluetooth					
L14	397	(glasses) WITH magnetic WITH attach$5	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:55 AM
L15	21	smart WITH glasses WITH magnetic WITH attach$5	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:57 AM
L16	0	smart ADJ glasses WITH magnetic ADJ attach$5	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 12:04 PM
L17	26	glasses WITH magnetic ADJ attach$5	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 12:04 PM
L18	9	smart ADJ glasses WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 12:20 PM
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L28	26	((("IngenioSpec") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/09/05 05:41 PM
L29	20117	((("HOWELL") near3 ("Thomas")) OR (("CHAO") near3 ("David")) OR (("THOMAS") near3 ("C")) OR (("TONG") near3 ("Peter"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/09/05 05:41 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	Not Yet Assigned
Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	Filed Herewith
	Group	Not Yet Assigned
(Use Several Sheets if Necessary)		Page 1 of 16

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/AMMAR T HAMID/	09/05/2023

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	173.	2020/0012127 A1	Jan-20	Howell et al.			
	174.	2020/0218094 A1	Jul-20	Howell et al.			
	175.	2020/0364992 A1	Nov-20	Howell et al.			
	176.	2021/0000347 A1	Jan-21	Stump			
	177.	2021/0026146 A1	Jan-21	Harder et al.			
	178.	2021/0271116 A1	Sep-21	Chao et al.			
	179.	2021/0364827 A9	Nov-21	Howell et al.			
	180.	2021/0364828 A1	Nov-21	Howell et al.			
	181.	2021/0379425 A1	Dec-21	Tran			
	182.	2022/0008763 A1	Jan-22	SALEH et al.			
	183.	2022/0011603 A1	Jan-22	Howell et al.			
	184.	2022/0034542 A1	Feb-22	Peters et al.			
	185.	2022/0054092 A1	Feb-22	Howell et al.			
	186.	2022/0178743 A1	Jun-22	Howell et al.			
	187.	2022/0335792 A1	Oct-22	Howell et al.			
	188.	2022/0357599 A1	Nov-22	Howell et al.			
	189.	2022/0415388 A1	Dec-22	Howell et al.			
	190.	2023/0017634 A1	Jan-23	Howell et al.			
	191.	2023/0033660 A1	Feb-23	Howell et al.			
	192.	2023/0057654 A1	Feb-23	Howell et al.			
	193.	320,558	Jun-1885	Hull			
	194.	669,949	Mar-1901	Underwood			
	195.	1,255,265	Feb-1918	Zachara			
	196.	1,917,745	Jul-33	Weiss			
	197.	2,249,572	Jul-41	Lieber			
	198.	2,638,532	May-53	Brady			
	199.	2,725,462	Nov-55	Vorgang			
	200.	2,794,085	May-57	De Angelis			
	201.	2,818,511	Dec-57	Ullery et al.			

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	202.	2,830,132	Apr-58	Borg			
	203.	2,874,230	Feb-59	Carlson			
	204.	2,904,670	Sep-59	Calmes			
	205.	3,060,308	Oct-62	Fortuna			
	206.	3,104,290	Sep-63	Rosemond et al.			
	207.	3,119,903	Jan-64	Rosemond et al.			
	208.	3,597,054	Aug-71	Winter			
	209.	3,710,115	Jan-73	Jubb			
	210.	3,858,001	Dec-74	Bonne			
	211.	3,883,701	May-75	Delorenzo			
	212.	4,165,487	Aug-79	Corderman			
	213.	4,254,451	Mar-81	Cochran, Jr.			
	214.	4,283,127	Aug-81	Rosenwinkel et al.			
	215.	4,322,585	Mar-82	Liautaud			
	216.	4,348,664	Sep-82	Boschetti et al.			
	217.	4,389,217	Jun-83	Baughman et al.			
	218.	4,526,473	Jul-85	Zahn, III			
	219.	4,535,244	Aug-85	Burnham			
	220.	4,608,492	Aug-86	Burnham			
	221.	4,683,587	Jul-87	Silverman			
	222.	4,751,691	Jun-88	Perera			
	223.	4,757,714	Jul-88	Purdy et al.			
	224.	4,773,095	Sep-88	Zwicker et al.			
	225.	4,806,011	Feb-89	Bettinger			
	226.	4,822,160	April-89	Tsai			
	227.	4,822,161	Apr-89	Jimmy			
	228.	4,851,686	Jul-89	Pearson			
	229.	4,856,086	Aug-89	McCullough			
	230.	4,859,047	Aug-89	Badewitz			

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	231.	4,882,769	Nov-89	Gallimore			
	232.	4,904,078	Feb-90	Gorike			
	233.	4,942,629	Jul-90	Stadlmann			
	234.	4,962,469	Oct-90	Ono et al.			
	235.	4,967,268	Oct-90	Lipton et al.			
	236.	4,985,632	Jan-91	Bianco et al.			
	237.	5,008,548	Apr-91	Gat			
	238.	5,015,086	May-91	Okaue et al.			
	239.	5,020,150	May-91	Shannon			
	240.	5,026,151	Jun-91	Waltuck et al.			
	241.	5,036,311	Jul-91	Moran et al.			
	242.	5,050,150	Sep-91	Ikeda			
	243.	5,064,410	Nov-91	Frenkel et al.			
	244.	5,093,576	Mar-92	Edmond et al.			
	245.	5,106,179	Apr-92	Kamaya et al.			
	246.	5,144,344	Sep-92	Takahashi et al.			
	247.	5,148,023	Sep-92	Hayashi et al.			
	248.	5,151,600	Sep-92	Black			
	249.	5,161,250	Nov-92	Ianna et al			
	250.	5,172,256	Dec-92	Sethofer et al.			
	251.	5,264,877	Nov-93	Hussey			
	252.	5,306,917	Apr-94	Black et al.			
	253.	5,353,378	Oct-94	Hoffman et al.			
	254.	5,359,370	Oct-94	Mugnier			
	255.	5,359,444	Oct-94	Piosenka et al.			
	256.	5,367,345	Nov-94	da Silva			
	257.	5,379,464	Jan-95	Schleger et al.			
	258.	5,382,986	Jan-95	Black et al.			
	259.	5,394,005	Feb-95	Brown et al.			

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	260.	5,452,026	Sep-95	Marcy, III			
	261.	5,452,480	Sep-95	Ryden			
	262.	5,455,637	Oct-95	Kallman et al.			
	263.	5,455,640	Oct-95	Gertsikov			
	264.	5,457,751	Oct-95	Such			
	265.	5,463,428	Oct-95	Lipton et al.			
	266.	5,475,798	Dec-95	Handlos			
	267.	5,500,532	Mar-96	Kozicki			
	268.	5,510,961	Apr-96	Peng			
	269.	5,513,384	Apr-96	Brennan et al.			
	270.	5,519,781	May-96	Kurkurudza			
	271.	5,533,130	Jul-96	Staton			
	272.	5,541,641	Jul-96	Shimada			
	273.	5,581,090	Dec-96	Goudjil			
	274.	5,585,871	Dec.-96	Linden			
	275.	5,589,398	Dec-96	Krause et al.			
	276.	5,590,417	Dec-96	Rydbeck			
	277.	5,606,743	Feb-97	Vogt et al.			
	278.	5,608,808	Mar-97	da Silva			
	279.	5,634,201	May-97	Mooring			
	280.	5,671,035	Sep-97	Barnes			
	281.	5,686,727	Nov-97	Reenstra et al.			
	282.	5,694,475	Dec-97	Boyden			
	283.	5,715,323	Feb-98	Walker			
	284.	5,737,436	Apr-98	Boyden et al.			
	285.	5,777,715	Jul-98	Kruegle et al.			
	286.	5,818,381	Oct-98	Williams			
	287.	5,819,183	Oct-98	Voroba et al.			
	288.	5,835,185	Nov-98	Kallman et al.			

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	289.	5,900,720	May-99	Kallman et al.			
	290.	5,903,395	May-99	Rallison et al.			
	291.	5,923,398	Jul-99	Goldman			
	292.	5,941,837	Aug-99	Amano et al.			
	293.	5,946,071	Aug-99	Feldman			
	294.	5,949,516	Sep-99	McCurdy			
	295.	5,966,746	Oct-99	Reedy et al.			
	296.	5,980,037	Nov-99	Conway			
	297.	5,988,812	Nov-99	Wingate			
	298.	5,991,085	Nov-99	Rallison et al.			
	299.	5,992,996	Nov-99	Sawyer			
	300.	5,995,592	Nov-99	Shirai et al.			
	301.	6,091,546	Jul-00	Spitzer			
	302.	6,010,216	Jan-00	Jesiek			
	303.	6,013,919	Jan-00	Schneider et al.			
	304.	6,028,627	Feb-00	Helmsderfer			
	305.	6,046,455	Apr-00	Ribi et al.			
	306.	6,060,321	May-00	Hovorka			
	307.	6,061,580	May-00	Altschul et al.			
	308.	6,091,546	Jul-00	Spitzer			
	309.	6,091,832	Jul-00	Shurman et al.			
	310.	6,115,177	Sep-00	Vossler			
	311.	6,132,681	Oct-00	Faran et al.			
	312.	6,145,983	Nov-00	Schiffer			
	313.	6,154,552	Nov-00	Koroljow et al.			
	314.	6,176,576 B1	Jan-01	Green et al.			
	315.	6,225,897 B1	May-01	Doyle et al.			
	316.	6,231,181 B1	May-01	Swab			
	317.	6,236,969 B1	May-01	Ruppert et al.			

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	318.	6,243,578 B1	Jun-01	Koike			
	319.	6,259,367 B1	Jul-01	Klein			
	320.	6,270,466 B1	Aug-01	Weinstein et al.			
	321.	6,292,213 B1	Sep-01	Jones			
	322.	6,292,685 B1	Sep-01	Pompei			
	323.	6,301,050 B1	Oct-01	DeLeon			
	324.	6,301,367 B1	Oct-01	Boyden et al.			
	325.	6,307,526 B1	Oct-01	Mann			
	326.	6,311,155 B1	Oct-01	Vaudrey et al.			
	327.	6,343,858 B1	Feb-02	Zelman			
	328.	6,346,929 B1	Feb-02	Fukushima et al.			
	329.	6,349,001 B1	Feb-02	Spitzer			
	330.	6,349,422 B1	Feb-02	Schleger et al.			
	331.	6,409,335 B1	Jun-02	Lipawsky			
	332.	6,409,338 B1	Jun-02	Jewell			
	333.	6,426,719 B1	Jul-02	Nagareda et al.			
	334.	6,431,705 B1	Aug-02	Linden			
	335.	6,474,816 B2	Nov-02	Butler et al.			
	336.	6,478,736 B1	Nov-02	Mault			
	337.	6,506,142 B2	Jan-03	Itoh et al.			
	338.	6,511,175 B2	Jan-03	Hay et al.			
	339.	6,513,532 B2	Feb-03	Mault et al.			
	340.	6,517,203 B1	Feb-03	Blum et al.			
	341.	6,539,336 B1	Mar-03	Vock et al.			
	342.	6,542,081 B2	Apr-03	Torch			
	343.	6,546,101 B1	Apr-03	Murray et al.			
	344.	6,554,763 B1	Apr-03	Amano et al.			
	345.	6,582,075 B1	Jun-03	Swab et al.			
	346.	6,619,799 B1	Sep-03	Blum et al.			

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	347.	6,629,076 B1	Sep-03	Haken			
	348.	6,678,381 B1	Jan-04	Manabe			
	349.	6,717,737 B1	Apr-04	Haglund			
	350.	6,729,726 B2	May-04	Miller et al.			
	351.	6,736,759 B1	May-04	Stubbs et al.			
	352.	6,764,194 B1	Jul-04	Cooper			
	353.	6,769,767 B2	Aug-04	Swab et al.			
	354.	6,771,423 B2	Aug-04	Geist			
	355.	6,788,309 B1	Sep-04	Swan et al.			
	356.	6,792,401 B1	Sep-04	Nigro et al.			
	357.	6,816,314 B2	Nov-04	Shimizu et al.			
	358.	6,824,265 B1	Nov-04	Harper			
	359.	6,857,741 B2	Feb-05	Blum et al.			
	360.	6,871,951 B2	Mar-05	Blum et al.			
	361.	6,879,930 B2	Apr-05	Sinclair et al.			
	362.	6,912,386 B1	Jun-05	Himberg et al.			
	363.	6,929,365 B2	Aug-05	Swab et al.			
	364.	6,932,090 B1	Aug-05	Reschke et al.			
	365.	6,947,219 B1	Sep-05	Ou			
	366.	7,004,582 B2	Feb-06	Jannard et al.			
	367.	7,013,009 B2	Mar-06	Warren			
	368.	7,023,594 B2	Apr-06	Blum et al.			
	369.	7,030,902 B2	Apr-06	Jacobs			
	370.	7,031,667 B2	Apr-06	Horiguchi			
	371.	7,033,025 B2	Apr-06	Winterbotham			
	372.	7,059,717 B2	Jun-06	Bloch			
	373.	7,073,905 B2	Jul-06	Da Pra'			
	374.	7,079,876 B2	Jul-06	Levy			
	375.	7,123,215 B2	Oct-06	Nakada			

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	376.	7,192,136 B2	Mar-07	Howell et al.			
	377.	7,255,437 B2	Aug-07	Howell et al.			
	378.	7,265,358 B2	Sep-07	Fontaine			
	379.	7,274,292 B2	Sep-07	Velhal et al.			
	380.	7,289,767 B2	Oct-07	Lai			
	381.	7,312,699 B2	Dec-07	Chornenky			
	382.	7,331,666 B2	Feb-08	Swab et al.			
	383.	7,376,238 B1	May-08	Rivas et al.			
	384.	7,380,936 B2	Jun-08	Howell et al.			
	385.	7,401,918 B2	Jul-08	Howell et al.			
	386.	7,405,801 B2	Jul-08	Jacobs			
	387.	7,429,965 B2	Sep-08	Weiner			
	388.	7,438,409 B2	Oct-08	Jordan			
	389.	7,438,410 B1	Oct-08	Howell et al.			
	390.	7,445,332 B2	Nov-08	Jannard et al.			
	391.	7,481,531 B2	Jan-09	Howell et al.			
	392.	7,500,746 B2	Mar-09	Howell et al.			
	393.	7,500,747 B2	Mar-09	Howell et al.			
	394.	7,512,414 B2	Mar-09	Jannard et al.			
	395.	7,517,083 B2	Apr-09	Blum et al.			
	396.	7,527,374 B2	May-09	Chou			
	397.	7,543,934 B2	Jun-09	Howell et al.			
	398.	7,581,833 B2	Sep-09	Howell et al.			
	399.	7,621,634 B2	Nov-09	Howell et al.			
	400.	7,648,236 B1	Jan-10	Dobson			
	401.	7,677,723 B2	Mar-10	Howell et al.			
	402.	7,760,898 B2	Jul-10	Howell et al.			
	403.	7,771,046 B2	Aug-10	Howell et al.			
	404.	7,792,552 B2	Sep-10	Thomas et al.			

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	405.	7,801,570 B2	Sep-10	Cheung et al.			
	406.	7,806,525 B2	Oct-10	Howell et al.			
	407.	7,922,321 B2	Apr-11	Howell et al.			
	408.	7,976,159 B2	Jul-11	Jacobs et al.			
	409.	8,109,629 B2	Feb-12	Howell et al.			
	410.	8,142,015 B2	Mar-12	Paolino			
	411.	8,174,569 B2	May-12	Tanijiri et al.			
	412.	8,337,013 B2	Dec-12	Howell et al.			
	413.	8,430,507 B2	Apr-13	Howell et al.			
	414.	8,434,863 B2	May-13	Howell et al.			
	415.	8,465,151 B2	Jun-13	Howell et al.			
	416.	8,485,661 B2	Jul-13	Yoo et al.			
	417.	8,500,271 B2	Aug-13	Howell et al.			
	418.	8,582,789 B2	Nov-13	Cheung et al.			
	419.	8,770,742 B2	Jul-14	Howell et al.			
	420.	8,849,185 B2	Sep-14	Cheung et al.			
	421.	8,905,542 B2	Dec-14	Howell et al.			
	422.	9,033,493 B2	May-15	Howell et al.			
	423.	9,244,292 B2	Jan-16	Swab et al.			
	424.	9,400,390 B2	Jul-16	Osterhout et al.			
	425.	9,405,135 B2	Aug-16	Sweis et al.			
	426.	9,488,520 B2	Nov-16	Howell et al.			
	427.	9,547,184 B2	Jan-17	Howell et al.			
	428.	9,690,121 B2	Jun-17	Howell et al.			
	429.	9,922,236 B2	Mar-18	Moore et al.			
	430.	10,042,186 B2	Aug-18	Chao et al.			
	431.	10,060,790 B2	Aug-18	Howell et al.			
	432.	10,061,144 B2	Aug-18	Howell et al.			
	433.	10,310,296 B2	Jun-19	Howell et al.			

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	434.	10,345,625 B2	Jul-19	Howell et al.			
	435.	10,359,311 B2	Jul-19	Howell et al.			
	436.	10,515,623 B1	Dec-19	Grizzel			
	437.	10,539,459 B2	Jan-20	Howell et al.			
	438.	10,624,790 B2	Apr-20	Chao et al.			
	439.	10,571,715 B2	Feb-20	Rizzo, III et al.			
	440.	10,777,048 B2	Sep-20	Howell et al.			
	441.	10,802,582 B1	Oct-20	Clements			
	442.	10,964,190 B2	Mar-21	Peyrard			
	443.	11,042,045 B2	Jun-21	Chao et al.			
	444.	11,069,358 B1	Jul-21	Harper			
	445.	11,086,147 B2	Aug-21	Howell et al.			
	446.	11,204,512 B2	Dec-21	Howell et al.			
	447.	11,243,416 B2	Feb-22	Howell et al.			
	448.	11,326,941 B2	May-22	Howell et al.			
	449.	11,513,371 B2	Nov-22	Howell et al.			
	450.	11,536,988 B2	Dec-22	Howell et al.			
	451.	11,630,331 B2	Apr-23	Howell et al.			
	452.	11,644,361 B2	May-23	Howell et al.			
	453.	11,644,693 B2	May-23	Howell et al.			
	454.	DES. 369,167	Apr-96	Hanson et al.			

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/AMMAR T HAMID/	09/05/2023

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Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.						
	2.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No
		CA 2 487 391	Dec-03	Canada				
		CN 88203065	Nov-88	China			X abstract	
		CN 89214222.7	Mar-90	China			X abstract	
		CN 90208199.3	Nov-90	China			X abstract	
		DE 10123226 A1	Nov-02	Germany			X	
		EP 1027626 B1	Mar-16	Europe				
		EP 1134491 A2	Sep-01	Europe				
		EP 2290433 B1	Apr-16	Europe				
		FR 2530039 A1	Jan-84	France			X abstract	
		GB 1467982	Mar-77	Great Britain				
		JP 02-181722	Jul-90	Japan			X abstract	
		JP 09-017204	Jan-97	Japan			X	
		JP 10-161072	Jun-98	Japan			X	
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		JP 2002-02511706 A	Apr-02	Japan			X	
		JP 2005-151292	Jun-05	Japan			X abstract	
		JP 2005-167902	Jun-05	Japan			X	
		JP 58-113912	Jul-83	Japan			X	
		JP-58-113914	Jul-83	Japan			X abstract	
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		TW 484711	Jun-01	Taiwan			X abstract	
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		WO 04/012477 A2	Feb-04	WIPO				
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Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Notice of Allowance for U.S. Patent Application No. 11/183,269, dated December 10, 2010.
	B	Office Action for U.S. Patent Application No. 11/183,269, dated May 25, 2010.
	C	Final Office Action for U.S. Patent Application No. 11/183,269, dated February 17, 2010.
	D	Office Action for U.S. Patent Application No. 11/183,269, dated June 23, 2009.
	E	Office Action for U.S. Patent Application No. 11/183,269, dated December 4, 2008.
	F	Final Office Action for U.S. Patent Application No. 11/183,269, dated June 5, 2008.
	G	Office Action for U.S. Patent Application No. 11/183,269, dated October 18, 2007.
	H	Restriction Requirement for U.S. Patent Application No. 11/183,269, dated June 25, 2007.
	I	Office Action for U.S. Patent Application No. 13/085,402, dated April 19, 2012.
	J	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated August 2, 2012.
	K	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated November 13, 2012.
	L	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated February 20, 2013.
	M	Notice of Allowance for U.S. Patent Application No. 13/085,402, dated June 14, 2013.
	N	Office Action for U.S. Patent Application No. 13/955,336, dated December 5, 2013.
	O	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated April 28, 2014.
	P	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated August 18, 2014.
	Q	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated October 7, 2014.
	R	Notice of Allowance for U.S. Patent Application No. 13/955,336, dated November 3, 2014.
	S	Office Action for U.S. Patent Application No. 14/557,409, dated June 11, 2015.
	T	Notice of Allowance for U.S. Patent Application No 14/557,409, dated January 14, 2016.
	U	Notice of Allowance for U.S. Patent Application No. 14/557,409, dated April 28, 2016.

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	W	Notice of Allowance for U.S. Patent Application No. 14/557,409, dated November 4, 2016.
	X	Corrected Notice of Allowance for U.S. Patent Application No. 14/557,409, dated December 12, 2016.
	Y	Office Action for U.S. Patent Application No. 15/375,423, dated March 27, 2017.
	Z	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated July 5, 2017.
	AA	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated October 31, 2017.
	AB	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated March 23, 2018.
	AC	Notice of Allowance for U.S. Patent Application No. 15/375,423, dated July 13, 2018.
	AD	Office Action for U.S. Patent Application No. 16/049,120, dated February 28, 2020.
	AE	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated June 3, 2020.
	AF	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated September 21, 2020.
	AG	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated February 23, 2021.
	AH	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated June 3, 2021.
	AI	Notice of Allowance for U.S. Patent Application No. 16/049,120, dated September 20, 2021.
	AJ	Notice of Allowance for U.S. Patent Application No. 16/574,254, dated April 16, 2021.
	AK	Notice of Allowance for U.S. Patent Application No. 16/574,254, dated August 9, 2021.
	AL	Office Action for U.S. Patent Application No. 16/821,810, dated February 2, 2022.
	AM	Notice of Allowance for U.S. Patent Application No. 16/821,810, dated April 6, 2022.
	AN	Notice of Allowance for U.S. Patent Application No. 16/821,810, dated October 19, 2022.
	AO	Office Action for U.S. Patent Application No. 17/484,080, dated January 21, 2022.
	AP	Notice of Allowance for U.S. Patent Application No. 17/484,080, dated May 31, 2022.
	AQ	Notice of Allowance for U.S. Patent Application No. 17/484,080, dated September 13, 2022.
	AR	Notice of Allowance for U.S. Patent Application No. 17/484,080, dated January 31, 2023.
	AS	Office Action for U.S. Patent Application No. 17/949,029, dated November 23, 2022.
	AT	Notice of Allowance for U.S. Patent Application No. 17/949,029, dated March 1, 2023.
	AU	Notice of Allowance for U.S. Patent Application No. 17/873,104, dated December 16, 2022.
	AV	Notice of Allowance for U.S. Patent Application No. 17/873,104, dated March 22, 2023.
	AW	Restriction Requirement for U.S. Patent Application No. 11/580,222, dated June 18, 2008.
	AX	Office Action for U.S. Patent Application No. 11/580,222, dated September 12, 2008.
	AY	Office Action for U.S. Patent Application No. 11/580,222, dated January 28, 2009.
	AZ	Notice of Allowance for U.S. Patent Application No. 11/580,222, dated April 20, 2009.

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	BA	U.S. Patent Application No. 12/462,286, filed July 31, 2009.
	BB	Restriction Requirement for U.S. Patent Application No. 12/462,286, dated September 17, 2010.
	BC	Office Action for U.S. Patent Application No. 12/462,286, dated January 13, 2011.
	BD	Notice of Allowance for U.S. Patent Application No. 12/462,286, dated June 24, 2011.
	BE	Notice of Allowance for U.S. Patent Application No. 12/462,286, dated November 22, 2011.
	BF	Office Action for U.S. Patent Application No. 13/367,346, dated May 15, 2013.
	BG	Notice of Allowance for U.S. Patent Application No. 13/367,346, dated October 10, 2013.
	BH	Office Action for U.S. Patent Application No. 13/367,346, dated January 28, 2014.
	BI	Notice of Allowance for U.S. Patent Application No. 13/367,346, dated August 15, 2014.
	BJ	Notice of Allowance for U.S. Patent Application No. 13/367,346, dated March 19, 2015.
	BK	Office Action ffor U.S. Patent Application No. 14/715,501, dated September 23, 2015.
	BL	Office Action for U.S. Patent Application No. 14/715,501, dated March 25, 2016.
	BM	Office Action for U.S. Patent Application No. 14/715,501, dated October 17, 2016.
	BN	Office Action for U.S. Patent Application No. 14/715,501, dated July 20, 2017.
	BO	Office Action for U.S. Patent Application No. 14/715,501, dated January 8, 2018.
	BP	Notice of Allowance for U.S. Patent Application No. 14/715,501, dated May 9, 2018.
	BQ	Notice of Allowance for U.S. Patent Application No. 14/715,501, dated September 11, 2018.
	BR	Office Action for U.S. Patent Application No. 16/127,957, dated June 4, 2020.
	BS	Office Action for U.S. Patent Application No. 16/127,957, dated September 30, 2020.
	BT	Notice of Allowance for U.S. Patent Application No. 16/127,957, dated December 21, 2020.
	BU	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated May 6, 2022.
	BV	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated September 9, 2022.
	BW	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated December 19, 2022.
	BX	Notice of Allowance for U.S. Patent Application No. 17/395,509, dated April 26, 2023.
	BY	Notice of Allowance for U.S. Patent Application No. 17/737,866, dated January 17, 2023.
	BZ	Notice of Allowance for U.S. Patent Application No. 16/182,969, dated January 28, 2022.
	CA	Notice of Allowance for U.S. Patent Application No. 16/182,969, dated October 14, 2020.
	CB	Notice of Allowance for U.S. Patent Application No. 16/182,969, dated September 1, 2021.
	CC	Office Action for U.S. Patent Application No. 16/182,969, dated January 24, 2023.
	CD	U.S. Patent Application No. 12/806,312, filed August 10, 2010.

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	CE	Office Action for U.S. Patent Application No. 12/806,312, dated April 20, 2012.
	CF	Office Action for U.S. Patent Application No. 12/806,312, dated September 25, 2012.
	CG	Notice of Allowance for U.S. Patent Application No. 12/806,312, dated December 14, 2012.
	CH	Notice of Allowance for U.S. Patent Application No. 12/806,312, dated March 29, 2013.
	CI	U.S. Patent Application No. 13/831,512, filed March 14, 2013.
	CJ	Office Action for U.S. Patent Application No. 13/831,512, dated June 4, 2013.
	CK	Office Action for U.S. Patent Application No. 13/831,512, dated February 24, 2014.
	CL	Office Action for U.S. Patent Application No. 13/831,512, dated July 2, 2014.
	CM	Office Action for U.S. Patent Application No. 13/831,512, dated January 21, 2015.
	CN	Office Action for U.S. Patent Application No. 13/831,512, dated May 29, 2015.
	CO	Office Action for U.S. Patent Application No. 13/831,512, dated February 24, 2016.
	CP	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated August 1, 2016.
	CQ	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated October 25, 2016.
	CR	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated January 30, 2017.
	CS	Notice of Allowance for U.S. Patent Application No. 13/831,512, dated February 21, 2017.
	CT	Office Action for U.S. Patent Application No. 15/396,428, dated February 16, 2018.
	CU	Office Action for U.S. Patent Application No. 15/396,428, dated June 21, 2018.
	CV	Office Action for U.S. Patent Application No. 15/409,723, dated April 23, 2018.
	CW	Office Action for U.S. Patent Application No. 15/409,723, dated October 31, 2018.
	CX	Notice of Allowance for U.S. Patent Application No. 11/183,256, dated January 13, 2009.
	CY	Office Action for U.S. Patent Application No. 11/183,256, dated September 12, 2008.
	CZ	Notice of Allowance for U.S. Patent Application No. 11/183,256, dated July 8, 2008.
	DA	Office Action for U.S. Patent Application No. 11/183,256, dated January 25, 2008.
	DB	Restriction Requirement for U.S. Patent Application No. 11/183,256, dated October 17, 2007.
	DC	Restriction Requirement for U.S. Patent Application No. 11/183,256, dated June 28, 2007.
	DD	Notice of Allowance for U.S. Patent Application No. 11/546,685, dated February 17, 2010.
	DE	Notice of Allowance for U.S. Patent Application No. 11/546,685, dated September 18, 2009.
	DF	Office Action for U.S. Patent Application No. 11/546,685, dated March 5, 2009.
	DG	Restriction Requirement for U.S. Patent Application No. 11/546,685, dated January 27, 2009.
	DH	US Patent Application No. 12/803,732, filed July 1, 2010.
	DI	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated September 1, 2011.

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	DJ	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated November 15, 2011.
	DK	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated January 30, 2012.
	DL	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated April 17, 2012.
	DM	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated July 5, 2012.
	DN	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated October 19, 2012.
	DO	Notice of Allowance for U.S. Patent Application No. 12/803,732, dated February 13, 2013.
	DP	Office Action for U.S. Patent Application No. 13/291,020, dated June 4, 2012.
	DQ	Office Action for U.S. Patent Application No. 13/291,020, dated April 23, 2012.
	DR	Notice of Allowance for U.s. Patent Application No. 13/291,020, dated August 2, 2012.
	DS	Notice of Allowance for U.S. Patent Application No. 13/291,020, dated November 2, 2012.
	DT	Notice of Allowance for U.S. Patent Application No. 13/291,020, dated February 11, 2013.
	DU	U.S. Patent Application No. 13/831,419, filed March 14, 2013.
	DV	Office Action for U.S. Patent Application No. 13/831,419, dated April 27, 2015.
	DW	Office Action for U.S. Patent Application No. 13/831,419, dated August 12, 2015.
	DX	Notice of Allowance for U.S. Patent Application No. 13/831,419, dated January 28, 2016.
	DY	Office Action for U.S. Patent Application No. 13/831,419, dated April 28, 2016.
	DZ	Office Action for U.S. Patent Application No. 13/831,419, dated November 17, 2016.
	EA	Office Action for U.S. Patent Application No. 13/831,419, dated February 1, 2017.
	EB	Notice of Allowance for U.S. Patent Application No. 13/831,419, dated June 6, 2017.
	EC	Office Action for U.S. Patent Application No. 13/831,419, dated October 20, 2017.
	ED	Office Action for U.S. Patent Application No. 13/831,419, dated June 8, 2018.
	EE	U.S. Patent Application No. 13/831,445, filed March 14, 2013.
	EF	Office Action for U.S. Patent Application No. 13/831,445, dated February 20, 2015.
	EG	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated October 21, 2016.
	EH	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated January 9, 2017.
	EI	Corrected Notice of Allowance for U.S. Patent Application No. 13/831,445, dated January 23, 2017.
	EJ	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated April 25, 2017.
	EK	Office Action for U.S. Patent Application No. 13/831,445, dated February 6, 2018.
	EL	Notice of Allowance for U.S. Patent Application No. 13/831,445, dated August 8, 2018.
	EM	Office Action for U.S. Patent Application No. 16/429,181, dated September 30, 2020.
	EN	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated February 1, 2021.
	EO	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated June 17, 2021.

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	EP	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated August 19, 2021.
	EQ	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated October 4, 2021.
	ER	Office Action for U.S. Patent Application No. 16/429,181, dated February 9, 2022.
	ES	Notice of Allowance for U.S. Patent Application No. 16/429,181, dated August 10, 2022.
	ET	Office Action for U.S. Patent Application No. 16/424,018, dated June 10, 2020.
	EU	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated October 20, 2020.
	EV	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated March 8, 2021.
	EW	Office Action for U.S. Patent Application No. 16/424,018, dated May 13, 2021.
	EX	Office Action for U.S. Patent Application No. 16/424,018, dated September 3, 2021.
	EY	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated November 2, 2021
	EZ	Office Action for U.S. Patent Application No. 16/424,018, dated January 24, 2022.
	FA	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated June 10, 2022.
	FB	Office Action for U.S. Patent Application No. 16/424,018, dated September 6, 2022.
	FC	Office Action for U.S. Patent Application No. 16/424,018, dated November 25, 2022.
	FD	Notice of Allowance for U.S. Patent Application No. 16/424,018, dated February 21, 2023.
	FE	Notice of Allowance for U.S. Patent Application No. 17/942,347, dated April 19, 2023.
	FF	Notice of Allowance for U.S. Patent Application No.17/964,853, dated March 8, 2023.
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	FJ	"Camera Specs Take Candid Snaps", BBC News, 18 September 2003, pp. 1-3.
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	FR	"Motorola and Oakley Introduce First Bluetooth Sunglasses-Cutting Edge RAZRWire Line Offers Consumers On-The-Go Connections", Motorola Mediacenter-Press Release, February 14, 2005, pp. 1-2.
	FS	"Oakley Thump: Sunglasses Meet MP3 Player", with image, http://news.designtechnica.com/article4665.html, July 13, 2004.
	FT	"Personal UV monitor," Optics.org, http://optics.org/articles/news/6/6/7/1 (downloaded 12/20/03), June 9, 2000, pp. 1-2.
	FU	"SafeSun Personal Ultraviolet Light Meter", http://healthchecksystems.com/safesun.htm, downloaded July 12, 2004, pp. 1-4.
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	FW	"SafeSun Personal UV Meter, features, Optix Tech Inc., http://www.safesun.com/features.html, downloaded May 1, 2004, pp. 1-2.
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	GF	Abrisa Product Information: Commercial Hot Mirror, Abrisa, June 2001, p. 1.
	GG	Alps Spectacle, Air Conduction Glass, Bone Conduction Glass, http://www.alps-inter.com/spec.htm, downloaded December 10, 2003, pp. 1-2.
	GH	Altimeter and Compass Watches, http://store.yahoo.com/snowshack/altimeter-watches.html, downloaded 5/3/04, pp. 1-2.
	GI	Bone Conduction Headgear HG16 Series, "Voiceducer," http://www.temco-j.co.jp/html/English/HG16.html, downloaded December 10, 2003, pp. 1-3.
	GJ	Carnoy, David, "The Ultimate MP3 Player for Athletes? Could be.", CNET Reviews, May 14, 2004, pp. 1-4.
	GK	Clifford, Michelle A., "Accelerometers Jump into the Consumer Goods Market", Sensors Online, http://www.sensorsmag.com, August 2004.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.T.H/

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
Information Disclosure	Applicant	HOWELL et al.
Statement By Applicant	Filing Date	July 21, 2023
	Group	Not Yet Assigned
(Use Several Sheets if Necessary)		Page 9 of 10

	GL	Comfees.com, Adjustable Sports Band Style No. 1243, http://shop.store.yahoo.com/comfees/adsportbansty.html, downloaded April 18, 2003, pp. 1-2.
	GM	Cool Last Minute Gift Ideas!, UltimateFatBurner Reviews and Articles, http://www.ultimatefatburner.com/gift-ideas.html, downloaded May 10, 2005, pp. 1-3.
	GN	Dickie et al. "Eye Contact Sensing Glasses for Attention-Sensitive Wearable Video Blogging," Human Media Lab, Queen's University, Kingston, ON K7L 3N6, Canada, est. April 2004, pp. 1-2.
	GO	Dixen, Brian, "ear-catching", Supertesten, Mobil, April 2003 (estimated), pp. 37-41.
	GP	Global Solar UV Index, A Practical Guide, World Health Organization, 2002, pages 1-28.
	GQ	Grobart, Sam, "Digit-Sizing Your Computer Data", News Article, September, 2004, p. 1.
	GR	Life Monitor V1.1, Rhusoft Technologies Inc., http://www.rhusoft.com/lifemonitor/, March 1, 2003, pp. 1-6.
	GS	Manes, Stephen, "Xtreme Cam", Forbes Magazine, September 5, 2005, pg. 96.
	GT	Mio, PhysiCal, http://www.gophysical.com/, downloaded January 27, 2004, 5 pages.
	GU	Monitoring Athletes Performance--2002 Winter Olympic News from KSL, Jan. 23, 2002, http://2002.ksl.com/news-3885i, pp.1-3.
	GV	NIWA, "UV Index Information", http://www.niwa.cri.nz/services/uvozone/uvi-info, downloaded July, 15, 2004, pp. 1-2.
	GW	NuVision 60GX Steroscopic Wireless Glasses, Product Information, NuVision by MacNaughton, c. 1997, MacNaughton, Inc., pp. 1-2.
	GX	Pärkkä, Juha, et al., "A Wireless Wellness Monitor for Personal Weight Management", VTT Information Technology, Tampere, Finland, ***November 2000***, p.1.
	GY	Pedometer, Model HJ-112, Omron Instruction Manual, Omron Healthcare, Inc., 2003, pp. 1-27.
	GZ	PNY Announces Executive Attaché USB 2.0 Flash Drive and Pen Series, Press Release, PNY Technologies, Las Vegas, January 8, 2004, pp. 1-2.
	HA	PNY Technologies, " Executive Attaché" http://www.pny.com/products/flash/execattache.asp downloaded November 16, 2005.
	HB	Polar WM41 and 42 weight management monitor, http://www.simplysports/polar/weight_management/wm41-42.htm, downloaded January 28, 2004, pp. 1-3.
	HC	Questions Answers, Pedometer.com, http://www.pedometer.com, downloaded May 5, 2005.
	HD	RazrWire, copyright Motorola, Inc., July 2005, 1 page.
	HE	SafeSun Personal UV Meter, Scientific Data, Optix Tech Inc., http://www.safesun.com/scientific.html, downloaded May 1, 2004, pp. 1-3.
	HF	SafeSun Sensor, User's Manual, Optix Tech Inc., June 1998, 2 pages.
	HG	SafeSun, Personal UV Meter, "Technical Specifications", Optix Tech Inc., http://www.safesun.com/technical.html, downloaded July 12, 2004, pp. 1-2.
	HI	SafeSun, Personal UV Meter, Experiments, Optix Tech Inc., http://www.safesun.com/experiments.html, downloaded February 5, 2004, pp. 1-2.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.T.H/

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
Information Disclosure	Applicant	HOWELL et al.
Statement By Applicant	Filing Date	July 21, 2023
	Group	Not Yet Assigned
(Use Several Sheets if Necessary)		Page 10 of 10

	HJ	Shades of Fun, Blinking Light Glasses, http://www.shadesoffun.com/Nov/Novpgs-14.html, downloaded July 9, 2005, pp. 1-4.
	HK	SportLine Fitness Pedometer-Model 360, UltimateFatBurner Superstore, http://www.ultimatefatburner-store.com/ac_004.html, downloaded May 10, 2005, pp. 1-2.
	HL	Steele, Bonnie G. et al., "Bodies in motion: Monitoring daily activity and exercise with motion sensors in people with chronic pulmonary disease", VA Research & Development, Journal of Rehabilitation Research & Development, Vol. 40, No. 5, September/October 2003, Supplement 2, pages 45-58.
	HM	Stevens, Kathy, "Should I Use a Pedometer When I Walk?", Healtheon/WebMD, April 14, 2000.
	HN	Sundgot, Jørgen "2nd-gen Motorola Bluetooth headset", InfoSync World, March 1, 2003, http://www.infosync.no/news/2002/n/2841.html, pp. 1-2.
	HO	SunSensors, Segan Industries, Inc., http://www.segan-ind.com/sunsensor.htm, downloaded February 5, 2004, pp. 1-3.
	HP	SunUV™, Personal UV Monitor User's Guide, APA Optics, Inc., 2003 pp. 1-52.
	HQ	SunUV™, Personal UV Monitor, APA Optics, Inc., http://www.apaoptics.com/sunuv/models.html, downloaded December 20, 2003.
	HR	Talking Pedometer, Sportline, Inc., ***June 2001 (Possibly earlier)***, 1 page.
	HS	The unofficial ELSA 3D Revelator page, December 30, 1999, pp. 1-15.
	HT	Top Silicon PIN Photodiode, PD93-21C, Technical Data Sheet, Everlight Electronics Co., Ltd., 2004, pp 1-9.
	HU	UV Light Meter, UVA and UVB measurement, UV-340, Instruction Manual, Lutron, ***June 2003 (estimated)***, pp. 1-5.
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	HW	Vitaminder Personal Carb Counter, http://www.auravita.com/products/AURA/ORBU11420.asp. Downloaded November 15, 2005, pp. 1-4.
	HX	Yamada et al. "Development of an eye-movement analyser possessing functions for wireless transmission and autocalibration," Med. Biol. Eng. Comput., No. 28, v.4, July 28, 1990, http://link.springer.com/article/10.1007%2FBF02446149?LI=true, pp. 1-2.

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.T.H/

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 18/224,793	Filing Date 07/21/2023	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	09/20/2023	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/MARCUS M WASHINGTON/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/25 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION**
Application Number	18224793
Filing Date	21-Jul-2023
First Named Inventor	Thomas Howell
Attorney Docket Number	IPVCP006X1C10D1
Title of Invention	HEADSET WITH CONNECTION REGION

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
IngenioSpec, LLC	100%

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

18129660 filed on 03/31/2023

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: ○ Small Entity ○ Micro Entity ◉ Regular Undiscounted I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number 35757 ○ A sole inventor ○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ○ A joint inventor; all of whom are signing this request	
Signature	/Peter P. Tong/
Name	Peter P. Tong

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	18224793
Filing Date:	21-Jul-2023
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVCP006X1C10D1

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	170	170
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**170**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 18224793

Filing Date: 21-Jul-2023

Applicant/Patent under Reexamination: Howell

Electronic Terminal Disclaimer filed on September 20, 2023

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt	
EFS ID:	48607216
Application Number:	18224793
International Application Number:	
Confirmation Number:	5028
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVCP006X1C10D1
Receipt Date:	20-SEP-2023
Filing Date:	21-JUL-2023
Time Stamp:	21:10:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$170
RAM confirmation Number	E20239JL10429315
Deposit Account	503874
Authorized User	Angela Nijim
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	43800 e0e03605e6f5a15a4f14e66da717f05e6673c9fe	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38160 2747ca539d2cbf5321b710ce48277ca5f4ebc299	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	81960		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Patent Application Fee Transmittal

Application Number:	18224793
Filing Date:	21-Jul-2023
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVCP006X1C10D1

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
		Total in USD ($)		**260**

Electronic Acknowledgement Receipt	
EFS ID:	48607258
Application Number:	18224793
International Application Number:	
Confirmation Number:	5028
Title of Invention:	HEADSET WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVCP006X1C10D1
Receipt Date:	20-SEP-2023
Filing Date:	21-JUL-2023
Time Stamp:	21:17:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$260
RAM confirmation Number	E20239JL18165105
Deposit Account	503874
Authorized User	Angela Nijim
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	IPVCP006X1C10D1_AmdATrans_9-23.pdf	17450 04515c0e6039d1b8904a4c92c2b7b420e6845b52	no	1
Warnings:					
Information:					
2	Transmittal Letter	IPVCP006X1C10D1_IDSTrans_9-23.pdf	20323 afbd988b3e57ed900e5b7574c7c7a863860bc65a	no	2
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	IPVCP006X1C10D1_1449_9-23.pdf	21946 3d058812e5ae11909b17510cadccb62dc0011f2f	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
4	Amendment/Request for Reconsideration-After Non-Final Rejection	IPVCP006X1C10D1_AmdA_AsFiled_9-23.pdf	50147 fa54af94b1e7d82ccb6442b7ac380e89fce3a8db	no	9
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	38351 a3b80b8fb5dc0f15aa793e53a42ea20e9c8159f4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	148217		

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New Applications Under 35 U.S.C. 111

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National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.	Attorney Docket No.: IPVCP006X1C10D1
Application No.: 18/224,793	Examiner: HAMID, AMMAR T.
Filed: July 21, 2023	Group: 2654
Title: HEAD-WORN DEVICE WITH CONNECTION REGION	

AMENDMENT A TRANSMITTAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir: 3

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	20	MINUS	20	00	x 40 =	x 100 =
Independent Claims	2	MINUS	3	00	x 192 =	x 480 =
Multiple Dependent Claim Present and Fee Not Previously Paid					$	$
				Total	$0.00	$

☐ Applicant(s) hereby petition for a _____- month extension(s) of time to respond to the aforementioned Office Action.

☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVCP006X1C10D1).

☒ Any fees due are being paid electronically herewith.

☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No. IPVCP006X1C10D1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.	Attorney Docket No.: IPVCP006X1C10D1
Application No.: 18/224,793	Examiner: HAMID, AMMAR T.
Filed: July 21, 2023	Group: 2654
Title: HEAD-WORN DEVICE WITH CONNECTION REGION	

INFORMATION DISCLOSURE STATEMENT BEFORE FINAL ACTION OR NOTICE OF ALLOWANCE (37 CFR §§ 1.56 AND 1.97(c))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The references listed in the attached PTO Form 1449, a copy of which is attached, may be material to examination of the above-identified patent application. Applicants submit this reference in compliance with their duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make this citation of official record in this application.

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that this reference indeed constitutes prior art.

This Information Disclosure Statement is being filed after the mailing date of the first Office Action on the merits, or after three months of the filing date of this application, whichever event occurred last, but it is believed before the mailing date of either: (i) a final action under §1.113 or (ii) a notice of allowance under §1.311, whichever occurs first.

Accompanying this Information Disclosure Statement is

☐ a statement as specified in 37 CFR 1.97(e); or

☒ the fee set forth in 37 CFR 1.17(p).

Electronic Fee in payment of the Information Disclosure Statement Fee is provided herewith. If it is determined that any additional fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-3874 (Order No. IPVCP006X1C10D1).

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Registration No. 35,757

4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	2654
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	2022/0260859 A1	Aug-22	Howell et al.			
	2.	2023/0273464 A1	Aug-23	Howell et al.			
	3.	11,762,224 B2	Sep-23	Howell et al.			
	4.						
	5.						
	6.						
	7.						
	8.						
	9.						
	10.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Office Action for U.S. Patent Application No. 17/873,104, dated October 6, 2022.
	B	Notice of Allowance for U.S. Patent Application No. 17/942,347, dated August 14, 2023.
	C	Office Action for U.S. Patent Application No. 17/964,853, dated September 15, 2023.
	D	Notice of Allowance for U.S. Patent Application No. 18/129,660, dated August 24, 2023.
	E	
	F	
	G	
	H	
	I	

Examiner	Date Considered

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.

Attorney Docket No.: IPVCP006X1C10D1

Application No.: 18/224,793

Examiner: HAMID, AMMAR T.

Filed: July 21, 2023

Group: 2654

Title: HEAD-WORN DEVICE WITH CONNECTION REGION

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being transmitted electronically to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 20, 2023.

Signed: /Angela D. Nijim/ Printed Name: Angela D. Nijim

AMENDMENT A

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action dated September 7, 2023, please amend the above-identified patent application as follows:

Amendments to the specifications are reflected to begin on page 2 of this paper.

Amendments to the claims are reflected in the listing of claims which begins on page 3 of this paper.

Remarks/Arguments are reflected to begin on page 8 of this paper.

Amendments to the Specification:

On page 4, after paragraph 7 of the specification, please ADD paragraphs 7.1-7.3 as follows:

- -

[0007.1] Also, typically, to participate in wireless communications, a user holds a mobile phone (e.g., wireless or a cellular phone) against his ear to hear an audio communication received in a wireless manner. The user usually also speaks towards a microphone embedded in the mobile phone to participate in the audio communication, again in a wireless manner. More recently, to facilitate hands-free operation of mobile phones, head-sets have been produced and utilized. Typically, a headset clips over or into an ear of the user to provide a speaker and a microphone in proximity to the ear and the mouth, respectively, of the user. Traditionally, the head-set was connected to the mobile phone by a cord (i.e., wire). In recent times, head-sets have been developed to operate in a wireless manner, without the need of a cord connected to the mobile phone. For example, one popular type of wireless head-set uses Bluetooth wireless transmissions to communicate between the head-set and the corresponding mobile phone.

[0007.2] Mobile phones often support both voice calls and text messaging. When the user does not make use of a head-set, the user often holds the mobile phone against their ear when participating in a voice call. One problem this presents is that the user is not able to see the screen of the mobile phone. As a result, the user has difficultly interacting with the keypad or screen of the mobile phone when the mobile phone is held against the user's head. Alternatively, when the user of a mobile phone makes use of a head-set, the user can receive and participate in voice calls in a hands-free manner. Unfortunately, however, the user would need to view a screen of the mobile phone to participate in text messaging.

[0007.3] Accordingly, there is a need for improved wireless communication techniques for users of mobile communication devices.

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Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A head-worn wireless electronic apparatus at least configured for producing audio outputs for a user comprising:

a speaker in the head-worn wireless electronic apparatus;

an electrical connector at the head-worn wireless electronic apparatus, wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on at least a surface of the head-worn wireless electronic apparatus, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force, to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact;

a rechargeable battery in the head-worn wireless electronic apparatus;

a microphone in the head-worn wireless electronic apparatus; and

a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input.

2. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 1 comprising:

wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and

a storage medium configured to store at least computer program codes for facilitating voice recognition~~, wherein at least the microphone is configured to receive at least a word, and wherein the computer program codes for facilitating voice recognition are configured~~ to facilitate recognizing at least ~~the~~ a word

received by at least the microphone for an operation of the head-worn wireless electronic apparatus.

3. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising at least another microphone in the head-worn wireless electronic apparatus,

wherein the microphone is configured to be positioned closer to mouth of the user and the another microphone is configured to be positioned further from the mouth of the user, when the head-worn wireless electronic apparatus is worn by the user, and

wherein at least the microphone and the another microphone are configured to receive audio inputs, with at least some noise in the audio inputs configured to be cancelled based on using at least the microphone and the another microphone.

4. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.

5. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 1 comprising a controller configured to determine ~~regarding~~ whether the head-worn wireless electronic apparatus is being used based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus.

6. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising an accelerometer.

7. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising an area configured for attachment via magnetic force.

8. (Original) A head-worn wireless electronic apparatus as recited in claim 7 comprising a magnet in the area.

9. (Original) A head-worn wireless electronic apparatus as recited in claim 1 comprising a force sensor.

10. (Original) A head-worn wireless electronic apparatus as recited in claim 3 comprising an area configured for attachment via magnetic force.

11. (Original) A head-worn wireless electronic apparatus as recited in claim 10 comprising an accelerometer.

12. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 10 comprising:

wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and

a storage medium configured to store at least computer program codes for facilitating voice recognition~~, wherein at least the microphone is configured to receive at least a word, and wherein the computer program codes for facilitating voice recognition are configured~~ to facilitate recognizing at least ~~the~~ a word received at least by the microphone for an operation of the head-worn wireless electronic apparatus.

13. (Currently amended) A head-worn wireless electronic apparatus as recited in claim 12 comprising a controller configured to determine ~~regarding~~ whether the head-worn wireless electronic apparatus is being used based on outputs from a sensor at least partially in the head-worn wireless electronic apparatus.

14. (Previously presented) A head-worn wireless electronic apparatus as recited in claim 12, wherein the controller is configured to identify a sliding action across at least a portion of the touch-sensitive input surface, and to facilitate a first or a second operation of the head-worn wireless electronic apparatus based on identifying whether the sliding action is in a first direction or a direction opposite from the first direction across the at least a portion of the touch-sensitive input surface.

15. (New) A head-worn wireless electronic apparatus as recited in claim 1, wherein the apparatus is configured to be worn in an ear of the user.

16. (New) A head-worn wireless electronic apparatus as recited in claim 15 comprising at least another microphone in the head-worn wireless electronic apparatus,

wherein the microphone is configured to be positioned closer to mouth of the user than the another microphone, when the head-worn wireless electronic apparatus is worn by the user, and

wherein at least the microphone and the another microphone are configured to receive audio inputs, with at least some noise in the audio inputs configured to be cancelled based on using at least the microphone and the another microphone.

17. (New) A head-worn wireless electronic apparatus as recited in claim 16 comprising an area configured for attachment via magnetic force.

18. (New) A head-worn wireless electronic apparatus as recited in claim 17 comprising:

wireless communication circuitry in the head-worn wireless electronic apparatus configured for coupling to at least a Bluetooth network; and

a storage medium configured to store at least computer program codes for facilitating voice recognition to facilitate recognizing at least a word received by at least the microphone for an operation of the head-worn wireless electronic apparatus.

19. (New) A head-worn wireless electronic apparatus as recited in claim 18 comprising a controller configured to determine whether the head-worn wireless electronic apparatus is being used.

20. (New) A head-worn wireless electronic apparatus as recited in claim 19 comprising an accelerometer.

REMARKS

Applicants previously presented claims 1-14 for examination. The above-identified Office Action (the "Office Action") has rejected all the claims. By this amendment, Applicants have amended claims 1, 2, 5, 12, and 13; and have added claims 15-20. Accordingly, claims 1-20 are pending. Applicants respectfully request that the Examiner reconsider the application in light of the amendments and the remarks expressed herein.

Specification Amendment

By this amendment, Applicants have added paragraphs 7.1 to 7.3 with support found, for example, in the background of the invention of U.S. Patent No. 7,116,976, entitled "ADAPTABLE COMMUNICATION TECHNIQUES FOR ELECTRONIC DEVICES," which was incorporated by reference in the present application.

Double Patenting

A number of claims were rejected on the ground of nonstatutory double patenting based on U.S. Patent Application No. 18/224,793, which is the Application Number of the current application. Assuming the number should have been U.S. Patent Application No. 18/129,660, Applicants have responded accordingly.

On the ground of nonstatutory double patenting as being unpatentable, (a) claims 1-5 were rejected over claims 3-7 of copending U.S. Patent Application No. 18/129,660; (b) claim 6 was rejected over claim 3 of copending U.S. Patent Application No. 18/129,660, in view of Kutina et al. (U.S. Publication No. 2019/0117121, hereinafter Kutina); (c) claims 7, 8, 10, 12-14 were rejected over claim 3 of copending U.S. Patent Application No. 18/129,660, in view of Chang (U.S. Publication No. 2004/0150986); (d) claim 11 was rejected over claim 5 of copending U.S. Patent Application No. 18/129,660, in view of Chang (U.S. Publication No. 2004/0150986) and further in view of Kutina; and (e) claim 9 was

rejected over claim 3 of copending U.S. Patent Application No. 18/129,660, in view of Saminathan et al. (U.S. Publication No. 2021/0399691, hereinafter Saminathan). Applicants respectfully disagree. However, to expedite prosecution, Applicants have submitted a terminal disclaimer to obviate the rejection. Accordingly, it is respectfully requested that the Examiner reconsider and withdraw the rejection on the ground of double patenting.

Summary

In view of the foregoing, it is respectfully requested that all outstanding rejections be reconsidered and withdrawn. Reconsideration of the application and an early Notice of Allowance are earnestly solicited.

Reconsideration of the application and an early Notice of Allowance are earnestly solicited. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Respectfully submitted,

/Peter P. Tong/

Peter P. Tong
Reg. No. 35,757

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

34071 7590 10/02/2023

IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

EXAMINER	
HAMID, AMMAR T	
ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 10/02/2023

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/224,793	07/21/2023	Thomas A. Howell	IPVCP006X1C10D1	5028

TITLE OF INVENTION: HEADSET WITH CONNECTION REGION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	01/02/2024

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

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IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/224,793	07/21/2023	Thomas A. Howell	IPVCP006X1C10D1	5028

TITLE OF INVENTION: HEADSET WITH CONNECTION REGION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	01/02/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
HAMID, AMMAR T	2654	381-110000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required)

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via Patent Center or EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/224,793	07/21/2023	Thomas A. Howell	IPVCP006X1C10D1	5028

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IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

EXAMINER	
HAMID, AMMAR T	
ART UNIT	**PAPER NUMBER**
2654	

DATE MAILED: 10/02/2023

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 18/224,793	Applicant(s) Howell et al.	
	Examiner AMMAR T HAMID	Art Unit 2654	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 9/20/2023.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/AMMAR T HAMID/ Primary Examiner, Art Unit 2654	/AMMAR T HAMID/ Primary Examiner, Art Unit 2654

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

This office action is in response to applicant's amendment dated 9/20/2023, claims 1, 2, 5, and were amended, none of the claims were cancelled, and claims 15-20 were newly introduced. Accordingly claims 1-20 are currently pending in the application.

In view of the approval of the terminal disclaimer filed by applicant on 9/20/2023, the nonstatutory double patenting rejection is overcome.

Claims 1-20 are allowed over prior art of record.

Most relevant prior art of record is *Swab et al. (US 6769767 B2)* hereinafter Swab.

Regarding claim 1, Swab teaches A head-worn wireless electronic apparatus (12 in Fig. 1) in at least configured for producing audio outputs for a user comprising: a speaker in the head-worn wireless electronic apparatus (60 and 62 in Fig. 10); an electrical connector at the head-worn wireless electronic apparatus (42, 44, 46, and 48 in Fig. 2a), Swab does not specifically disclose the apparatus further comprising wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on at least a surface of the head- worn wireless electronic apparatus, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact; a rechargeable battery in the head-worn wireless electronic apparatus; a microphone in the head-worn wireless electronic apparatus; and a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input.

The following is the reason for would be allowance of claim 1:

Swab alone or in combination with any other prior art of record does not specifically disclose, suggest nor render obvious the limitations wherein the apparatus further comprises wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on at least a surface of the head- worn wireless electronic apparatus, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact; a rechargeable battery in the head-worn wireless electronic apparatus; a microphone in the head-worn wireless electronic apparatus; and a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn wireless electronic apparatus based on receiving at least a touch input, therefore the claim would be allowed for the limitations above in combination with all the other limitations of the claim if the nonstatutory double patenting rejection is overcome.

Regarding claim 2-20, claims are allowed for their dependency on allowed claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMMAR T HAMID whose telephone number is (571)272-1953. The examiner can normally be reached M-F 9-5, Eastern time.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 5712727848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMMAR T. HAMID
Primary Examiner
Art Unit 2695

/AMMAR T HAMID/
Primary Examiner, Art Unit 2654

Notice of References Cited	Application/Control No. 18/224,793	Applicant(s)/Patent Under Reexamination Howell et al.	
	Examiner AMMAR T HAMID	Art Unit 2654	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-6769767-B2	08-2004	Swab; Gregory	H04W52/248	351/158
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/224,793	Howell et al.
	Examiner	Art Unit
	AMMAR T HAMID	2654

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06F3/01	09/05/2023	AH
G02C5/001	09/05/2023	AH
G02C5/14	09/05/2023	AH
G02C5/143	09/05/2023	AH
G02C11/10	09/05/2023	AH
G06F1/163	09/05/2023	AH
G10L15/22	09/05/2023	AH
G06F3/01	09/25/2023	AH
G02C5/001	09/25/2023	AH
G02C5/14	09/25/2023	AH
G02C5/143	09/25/2023	AH
G02C11/10	09/25/2023	AH
G06F1/163	09/25/2023	AH
G10L15/22	09/25/2023	AH

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
381	110	09/05/2023	AH
381	104, 110	09/25/2023	AH

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

/AMMAR T HAMID/ Primary Examiner, Art Unit 2654	/AMMAR T HAMID/ Primary Examiner, Art Unit 2654

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/224,793	Howell et al.
	Examiner	Art Unit
	AMMAR T HAMID	2654

Search Notes		
Search Notes	**Date**	**Examiner**
Consulted with examiner Jason Kurr for class subclass search	09/05/2023	AH
Text search using P2E2	09/05/2023	AH
Inventor and applicant search in P2E2	09/05/2023	AH
Concept search using IP.com	09/05/2023	AH
Consulted with examiner Jason Kurr for class subclass search	09/25/2023	AH
Text search using P2E2	09/25/2023	AH
Inventor and applicant search in P2E2	09/25/2023	AH
Concept search using IP.com	09/25/2023	AH

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
G06F3/01		09/25/2023	AH
G02C5/001		09/25/2023	AH
G02C5/14		09/25/2023	AH
G02C5/143		09/25/2023	AH
G02C11/10		09/25/2023	AH
G06F1/163		09/25/2023	AH
G10L15/22		09/25/2023	AH
381	104, 110	09/25/2023	AH

/AMMAR T HAMID/ Primary Examiner, Art Unit 2654	/AMMAR T HAMID/ Primary Examiner, Art Unit 2654

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/224,793	Howell et al.
	Examiner	**Art Unit**
	AMMAR T HAMID	2654

CPC							
Symbol						**Type**	**Version**
G06F	/	3	/	01		F	2013-01-01
G02C	/	11	/	10		I	2013-01-01
G02C	/	5	/	001		I	2013-01-01
G02C	/	5	/	143		I	2013-01-01
G02C	/	5	/	14		I	2013-01-01
G10L	/	15	/	22		I	2013-01-01
G06F	/	1	/	163		I	2013-01-01

CPC Combination Sets								
Symbol						**Type**	**Set**	**Ranking**	**Version**
	/		/						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/AMMAR T HAMID/ Primary Examiner, Art Unit 2654	25 September 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20230925

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/224,793	Howell et al.
	Examiner	**Art Unit**
	AMMAR T HAMID	2654

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H03G	/	3	/	00

NON-CLAIMED				
H03G	/	3	/	20

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
381	110

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
381	104					

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/AMMAR T HAMID/ Primary Examiner, Art Unit 2654 (Primary Examiner)	25 September 2023 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office — Part of Paper No.: 20230925

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	18/224,793	Howell et al.
	Examiner	Art Unit
	AMMAR T HAMID	2654

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19										
	2		11		20										
	3		12												
	4		13												
	5		14												
	6		15												
	7		16												
	8		17												
	9		18												

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/AMMAR T HAMID/ Primary Examiner, Art Unit 2654 (Primary Examiner)	25 September 2023 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office — Part of Paper No.: 20230925

Bibliographic Data

Application No: 18/224,793

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /AMMAR T HAMID/ (Examiner's Signature) | (Initials)

Title: HEADSET WITH CONNECTION REGION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/21/2023	381	2654	IPVCP006X1C10D1
RULE			

APPLICANTS

IngenioSpec, LLC,

INVENTORS

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David Chao, Saratoga, CA, UNITED STATES

C. Douglass Thomas, Saratoga, CA, UNITED STATES

Peter P. Tong, Mountain View, CA, UNITED STATES

CONTINUING DATA

This application is a DIV of 18129660 03/31/2023

18129660 is a CON of 16424018 05/28/2019 PAT 11630331

16424018 is a CON of 13831419 03/14/2013 PAT 10345625

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13291020 is a CON of 12803732 07/01/2010 PAT 8434863

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11183256 has PRO of 60647836 01/31/2005

11183256 has PRO of 60620238 10/18/2004

11183256 has PRO of 60618107 10/12/2004

11183256 has PRO of 60605191 08/28/2004

11183256 has PRO of 60592045 07/28/2004

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/01/2023

STATE OR COUNTRY

UNITED STATES

ADDRESS

IPVENTURE, INC.
4010 Moorpark Avenue
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San Jose, CA 95117
UNITED STATES

FILING FEE RECEIVED

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18224793

Report Run Date: 2023-09-25 UTC
Searches: 1
Markers: 0

Search #	Timestamp	Results	Page
1	2023-09-25 16:53 UTC	41,659,814	3

Content: Patent Publications (169)

US Patents | US Designs | US Applications | EPO Patents | EPO Applications | China Patents | China Applications | Japan Patents | Japan Applications | Korea Patents | Korea Applications | WIPO Applications | Argentina Patents | Argentina Applications | Brazil Patents | Brazil Applications | Canada Patents | Canada Applications | Chile Patents | Chile Applications | Colombia Applications | Costa Rica Applications | Cuba Patents | Cuba Applications | Dominican Republic Applications | Ecuador Patents | Ecuador Applications | El Salvador Applications | Guatemala Applications | Honduras Applications | Mexico Patents | Mexico Applications | Nicaragua Patents | Panama Applications | Peru Applications | Trinidad & Tobago Patents | Uruguay Applications | Austria Patents | Austria Applications | Belarus Patents | Belgium Patents | Belgium Applications | Bosnia & Herzegovina Patents | Bosnia & Herzegovina Applications | Bulgaria Patents | Bulgaria Applications | Croatia Patents | Croatia Applications | Czech Republic Patents | Czech Republic Applications | Czechoslovakia Patents | Czechoslovakia Applications | Denmark Patents | Denmark Applications | Estonia Patents | Estonia Applications | EUIPO Patents | Finland Patents | Finland Applications | France Patents | France Applications | Germany Patents | Germany Applications | Great Britain Patents | Great Britain Applications | Greece Patents | Greece Applications | Hungary Patents | Hungary Applications | Iceland Patents | Iceland Applications | Ireland Patents | Ireland Applications | Italy Patents | Italy Applications | Latvia Patents | Latvia Applications | Lithuania Patents | Lithuania Applications | Luxembourg Patents | Luxembourg Applications | Malta Patents | Monaco Patents | Montenegro Patents | Montenegro Applications | Netherlands Patents | Netherlands Applications | Norway Patents | Norway Applications | Poland Patents | Poland Applications | Portugal Patents | Portugal Applications | Republic of Moldova Patents | Republic of Moldova Applications | Romania Patents | Romania Applications | San Marino Patents | San Marino Applications | Serbia Patents | Serbia Applications | Slovakia Patents | Slovakia Applications | Slovenia Patents | Spain Patents | Spain Applications | Sweden Patents | Sweden Applications | Switzerland Patents | Switzerland Applications | Ukraine Patents | Yugoslavia/Serbia and Montenegro Patents | Yugoslavia/Serbia and Montenegro Applications | Armenia Patents | Australia Patents | Australia Applications | Cyprus Patents | Gulf Cooperation Council Patents | Hong Kong Patents | India Patents | India Applications | Indonesia Patents | Indonesia Applications | Israel Patents | Israel Applications | Jordan Patents | Jordan Applications | Kyrgyzstan Patents | Macao Applications | Malaysia Patents | Mongolia Patents | New Zealand Patents | Philippines Patents | Philippines Applications | Saudi Arabia Patents | Saudi Arabia Applications | Singapore Patents | Singapore Applications | Taiwan Patents | Taiwan Applications | Tajikistan Patents | Tajikistan Applications | Thailand Patents | Thailand Applications | Uzbekistan Patents | Vietnam Patents | Algeria Patents | ARIPO Patents | ARIPO Applications | Egypt Patents | Kenya Patents | Malawi Patents | Morocco Patents | Morocco Applications | OAPI Patents | South Africa Patents | Tunisia Applications | Zambia Patents | Zimbabwe Patents | EAPO Patents | EAPO Applications | Georgia Patents | Georgia Applications | Kazakhstan Patents | Kazakhstan Applications | Russia Patents | Russia Applications | Turkey Patents | Turkey Applications

1 **2023-09-25 16:53 UTC | 41,659,814 results from**

De-Dup: None | **Relevance Cut-off:** None | **Sort:** Relevance

Main Concept: Text

A head-worn wireless electronic apparatus at least configured for producing audio outputs for a user comprising:a speaker in the head-worn wireless electronic apparatus; an electrical connector at the head-worn wireless electronic apparatus, wherein the electrical connector includes at least two conductive pads, with the at least two conductive pads both on at least a surface of the head-worn wireless electronic apparatus, and wherein the at least two conductive pads are configured to removably couple to corresponding conductive contacts of a counterpart connector external to and separate from the head-worn wireless electronic apparatus, at least via spring-force, to at least enable each of the at least two conductive pads electrically connected to its corresponding conductive contact; a rechargeable battery in the head-worn wireless electronic apparatus; a microphone in the head-worn wireless electronic apparatus; and a touch-sensitive input surface on the head-worn wireless electronic apparatus, wherein the touch-sensitive input surface is configured to generate at least an electrical signal for an operation of the head-worn

EX1002 - Page 300

wireless electronic apparatus based on receiving at least a touch input.

Concept Modifiers: None

Filters: None

Form 1449 (Modified)	Atty. Docket No.	IPVCP006X1C10D1
	Application No.:	18/224,793
Information Disclosure Statement By Applicant	Applicant	HOWELL et al.
	Filing Date	July 21, 2023
	Group	2654
(Use Several Sheets if Necessary)		Page 1 of 1

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	1.	2022/0260859 A1	Aug-22	Howell et al.			
	2.	2023/0273464 A1	Aug-23	Howell et al.			
	3.	11,762,224 B2	Sep-23	Howell et al.			
	4.						
	5.						
	6.						
	7.						
	8.						
	9.						
	10.						

Foreign Documents

							Translation	
Init.		Document No.	Date	Country	Class	Subclass	Yes	No

Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)

	A	Office Action for U.S. Patent Application No. 17/873,104, dated October 6, 2022.
	B	Notice of Allowance for U.S. Patent Application No. 17/942,347, dated August 14, 2023.
	C	Office Action for U.S. Patent Application No. 17/964,853, dated September 15, 2023.
	D	Notice of Allowance for U.S. Patent Application No. 18/129,660, dated August 24, 2023.
	E	
	F	
	G	
	H	
	I	

Examiner	Date Considered
/AMMAR T HAMID/	09/25/2023

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.T.H/

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	2	"20030063763"	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:48 AM
L2	803	(head ADJ worn glasses) WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:50 AM
L3	1	(head ADJ worn) WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:50 AM
L4	2131	head WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L5	528	head WITH force ADJ sensor AND microphone	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L6	453	head WITH force ADJ sensor AND microphone AND speaker	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L7	412	head WITH force ADJ sensor AND microphone AND speaker AND touch	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:51 AM
L8	295	head WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:52 AM
L9	259	glasses WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 10:56 AM
L10	259	"glasses" WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 11:00 AM
L11	2	(glasses) WITH force ADJ sensor AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:01 AM
L12	0	(glasses) WITH magnetic WITH attachement AND microphone AND speaker AND touch AND bluetooth	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:53 AM
L13	18	(glasses) WITH magnetic WITH attach$5 AND	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:54 AM

		microphone AND speaker AND touch AND bluetooth					
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L15	21	smart WITH glasses WITH magnetic WITH attach$5	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 11:57 AM
L16	0	smart ADJ glasses WITH magnetic ADJ attach$5	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 12:04 PM
L17	26	glasses WITH magnetic ADJ attach$5	(US-PGPUB; USPAT)	OR	OFF	ON	2023/09/05 12:04 PM
L18	9	smart ADJ glasses WITH force ADJ sensor	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 12:20 PM
L19	203	"6769767"	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 04:16 PM
L20	4435	G06F3/01.cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:39 PM
L21	571	G02C5/001.cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:39 PM
L22	439	G02C5/14.cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:39 PM
L23	802	G02C5/143.cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:39 PM
L24	3338	G02C11/10.cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:40 PM
L25	14145	G06F1/163.cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:40 PM
L26	23007	G10L15/22.cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:40 PM
L27	332	381/110.ccls.	(US-PGPUB; USPAT)	OR	ON	ON	2023/09/05 05:40 PM
L28	26	((("IngenioSpec") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/09/05 05:41 PM
L29	20117	((("HOWELL") near3 ("Thomas")) OR (("CHAO") near3 ("David")) OR (("THOMAS") near3 ("C")) OR (("TONG") near3 ("Peter"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/09/05 05:41 PM
L30	7	"206302535"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO,	OR	ON	ON	2023/09/06 10:44 AM

			MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L31	5	"207475791"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2023/09/06 10:47 AM
L32	27	((("IngenioSpec") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	ON	ON	2023/09/25 12:05 PM
L33	20130	((("HOWELL") near3 ("Thomas")) OR (("CHAO") near3 ("David")) OR (("THOMAS") near3 ("C")) OR (("TONG") near3 ("Peter"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2023/09/25 12:06 PM
L34	247	381/110.ccls.	(USPAT)	OR	ON	ON	2023/09/25 12:33 PM
L35	1840	G06F3/01.cpc.	(USPAT)	OR	ON	ON	2023/09/25 12:34 PM
L36	321	G02C5/001.cpc.	(USPAT)	OR	ON	ON	2023/09/25 12:34 PM
L37	187	G02C5/14.cpc.	(USPAT)	OR	ON	ON	2023/09/25 12:34 PM
L38	461	G02C5/143.cpc.	(USPAT)	OR	ON	ON	2023/09/25 12:35 PM
L39	1420	G02C11/10.cpc.	(USPAT)	OR	ON	ON	2023/09/25 12:35 PM
L40	6020	G06F1/163.cpc.	(USPAT)	OR	ON	ON	2023/09/25 12:36 PM
L41	9943	G10L15/22.cpc.	(USPAT)	OR	ON	ON	2023/09/25 12:36 PM
L42	247	381/110.ccls.	(USPAT)	OR	ON	ON	2023/09/25 12:36 PM
L43	779	381/104.ccls.	(USPAT)	OR	ON	ON	2023/09/25 12:37 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
18/224,793	07/21/2023	2695	1820	IPVCP006X1C10D1	14	1

CONFIRMATION NO. 5028

REPLACEMENT FILING RECEIPT

34071
IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

OC000000063175939

Date Mailed: 10/13/2023

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

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David Chao, Saratoga, CA;
C. Douglass Thomas, Saratoga, CA;
Peter P. Tong, Mountain View, CA;

Applicant(s)

IngenioSpec, LLC, San Jose, CA;

Power of Attorney: The patent practitioners associated with Customer Number 34071

Domestic Priority data as claimed by applicant

This application is a DIV of 18/129,660 03/31/2023 PAT 11,803,069
which is a CON of 16/424,018 05/28/2019 PAT 11,630,331
which is a CON of 13/831,419 03/14/2013 PAT 10,345,625
which is a CON of 13/291,020 11/07/2011 PAT 8,430,507
which is a CON of 12/803,732 07/01/2010 PAT 8,434,863
which is a CON of 11/546,685 10/11/2006 PAT 7,806,525
which is a CIP of 11/183,256 07/15/2005 PAT 7,500,747
which claims benefit of 60/592,045 07/28/2004
and claims benefit of 60/605,191 08/28/2004
and claims benefit of 60/618,107 10/12/2004
and claims benefit of 60/620,238 10/18/2004
and claims benefit of 60/647,836 01/31/2005
and claims benefit of 60/647,826 01/31/2005

and said 11/546,685 10/11/2006 claims benefit of 60/725,896 10/11/2005
and claims benefit of 60/725,999 10/11/2005
and claims benefit of 60/787,850 04/01/2006
and claims benefit of 60/846,150 09/20/2006

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/01/2023
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/224,793**
Projected Publication Date: 11/09/2023
Non-Publication Request: No
Early Publication Request: No
Title

HEAD-WORN DEVICE WITH CONNECTION REGION

Preliminary Class

381

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application

serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
18224793	21-Jul-2023	Thomas A. Howell	IPVCP006X1C10D1	5028

TITLE OF INVENTION :

HEAD-WORN DEVICE WITH CONNECTION REGION

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	2695	110000	AMMAR HAMID

Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
$1200	$0	$1200	02-Jan-2024	$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
34071 IPVENTURE, INC. 4010 Moorpark Avenue Suite 211 San Jose CA 95117 UNITED STATES 650-903-9200	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status

Change in Entity Status

○ Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.

○ Applicant asserting small entity status. See 37 CFR 1.27.
Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

◉ Applicant changing to regular undiscounted fee status.
Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:

☒ Issue Fee

☐ I authorize USPTO to apply my previously paid issue fee to the current fees due

☐ Publication Fee

☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____

☒ If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency or credit any overpayment, to Deposit Account Number 503874 . The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed

NOTE: If no name is listed, no name will be printed
For printing on the patent front page, list to be displayed as entered

1.

2.

3.

5.Assignee Name(s) and Residence Data To Be Printed

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

Name	City	State	Country	Category
IngenioSpec, LLC	San Jose	CALIFORNIA	UNITED STATES	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Peter P. Tong/	**Date**	10-23-2023
Name	Peter P. Tong	**Registration Number**	35757

WEB IFEE 1.0

Electronic Patent Application Fee Transmittal

Application Number:	18224793
Filing Date:	21-Jul-2023
Title of Invention:	HEAD-WORN DEVICE WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Filer:	Peter P. Tong/Angela Nijim
Attorney Docket Number:	IPVCP006X1C10D1

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt	
EFS ID:	48733046
Application Number:	18224793
International Application Number:	
Confirmation Number:	5028
Title of Invention:	HEAD-WORN DEVICE WITH CONNECTION REGION
First Named Inventor/Applicant Name:	Thomas A. Howell
Customer Number:	34071
Filer:	Peter P. Tong/Angela Nijim
Filer Authorized By:	Peter P. Tong
Attorney Docket Number:	IPVCP006X1C10D1
Receipt Date:	23-OCT-2023
Filing Date:	21-JUL-2023
Time Stamp:	11:08:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	E20230MB08536104
Deposit Account	503874
Authorized User	Angela Nijim
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.20 (Post Issuance fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Web85b.pdf	60338 035aff31282a8bedcea435e94a8b39ffe4f03e68	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	40582 a4160fc9331e3ce1a23907a5d3c7951ae6813a0e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	100920		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/224,793	11/28/2023	11829518	IPVCP006X1C10D1	5028

34071 7590 11/08/2023

IPVENTURE, INC.
4010 Moorpark Avenue
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San Jose, CA 95117

ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at https://patentcenter.uspto.gov/. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

The USPTO is implementing electronic patent issuance with a transition period, during which period the USPTO will mail a ceremonial paper copy of the electronic patent grant to the correspondence address of record. Additional copies of the patent (i.e., certified and presentation copies) may be ordered for a fee from the USPTO's Certified Copy Center at https://certifiedcopycenter.uspto.gov/index.html. The Certified Copy Center may be reached at (800)972-6382.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Center (https://patentcenter.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional inventors):

Thomas A. Howell, Palo Alto, CA;
David Chao, Saratoga, CA;
C. Douglass Thomas, Saratoga, CA;
Peter P. Tong, Mountain View, CA;

APPLICANT(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional applicants):

IngenioSpec, LLC, San Jose, CA;

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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
18/224,793	07/21/2023	Thomas A. Howell	IPVCP006X1C10D1

CONFIRMATION NO. 5028

34071
IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

PUBLICATION NOTICE



Date Mailed: 11/09/2023

Title:HEAD-WORN DEVICE WITH CONNECTION REGION

Publication No.US-2023-0359266-A1
Publication Date:11/09/2023

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

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In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/224,793	07/21/2023	Thomas A. Howell	IPVCP006X1C10D1	5028

34071 7590 11/28/2023

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EXAMINER	
HAMID, AMMAR T	

ART UNIT	PAPER NUMBER
2695	

MAIL DATE	DELIVERY MODE
11/28/2023	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.
18/224,793	28-Nov-2023	11829518

IPVENTURE, INC.
4010 Moorpark Avenue
San Jose, CA 95117

EGRANT NOTIFICATION

Your electronic patent grant (eGrant) is now available, which can be accessed via Patent Center at https://patentcenter.uspto.gov

The electronic patent grant is the official patent grant under 35 U.S.C. 153. For more information, please visit https://www.uspto.gov/electronicgrants