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(54) **EARPHONE STORAGE CASE, WIRELESS EARPHONE, EARPHONE COMPONENTS AND INTERACTION METHOD FOR EARPHONE COMPONENTS**

(57) Embodiments of this application disclose a headset case, a wireless headset, a headset assembly, and a headset assembly interaction method. The headset case is configured to accommodate the wireless headset; and the headset case includes: a headset case body, a wearable structure, and a first clamping member and a second clamping member that cooperate with each other. The first clamping member is disposed in the headset case body, the second clamping member is disposed on the wearable structure, and the first clamping member and the second clamping member cooperate with each other to enable the headset case body to be detachably clamped on the wearable structure. The wearable structure is disposed in the headset case provided in embodiments of this application, so that the user can carry the headset case anywhere, and wearing comfort and accommodation convenience are improved.

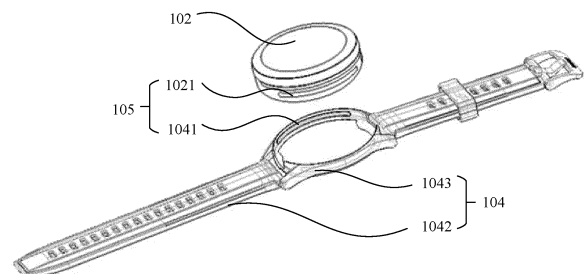


FIG. 7

Description

[0001] This application claims priorities to Chinese Patent Application No. 201910834102.6, filed with the China National Intellectual Property Administration on September 4, 2019 and entitled "HEADSET CASE, WIRELESS HEADSET, HEADSET ASSEMBLY, AND HEADSET ASSEMBLY INTERACTION METHOD", and to Chinese Patent Application No. 201911006678.X, filed with the China National Intellectual Property Administration on October 22, 2019 and entitled "HEADSET CASE, WIRELESS HEADSET, HEADSET ASSEMBLY, AND HEADSET ASSEMBLY INTERACTION METHOD", both of which are incorporated herein by reference in their entireties.

TECHNICAL FIELD

[0002] Embodiments of this application relate to the field of portable device technologies, and in particular, to a headset case, a wireless headset, a headset assembly, and a headset assembly interaction method.

BACKGROUND

[0003] With development of wireless Bluetooth technologies, especially application of a Bluetooth 5.0 technology, a true wireless stereo (True Wireless Stereo, TWS) wireless headset product is becoming increasingly popular in people's life.

[0004] The wireless headset product generally includes two wireless headsets and one case. Because the wireless headsets have small volumes and limited capacities of storage batteries inside the wireless headsets, the wireless headsets usually can be used for only two to four hours after being fully charged once. Therefore, one additional case is required.

[0005] Currently, a headset case on the market needs to occupy specific storage space, can be carried in a few manners, and is inconvenient to carry.

SUMMARY

[0006] Embodiments of this application provide a headset case, a wireless headset, a headset assembly, and a headset assembly interaction method, to resolve a problem that the headset case is inconvenient to carry

[0007] To achieve the foregoing objective, the following technical solutions are used in embodiments of this application.

[0008] According to a first aspect of embodiments of this application, a headset case is provided. The headset case is configured to accommodate a wireless headset, and the headset case includes: a headset case body, a wearable structure, and a first clamping member and a second clamping member that cooperate with each other. The first clamping member is disposed in the headset case body, the second clamping member is disposed on

the wearable structure, and the first clamping member and the second clamping member cooperate with each other to enable the headset case body to be detachably clamped on the wearable structure. Compared with that in the conventional technology, the wearable structure is disposed in the headset case provided in this embodiment of this application, so that a user can carry the headset case anywhere, and wearing comfort and accommodation convenience are improved. In addition, when carrying the headset case anywhere, the user not only can use the headset case to charge the wireless headset at any time, but also can directly take out the wireless headset from the headset case when the wireless headset needs to be used without searching for the wireless headset. It is more convenient to use the wireless headset.

[0009] The headset case is detachably connected to the wearable structure by using the first clamping member and the second clamping member. When the wearable structure of the headset case needs to be replaced, the first clamping member and the second clamping member may be detached, to remove the headset case from a device body of the current wearable structure and replace the current wearable structure with a new wearable structure. A second clamping member is also disposed on the new wearable structure, and the first clamping member of the headset case and the second clamping member of the new wearable structure may be clamped, so that the headset case is detachably re-clamped on the new wearable structure. Therefore, it can be convenient for the user to carry the headset case in a plurality of carrying manners.

[0010] In an optional implementation, the first clamping member is a slot and the second clamping member is a flange, or the first clamping member is a flange and the second clamping member is a slot. In this way, through cooperation between a flange and a slot, the headset case can be detachably clamped on the wearable structure. The structure is simple, it is convenient to change a carrying manner, and a use effect is improved.

[0011] In an optional implementation, the wearable structure includes a wearable part for wearing and an outer frame sleeved on an outer side of the headset case, the second clamping member is disposed in an inner wall of the outer frame, the first clamping member is disposed in an outer wall of the headset case, and the wearable part is fastened on the outer frame. In this way, the outer frame is sleeved on the outer side of the headset case, to improve stability of a connection between the wearable structure and the headset case.

[0012] In an optional implementation, the wearable part includes a wristband, a neckband, or a buckle. In this way, when the wearable part is the wristband, the headset case may be fastened to a wrist of the user; when the wearable part is the neckband, the headset case may be carried in a neck hanging manner; or when the wearable part is the neckband, the headset case may be fixedly connected to carry-on clothes of the user, so that the wireless headset is easy to wear and use.

[0013] In an optional implementation, the headset case body includes a base, where an accommodation cavity for placing the wireless headset is disposed in the base, and the accommodation cavity has a first end corresponding to a head of the wireless headset, a second end corresponding to a tail of the wireless headset, and an inner wall corresponding to a housing of the wireless headset. In this way, the accommodation cavity that adapts to an appearance of the wireless headset is disposed in the headset case, so that the wireless headset can be prevented from being physically damaged by bumping, water immersion, or the like.

[0014] In an optional implementation, a power supply configured to charge the wireless headset is disposed in the base, and charging connectors are disposed in the accommodation cavity. When the wireless headset is in the headset case, the headset case charges the wireless headset. The power supply is electrically connected to the charging connectors through a control circuit. The control circuit is configured to disconnect the power supply from the charging connectors when the wireless headset is disconnected from the charging connectors. In this way, the headset case can charge the wireless headset by disposing the power supply and the charging connectors in the headset case. When the wireless headset is not in the headset case, the control circuit disconnects the power supply from the charging connectors. Even if water enters the headset case, a short circuit does not occur between a positive electrode and a negative electrode even if the positive electrode and the negative electrode are connected, and safety of the headset case is improved.

[0015] In an optional implementation, the charging connectors include a first charging connector and a second charging connector, the first charging connector and the second charging connector are electrically connected to the positive electrode and the negative electrode of the power supply respectively, the first charging connector is disposed at the first end, and the second charging connector is disposed in the inner wall of the accommodation cavity. In this way, the charging connectors are separately disposed at the first end and in the inner wall of the accommodation cavity, so that the wireless headset is more easily connected to the charging connectors.

[0016] In an optional implementation, the headset case body further includes an upper cover, the upper cover is rotatively connected to the base through a rotating shaft, a holding groove used to hold the wireless headset is disposed in the upper cover, and the accommodation cavity and the holding groove jointly form an enclosing cavity for accommodating the wireless headset. In this way, the holding groove is disposed in the upper cover, so that the wireless headset can be protected in the enclosing cavity as a whole, and the wireless headset can be better protected. When the wireless headset needs to be used, a part that is of the wireless headset and that is in the holding groove may be exposed only by opening the upper cover, so that the user can easily reach the

headset.

[0017] In an optional implementation, the enclosing cavity is cylindrical. In this way, an angle does not need to be distinguished when the wireless headset is placed into the box, so that the wireless headset is placed into the box more conveniently. In addition, the enclosing cavity is designed into cylindrical, and an axial section of the enclosing cavity remains unchanged, which can fully use space in a thickness direction of the case.

[0018] In an optional implementation, a control mainboard is disposed in the upper cover, a touchscreen is disposed on an outer side of the upper cover, the touchscreen is electrically connected to the control mainboard, the touchscreen is configured to receive a touch operation input by a user, and the control mainboard is configured to control, in response to the touch operation, the wireless headset to communicate with an external terminal. In this way, the wireless headset actively communicates with the external terminal, to enrich application scenarios of a product and improve user experience.

[0019] According to a second aspect of embodiments of this application, a wireless headset is provided. The wireless headset adapts to the foregoing headset case, and the wireless headset includes a first end and a second end, and a housing connecting the first end and the second end. A sound opening is disposed in a head of the wireless headset, a storage battery is disposed in the housing, a metal dust filter is disposed on the sound opening, and the metal dust filter and the housing are connected to a positive electrode and a negative electrode of the storage battery respectively. Therefore, compared with that in the conventional technology, a structure of the wireless headset is used as a charging connector, and there is no need to design another charging structure on a surface of the wireless headset, to reduce space occupied by the wireless headset, facilitate miniaturization of the headset case, and improve portability of the headset case.

[0020] In an optional implementation, the following devices are sequentially disposed in the housing along a direction away from the sound opening: a first PCB hard board, a second PCB hard board, and a third PCB hard board. The metal dust filter is electrically connected to the first PCB hard board, the first PCB hard board is electrically connected to the second PCB hard board by using a first PCB flexible board, the second PCB hard board is electrically connected to the third PCB hard board by using a second PCB flexible board, the storage battery is located between the second PCB hard board and the third PCB hard board, and the second PCB hard board and the third PCB hard board are electrically connected to the positive electrode and the negative electrode of the storage battery respectively. In this way, the three small-sized PCB hard boards are combined with the PCB flexible boards to reduce a diameter size of a single PCB board. In addition, the three PCB boards ensure a sufficient component layout area, to reduce a diameter of the wireless headset, reduce space occupied by the wireless

headset, facilitate miniaturization of the headset case, and improve portability of the headset case.

[0021] In an optional implementation, an earplug is sleeved at a position that is of the housing and that is close to the sound opening, and the earplug is made of a rubber material or a silicone material. Therefore, when the wireless headset is charged in the case, the earplug is deformed through extrusion of the case, and waterproofing is implemented. In addition, silicone deformation provides reverse thrust, to enable the wireless headset clamp in the case.

[0022] According to a third aspect of embodiments of this application, a headset assembly is provided, including the foregoing headset case and the foregoing wireless headset, where the wireless headset adapts to the headset case. In this way, the headset assembly of the foregoing structure has better portability.

[0023] In an optional implementation, the headset case is configured to receive a first operation of a user, the wireless headset is in the headset case, and the wireless headset is successfully paired with a first terminal. The headset case is configured to connect, in response to the first operation, the wireless headset to the first terminal. In this way, the case is operated to enable the wireless headset actively connect to the terminals, to resolve constraint in the conventional technology that a connection can be operated only by using the terminals, enrich application scenarios of a wireless headset product, and greatly improve user operation experience.

[0024] In an optional implementation, the headset case is further configured to receive a second operation of the user. The headset case is configured to disconnect, in response to the second operation, the wireless headset from the first terminal, and connect the wireless headset to the second terminal, where the second terminal is successfully paired with the wireless headset. When the wireless headset is connected to the first terminal, the second terminal has an incoming call, and the wireless headset needs to be used. In the conventional technology, operations need to be performed on interfaces of the first terminal and the second terminal, steps are complex, and the plurality of terminals need to be operated simultaneously. According to the headset case in this application, the wireless headset and the second terminal may be connected by operating on an interface of the headset case, and the terminals do not need to be operated, which is more convenient and improves user experience.

[0025] According to a fourth aspect of embodiments of this application, a headset assembly interaction method is provided. The headset assembly interaction method is applied to the headset assembly described above. The method includes: A headset case receives a first operation of a user, where a wireless headset is in the headset case, and the wireless headset is successfully paired with a first terminal; and connects, in response to the first operation, the wireless headset to the first terminal.

[0026] In an optional implementation, the wireless

headset is successfully paired with a second terminal. The method further includes: The headset case receives a second operation of the user; and disconnects, in response to a second operation, the wireless headset from the first terminal, and connects the wireless headset to the second terminal.

BRIEF DESCRIPTION OF DRAWINGS

[0027]

FIG. 1a is a schematic diagram of a structure of a headset assembly according to the conventional technology;

FIG. 1b is a schematic diagram of another structure of a headset assembly according to the conventional technology;

FIG. 2A and FIG. 2B are a schematic diagram of a scenario according to the conventional technology;

FIG. 3(a), FIG. 3(b), and FIG. 3(c) are a schematic diagram 1 of a display interface of a terminal device according to the conventional technology;

FIG. 4a is a schematic diagram 2 of a display interface of a terminal device according to the conventional technology;

FIG. 4b(a) and FIG. 4b(b) are a schematic diagram 3 of a display interface of a terminal device according to the conventional technology;

FIG. 5(a), FIG. 5(b), and FIG. 5(c) are a schematic diagram 4 of a display interface of a terminal device according to the conventional technology;

FIG. 6a is a schematic diagram of a disassembly structure of a headset assembly according to an embodiment of this application;

FIG. 6b is a schematic diagram of another disassembly structure of a headset assembly according to an embodiment of this application;

FIG. 7 is a schematic diagram of a disassembly structure of a headset assembly according to an embodiment of this application;

FIG. 7a is a schematic diagram of another disassembly structure of a headset assembly according to an embodiment of this application;

FIG. 8 is a schematic diagram of another disassembly structure of a headset assembly according to an embodiment of this application;

FIG. 8a is a schematic diagram of a disassembly structure of a headset assembly in FIG. 8;

FIG. 8b is a schematic diagram of another disassembly structure of a headset assembly according to an embodiment of this application;

FIG. 9 is a schematic diagram of another structure of a headset assembly according to an embodiment of this application;

FIG. 9a is a schematic diagram of a disassembly structure of a headset assembly in FIG. 9;

FIG. 9b is a schematic diagram of another disassembly structure of a headset assembly according to an

embodiment of this application;

FIG. 10 is a schematic diagram of an internal structure of a headset case according to an embodiment of this application;

FIG. 10a is a schematic diagram of a structure of a headset case according to an embodiment of this application;

FIG. 10b is a sectional view of B-B in FIG. 10a;

FIG. 10c is a sectional view of C-C in FIG. 10a;

FIG. 11 is a schematic diagram of another internal structure of a headset case according to an embodiment of this application;

FIG. 11a is a schematic diagram of a structure of a headset case according to an embodiment of this application;

FIG. 11b is a sectional view of D-D in FIG. 11a;

FIG. 12 is a sectional view of A-A in FIG. 10 and FIG. 11;

FIG. 12a is a schematic diagram of a disassembly structure of a wireless headset according to an embodiment of this application;

FIG. 13 is a schematic diagram of composition of a headset case according to an embodiment of this application;

FIG. 14A and FIG. 14B are a schematic diagram of a scenario according to an embodiment of this application;

FIG. 15 is a flowchart of a pairing method according to an embodiment of this application;

FIG. 16 is a schematic diagram 1 of a display interface of a headset case according to an embodiment of this application;

FIG. 17 is a flowchart of a connection method according to an embodiment of this application; and

FIG. 18 is a schematic diagram 2 of a display interface of a headset case according to an embodiment of this application.

DESCRIPTION OF EMBODIMENTS

[0028] To make the objectives, technical solutions and advantages of embodiments of this application clearer, the following further describes this application in detail with reference to the accompanying drawings. It is clear that embodiments in the following description are merely some but not all of embodiments of this application.

[0029] The following terms "first" and "second" are merely intended for a purpose of description, and shall not be understood as an indication or implication of relative importance or implicit indication of a quantity of indicated technical features. Therefore, a feature limited by "first", "second", or the like may explicitly or implicitly include one or more features. In the description of the present invention, unless otherwise stated, "a plurality of" means two or more than two.

[0030] In addition, in the following embodiments of this application, position terms such as "top" and "bottom" are defined relative to positions of components in the

accompanying drawings. It should be understood that these position terms are relative concepts used for relative description and clarification, and may correspondingly change based on changes in the positions of the components in the accompanying drawings.

[0031] To facilitate understanding of a headset assembly provided in embodiments of this application, the following describes an existing headset assembly with reference to FIG. 1a, FIG. 1b, FIG. 2A, FIG. 2B, FIG. 3(a), FIG. 3(b), FIG. 3(c), FIG. 4a, FIG. 4b(a), FIG. 4b(b), FIG. 5(a), FIG. 5(b), and FIG. 5(c).

[0032] As shown in FIG. 1a and FIG. 1b, the headset assembly includes wireless headsets 200 and a headset case 100 configured to accommodate the wireless headsets 200.

[0033] The wireless headsets 200 include a left-ear headset 2002 and a right-ear headset 2001. The left-ear headset 2002 and the right-ear headset 2001 each are in an irregular shape.

[0034] The headset case 100 in FIG. 1a includes a first accommodation cavity 1001 and a second accommodation cavity 1002 whose length directions are perpendicular to a bottom surface. The headset case 100 in FIG. 1b includes the first accommodation cavity 1001 and the second accommodation cavity 1002 whose length directions are parallel to the bottom surface.

[0035] A shape of the first accommodation cavity 1001 matches an appearance of the right-ear headset 2001, and a shape of the second accommodation cavity 1002 matches an appearance of the left-ear headset 2002.

[0036] Both the left-ear headset and the right-ear headset in FIG. 1a and FIG. 1b need to be placed into left and right slots of the headset case 100 based on specific directions and angles. In addition, the headset case has a large volume and is inconvenient to carry

[0037] FIG. 2A and FIG. 2B are a schematic diagram of a scenario according to the conventional technology. As shown in FIG. 2A and FIG. 2B, a terminal device 300 may communicate with the wireless headsets 200, to implement pairing and connection with the wireless headsets 200. The headset case 100 may charge the wireless headsets 200. An existing wireless headset product cannot actively perform pairing with the terminal device, and can implement pairing and connection with the wireless headsets only through an operation interface of the terminal.

[0038] When Bluetooth apparatuses of the wireless headsets are in an on state, and the wireless headsets are within a searchable range of the terminal, a pairing process between the wireless headsets and the terminal device is shown in FIG. 3(a), FIG. 3(b), and FIG. 3(c). First, as shown in FIG. 3(a), when the terminal is in an unlocked state, a user turns on a Bluetooth switch 1002 of the terminal device on a setting interface 1001 of the terminal. In this case, the terminal device may be used as a primary device, enter a Bluetooth scanning state, and scan a secondary device. The terminal device scans the wireless headsets and displays a list of available de-

vices. For example, names and device types of the available devices are displayed as shown in FIG. 3(b). In this case, the user may perform a trigger operation on a displayed name "wireless headsets 1" 1003.

[0039] After the user performs the trigger operation on the displayed name "wireless headsets 1", the terminal device may send a pairing request to the wireless headsets. After receiving the pairing request, the wireless headsets respond to the pairing request. In this case, as shown in FIG. 3(c), the terminal device receives a pairing response returned by the wireless headsets, the user selects a "pairing" icon 1004, and the wireless headsets are successfully paired with the terminal device.

[0040] In some use scenarios, for example, when existing wireless headsets are connected to a first terminal and a call comes in from a second terminal, or in another scenario in which the wireless headsets need to be used, an operation can be performed only on operation interfaces of the terminals, to disconnect the first terminal from the wireless headsets and connect the wireless headsets to the second terminal.

[0041] Both the first terminal and the second terminal are successfully paired with the wireless headsets. For pairing operations of the first terminal, the second terminal, and the wireless headsets, refer to the pairing process shown in FIG. 3(a), FIG. 3(b), and FIG. 3(c). Details are not described herein again.

[0042] Generally, the first terminal may be disconnected from the wireless headsets in the following manners:

Manner 1: As shown in FIG. 4a, the user turns off the Bluetooth switch 1002 of the first terminal on the setting interface of the first terminal 301.

Manner 2: As shown in FIG. 4b(a), the user taps, on the setting interface of the first terminal 301, a name of an external device that needs to be disconnected, namely, the name "wireless headsets 1" 1003. In this case, as shown in FIG. 4b(b), the first terminal displays a prompt window to ask the user whether the first terminal needs to be disconnected from the wireless headsets 1, and the user taps a "confirm" icon 1005.

[0043] An operation process of connecting the wireless headsets to the second terminal is shown in FIG. 5(a), FIG. 5(b), and FIG. 5(c). First, as shown in FIG. 5(a), when the second terminal 302 is in an incoming call state and displays a function interface for connecting or hanging up a call, the user performs a tap operation on a home (Home) key 1006 included in a navigation bar. In some embodiments, the terminal may display, in response to the tap operation, the setting interface 1001. Then, as shown in FIG. 5(b), a name of an external device that needs to be connected, namely, the name "wireless headsets 1" 1003, is tapped, to connect the wireless headsets 1 to the first terminal. Then, as shown in FIG. 5(c), a call icon 1007 is tapped to return to calling, and a call is answered by using the wireless headsets.

[0044] In the foregoing process, the first terminal 301 first needs to be disconnected from the wireless headsets, and then the second terminal 302 is connected to the wireless headsets. Operation steps are complex, and the plurality of terminals need to be operated simultaneously. Consequently, a mis-operation is easily caused, and user experience is affected.

[0045] Therefore, an embodiment of this application provides an improved headset assembly.

[0046] The following describes a structure of the headset assembly with reference to FIG. 6a, FIG. 6b, FIG. 7, FIG. 7a, FIG. 8, FIG. 8a, FIG. 8b, FIG. 9, FIG. 9a, and FIG. 9b.

[0047] As shown in FIG. 6a, FIG. 6b, FIG. 7, FIG. 7a, FIG. 8, FIG. 8a, FIG. 8b, FIG. 9, FIG. 9a, and FIG. 9b, the headset assembly includes: a headset case configured to accommodate a wireless headset, and the wireless headset.

[0048] The headset case includes a wearable structure 104, a connection component 105, and a headset case body 102 that adapts to the wireless headset. The wearable structure 104 is a general term for a wearable structure developed by intelligently designing daily wear by using a wearable technology. In an implementation of this application, the wearable structure 104 includes but is not limited to a wristband or a neckband. The headset case body 102 may be detachably connected to the wearable structure 104 by using the connection component 105.

[0049] For example, as shown in FIG. 6a, the wearable structure 104 is the wristband, and the connection component 105 includes fixing ears disposed in the headset case body 102. The headset case body 102 is rotatively connected to the wristband by using the fixing ears. During use, the wristband may be fastened to a wrist of the user, and is more convenient to carry.

[0050] For another example, as shown in FIG. 6b, the wearable structure 104 is the neckband, and the connection component 105 includes a fastening ring disposed in the headset case body 102. The neckband passes through the fastening ring, and is connected to the headset case body 102 by using the fastening ring. A carrying manner of neck hanging may be used, and the neckband is more convenient to carry.

[0051] In another implementation of this application, the wearable structure 104 may include, for example, a wearable part 1042 for wearing and an outer frame 1043 sleeved on an outer side of the headset case. The wearable part 1042 is fastened on the outer frame 1043. The headset case body 102 may be detachably connected to the outer frame 1043 of the wearable structure 104 by using the connection component 105.

[0052] The connection component 105 includes, for example, a first clamping member 1021 disposed in the headset case body 102 and a second clamping member 1041 disposed on the wearable structure 104. The first clamping member 1021 cooperates with the second clamping member 1041 to enable the headset case body

102 to be detachably clamped on the wearable structure 104.

[0053] Shapes of the headset case body 102 and the outer frame 1043 are not limited in this embodiment of this application. A shape of a cross section of the headset case body 102 may be circular, square, or the like. The outer frame 1043 matches an appearance of the headset case body 102.

[0054] Positions and specific structures of the first clamping member 1021 and the second clamping member 1041 are not limited in this embodiment of this application. For example, the second clamping member 1041 is disposed in an inner wall of the outer frame 1043, and the first clamping member 1021 is disposed in an outer wall of the case. The first clamping member 1021 may be of a slot structure, and the second clamping member 1041 may be of a flange structure. Alternatively, the first clamping member 1021 may be of a flange structure, and the second clamping member 1041 may be of a slot structure. In this way, through cooperation between a flange and a slot, the headset case can be detachably clamped on the wearable structure. A structure is simple is easy to use, and a use effect improved.

[0055] A specific structure of the wearable part 1042 is not limited in this embodiment of this application. For example, the wearable part 1042 includes but is not limited to a wristband, a neckband, or a buckle.

[0056] In an implementation of this application, as shown in FIG. 7, the cross section of the headset case body 102 is circular, and as shown in FIG. 7a, the cross section of the headset case body 102 is square. The wearable part 1042 is the wristband, and the wristband is fixedly connected to the outer frame 1043 by using the connection component 105. The connection component 105 includes the first clamping member 1021 disposed in the outer wall of the headset case body 102 and the second clamping member 1041 disposed in the inner wall of the outer frame 1043. The first clamping member 1021 is of the slot structure, and the second clamping member 1041 is of the flange structure. During use, the flange structure is clamped into the slot structure, so that the headset case body 102 can be fixedly connected to the wristband. In this way, the wristband can be fastened to the wrist of the user, and is more convenient to carry

[0057] In another implementation of this application, as shown in FIG. 8 and FIG. 8a, the cross section of the headset case body 102 is circular, and as shown in FIG. 8b, the cross section of the headset case body 102 is square. The wearable part 1042 is the neckband, and the neckband is fixedly connected to the outer frame 1043 by using the connection component 105. The connection component 105 includes the first clamping member 1021 disposed in the outer wall of the headset case body 102 and the second clamping member 1041 disposed in the inner wall of the outer frame 1043. The first clamping member 1021 is of the slot structure, and the second clamping member 1041 is of the flange structure. During use, the flange structure is clamped into the slot structure,

so that the headset case can be fixedly connected to the neckband. Therefore, a carrying manner of neck hanging may be used, and the neckband is more convenient to carry

[0058] In another implementation of this application, as shown in FIG. 9 and FIG. 9a, the cross section of the headset case body 102 is circular, and as shown in FIG. 9b, the cross section of the headset case body 102 is square. The wearable part 1042 is the buckle, and the buckle is fixedly connected to the outer frame 1043 by using the connection component 105. The connection component 105 includes the first clamping member 1021 disposed in the outer wall of the headset case body 102 and the second clamping member 1041 disposed in the inner wall of the outer frame 1043. The first clamping member 1021 is of the slot structure, and the second clamping member 1041 is of the flange structure. During use, the flange structure is clamped in the slot, so that the headset case body 102 can be fixedly connected to the buckle. The buckle can be connected to carry-on clothes, and is more convenient to carry

[0059] The headset case is detachably connected to the wearable structure by using the first clamping member and the second clamping member. When the wearable structure connected to the headset case needs to be replaced, the first clamping member and the second clamping member may be first detached, to remove the headset case from the current wearable structure and replace the current wearable structure with a new wearable structure. For example, a second clamping member is also disposed on the new wearable structure, and the first clamping member of the headset case and the second clamping member of the new wearable structure may be clamped, so that the headset case is detachably re-clamped on the new wearable structure. Therefore, the user may change a plurality of wearable structures. It is convenient for the user to carry the headset case in a plurality of carrying manners.

[0060] According to the headset assembly provided in this embodiment of this application, the wearable structure is disposed in the headset case, so that the plurality of carrying manners such as a watchband manner, a neck hanging manner, and a buckle manner can be implemented. In this way, the user can carry the headset case anywhere, and wearing comfort and accommodation convenience are improved. In addition, when carrying the headset case anywhere, the user not only can use the headset case to charge the wireless headset at any time, but also can directly take out the wireless headset from the headset case when the wireless headset needs to be used without searching for the wireless headset. It is more convenient to use the wireless headset.

[0061] The following describes a structure of the headset case with reference to FIG. 10, FIG. 10a, FIG. 10b, FIG. 10c, FIG. 11, FIG. 11a, and FIG. 11b, and describes a structure of the wireless headset with reference to FIG. 10, FIG. 11, FIG. 12, and FIG. 12a.

[0062] As shown in FIG. 10, in an implementation of

this application, the cross section of the headset case body 102 is circular. The headset case body 102 includes a base 1023, and accommodation cavities 10231 for placing wireless headsets 103 are disposed on the base 1023. The wireless headsets 103 are disposed in the accommodation cavities 10231.

[0063] The headset case body 102 further includes an upper cover 1022, where the upper cover 1022 is rotatively connected to the base 1023 through a rotating shaft 1024. Holding grooves 10221 used to hold the wireless headsets are disposed in the upper cover 1022, and the accommodation cavities 10231 and the holding grooves 10221 jointly form enclosing cavities for accommodating the wireless headsets 103. A length direction of the enclosing cavity is perpendicular to an axis of the rotating shaft 1024.

[0064] As shown in FIG. 11, in another implementation of this application, the cross section of the headset case body 102 is square, and the accommodation cavity 10231 on the base 1023 and the holding groove 10221 in the upper cover 1022 form the enclosing cavity. The length direction of the enclosing cavity is parallel to the axis of the rotating shaft 1024.

[0065] In this way, the holding groove is disposed in the upper cover; and when the wireless headsets need to be used, parts that are of the wireless headsets and that are in the holding groove may be exposed only by opening the upper cover, so that the user can easily reach the headset.

[0066] Then, refer to FIG. 10. The wireless headsets 103 each include a head 10301 and a tail 10302 that are opposite to each other, and a housing 1031 connecting the head 10301 and the tail 10302.

[0067] The headset case body 102 includes the two accommodation cavities, and each accommodation cavity 10231 includes, for example, a first end 01 and a second end 02 that are opposite to each other, and an inner wall 03 connecting the first end 01 and the second end 02. The head 10301 of the wireless headset adapts to the first end 01 of the accommodation cavity, and the tail 10302 of the wireless headset adapts to the second end 02 of the accommodation cavity. The housing 1031 of the wireless headset adapts to a shape of the inner wall 03 of the accommodation cavity 10231. When the wireless headsets 103 each are placed into the box, the head of the wireless headset 102 may contact the first end of the accommodation cavity, and the tail 10302 of the wireless headset 103 may contact the second end 02 of the accommodation cavity.

[0068] The headset case body 102 in FIG. 11 includes one accommodation cavity 10231, and the accommodation cavity 10231 includes, for example, a first end 01 and a second end 02 that are opposite to each other, and an inner wall 03 connecting the first end 01 and the second end 02. The accommodation cavity 10231 may accommodate the two wireless headsets 103 simultaneously. When the wireless headsets 103 are placed into the box, tails 10302 of the two wireless headsets 103

may be placed into the accommodation cavity 10231 against each other, so that heads 10301 of the two wireless headsets each are in contact with the first end 01 and the second end 02 of the accommodation cavity respectively.

[0069] A shape of the wireless headset 103 is not limited in this embodiment of this application. For example, the housing 1031 of the wireless headset 103 is columnar, and an axial section of the housing 1031 is, for example, circular. A shape of the inner wall of the accommodation cavity 10231 adapts to the shape of the wireless headset 1031.

[0070] Therefore, compared with the conventional technology in which wireless headsets each are in an irregular shape and left and right ears need to be distinguished, in the headset assembly provided in this embodiment of this application, the wireless headsets each are designed in a cylindrical shape, so that the wireless headsets do not need to distinguish the left and right ears, and do not need to be placed at an angle when being worn and placed into the box. In this way, the wireless headsets are worn and placed into the box more conveniently.

[0071] Then, refer to FIG. 10a, FIG. 10b, FIG. 10c, FIG. 11a, and FIG. 11b. The upper cover 1022 of the headset case body 102 provided in this application further includes a control mainboard 1020 and a touchscreen 1027. The touchscreen 1027 is electrically connected to the control mainboard 1020. The touchscreen 1027 is configured to receive a touch operation input by the user, and the control mainboard 1020 is configured to control, in response to the touch operation, the wireless headsets 103 to communicate with an external terminal.

[0072] In this way, the wireless headsets 103 actively communicate with the external terminal, to enrich application scenarios of the product and improve user experience.

[0073] Specific arrangement manners of the control mainboard, a power supply, and the wireless headsets in the headset case are not limited in this embodiment of this application. In an implementation of this application, as shown in FIG. 10c, the enclosing cavities 10231 on the base 1023 are located on two sides of the power supply 1025. The control mainboard 1020 is located between the two holding grooves 10221 of the upper cover 1022. The power supply 1025 and the control mainboard 1020 are disposed opposite to each other, and the wireless headsets 103 are located on the two sides of the power supply 1025 and two sides of the control mainboard 1020, so that the power supply 1025 and the control mainboard 1020 can hold the wireless headsets 103 in a thickness direction. This avoids that total thickness of the case 102 is not increased after the wireless headsets 103 are placed into the case 102.

[0074] In another implementation of this application, as shown in FIG. 11b, the power supply 1025 and the enclosing cavity 10231 on the base 1023 are sequentially arranged in a direction away from the rotating shaft 1024.

The control mainboard 1020 and the holding groove 10221 in the upper cover 1022 are sequentially arranged away from the rotating shaft 1024. The power supply 1025 and the control mainboard 1020 are disposed opposite to each other, and the wireless headsets 103 are outside the power supply 1025 and the control mainboard 1020, so that the power supply 1025 and the control mainboard 1020 can hold the wireless headsets 103 in a thickness direction. This avoids that the total thickness of the case 102 is not increased after the wireless headsets 103 are placed into the case 102.

[0075] In this way, the wireless headsets 103, the power supply 1025, and the control mainboard 1020 are stacked at different layers. This facilitates miniaturization of the headset case and improves portability of the headset case.

[0076] As shown in FIG. 12 and FIG. 12a, a rear cover 1033 is disposed at the tail 10302 of the wireless headset 103, and a cavity is formed by the housing 1031 and the rear cover 1033.

[0077] A speaker 1035, a first PCB hard board 1036, a second PCB hard board 1037, a storage battery 1034, and a third PCB hard board 1038 are sequentially disposed in the cavity along a direction close to the rear cover 1033. The speaker 1035, the first PCB hard board 1036, the second PCB hard board 1037, the storage battery 1034, and the third PCB hard board 1038 are parallel to an axis of the housing 1031 along the axis of the housing 1031.

[0078] The speaker 1035 is electrically connected to the first PCB hard board 1036. For example, the speaker 1035 is welded to the first PCB hard board 1036.

[0079] The first PCB hard board 1036 is electrically connected to the second PCB hard board 1037 by using a first PCB flexible board 1030, and the second PCB hard board 1037 is electrically connected to the third PCB hard board 1038 by using a second PCB flexible board 1039.

[0080] The storage battery 1034 is located between the second PCB hard board 1037 and the third PCB hard board 1038, and the second PCB hard board 1037 and the third PCB hard board 1038 are electrically connected to a positive electrode and a negative electrode of the storage battery 1034 respectively.

[0081] Therefore, in this embodiment of this application, the three small-sized PCB hard boards are combined with the PCB flexible boards to reduce a diameter size of a single PCB board. In addition, the three PCB boards ensure a sufficient component layout area, to reducing a diameter of the wireless headset 103.

[0082] In addition, the speaker 1035 of the wireless headset is directly welded to the PCB board, and does not need to be transferred through a cable or the PCB flexible board, to save transfer space and reduce a size in a length direction of the wireless headset. In this way, space occupied by the wireless headset 103 in the headset case 102 is reduced, miniaturization of the headset case 102 is implemented, and portability of the headset case is improved.

[0083] A connection structure between the storage battery 1034 and the second PCB hard board 1037 and a connection structure between the storage battery 1034 and the third PCB hard board 1038 are not limited in this embodiment of this application. For example, the storage battery 1034 of the wireless headset 103 is, for example, a circular button storage battery. The positive and negative electrodes of the storage battery 1034 are connected to the second PCB hard board 1037 and the third PCB hard board 1038 by using, for example, a first metal sheet 10341 and a second metal sheet 10342 respectively.

[0084] The first metal sheet 10341 and the second metal sheet 10342 may be used as the positive and negative electrodes of the storage battery 1034. The first metal sheet 10341 and the second metal sheet 10342 each include a step and a clamping member that are disposed in a direction away from the storage battery 1034. The step and the clamping member may be configured to support the second PCB hard board 1037 and the third PCB hard board 1038.

[0085] The second PCB hard board 1037 and the third PCB hard board 1038 are disposed on the step; and the step is configured to support the second PCB hard board 1037 and the third PCB hard board 1038, and limit a distance between the second PCB hard board 1037 and the storage battery 1034 and a distance between the third PCB hard board 1038 and the storage battery 1034.

[0086] Edges of the second PCB hard board 1037 and the third PCB hard board 1038 are provided with notches, and positions of the notches correspond to positions of the clamping members of the first metal sheet 10341 and the second metal sheet 10342 respectively. The clamping member of the first metal sheet 10341 and the notch of the second PCB hard board 1037 may be welded together, and the clamping member of the second metal sheet 10342 and the notch of the third PCB hard board 1038 may be welded together.

[0087] Therefore, the first metal sheet 10341 and the second metal sheet 10342 not only may be used as the electrodes of the storage battery 1034, but also may be used as fastening supports of the second PCB hard board 1037 and the third PCB hard board; and no additional support needs to be designed. The size of the wireless headset in the length direction is saved.

[0088] A structure and a position of a charging connector of the wireless headset 103 are not limited in this embodiment of this application. For example, a sound opening is disposed in the head 10301 of the wireless headset 103, and for example, a metal dust filter 10351 is disposed on the sound opening. The metal dust filter 10351 may be electrically connected to the first metal sheet 10341 of the storage battery 1034 by using the first PCB hard board 1036, the first PCB flexible board 1030, and the second PCB hard board 1037 in sequence.

[0089] The housing 1031 is, for example, made of a metal material. For example, a metal spring plate is further disposed on the housing 1031. The housing 1031 may be electrically connected to the second metal sheet

10342 of the storage battery 1034 by using the metal spring plate, the second PCB flexible board 1039, and the third PCB hard board 1038.

[0090] In this way, the metal dust filter 10351 and the housing 1031 of the wireless headset 103 may be used as a positive-electrode charging connector and a negative-electrode charging connector of the wireless headset 103 respectively. There is no need to design another charging structure on the surface of the wireless headset, to reduce space occupied by the wireless headset, facilitate miniaturization of the headset case, and improve portability of the headset case.

[0091] The structure and the position of the charging connector of the headset case are not limited in this embodiment of this application. As shown in FIG. 10c and FIG. 11, the power supply 1025 configured to charge the wireless headset is disposed in the base 1023 of the headset case body 102. A first charging connector 001 and a second charging connector 002 are disposed in the accommodation cavity 10231. The first charging connector 001 and the second charging connector 002 are electrically connected to the positive electrode and the negative electrode of the power supply 1025 respectively. The first charging connector 001 is disposed, for example, at the first end 01 of the accommodation cavity, and the second charging connector 002 is disposed, for example, in the inner wall 03 of the accommodation cavity.

[0092] When the wireless headset 103 is charged by using the headset case body 102, a charging loop may be formed provided that the head 10301 of the wireless headset contacts the first end 01 of the accommodation cavity, and the housing 1031 of the wireless headset contacts the inner wall 03 of the accommodation cavity 10231.

[0093] Therefore, when the wireless headsets are in the headset case, the headset case can charge the wireless headsets.

[0094] To avoid a short circuit caused by water penetration into the headset case body 102 when the wireless headset is taken out, the headset case body 102 further includes, for example, a control circuit. The power supply 1025 is electrically connected to the first charging connector 001 and the second charging connector 002 through the control circuit. The control circuit is configured to disconnect the power supply 1025 from the first charging connector 001 and the second charging connector 002 when the wireless headset is disconnected from the first charging connector 001 and the second charging connector 002.

[0095] Therefore, when the wireless headset 103 is not in the headset case body 102, the control circuit disconnects the power supply 1025 from the first charging connector 001 and the second charging connector 002, and even if water enters the headset case 102, the short circuit is not caused.

[0096] In addition, an earplug 1032 is further sleeved at a position that is of the housing 1031 of the wireless

headset and that is close to the sound opening, and a material of the earplug 1032 may be an elastic material such as rubber or silica gel.

[0097] Therefore, when the wireless headset is charged in the case, the earplug 1032 is deformed through extrusion of the case 102, and waterproofing is implemented. In addition, deformation of the earplug provides reverse thrust, to enable the wireless headset clamp in the case 102.

[0098] FIG. 13 is a schematic diagram of composition of a headset case according to an embodiment of this application. As shown in FIG. 13, the headset case body 102 may include components such as the control mainboard 1020, the power supply 1025, a radio frequency (Radio Frequency, RF) circuit 1026, the touchscreen 1027, a memory 1028, and one or more sensors 1029. These components may communicate with each other through one or more communication buses or signal cables, or may be directly connected.

[0099] A person skilled in the art may understand that the structure of the headset case shown in FIG. 12 does not constitute a limitation on the headset case, and the headset case may include more components than those shown in the figure, combine some components, or have different component arrangements.

[0100] The control mainboard 1020 is a control center of the headset case body 102, is connected to various parts of the headset case body 102 through various interfaces and lines, and executes various functions of the headset case body 102 and processes data by running or executing an application (Application, App) stored in the memory and invoking data and instructions stored in the memory. In some embodiments, the control mainboard 1020 may include one or more processing units; and the control mainboard 1020 may further integrate an application processor and a modem processor. The application processor mainly processes an operating system, a user interface, an application, and the like. The modem processor mainly processes wireless communication. It can be understood that the modem processor may not be integrated into the control mainboard 1020.

[0101] The touchscreen 1027 may be referred to as a touch display panel, is configured to implement input and output functions of the headset case, can collect a touch operation of the user on or near the touchscreen 1027 (for example, an operation of the user on or near the touchscreen 1027 by using any proper object or accessory such as a finger or a stylus), and drives a corresponding connection apparatus based on a preset program. The touchscreen 1027 may be further configured to display information entered by the user or information provided for the user (for example, an image captured by using a camera), and various menus of the headset case. For example, the touchscreen 1027 may be implemented in various manners, such as a resistive manner, a capacitive manner, an infrared light sensing manner, and an ultrasonic manner. This is not limited in this embodiment of this application. The operation performed by

the user near the touchscreen 1027 may be referred to as floating touch; and a touchscreen on which the floating touch can be performed may be implemented in the capacitive manner, the infrared light sensing manner, the ultrasonic manner, and the like.

[0102] For example, in this embodiment of this application, the touchscreen 1027 may include a detection module 10272 and a display module 10271. The detection module 10272 may detect the touch operation performed by the user on the touchscreen 1027, and may transmit a parameter generated by the touchscreen 1027 after the touch operation is performed on the touchscreen 1027 to the control mainboard 1020 (for example, it is assumed that the touchscreen 1027 is implemented in the capacitive manner, the detection module 10272 may transmit a changed parameter on the touchscreen 1027 to the control mainboard 1020, and the change parameter is a size, a shape, a quantity, and a distribution status of a capacitor whose capacitance value changes), so that a processor 802 performs corresponding processing based on the touch operation. The display module 10271 may display the information entered by the user, the information provided by the headset case body 102 for the user, the various menus of the headset case body 102, and the like.

[0103] The memory may be configured to store data, a software program, and a module, and control the mainboard 1020 to run the data, the software program, and the module that are stored in the memory, to perform various function applications and data processing of the headset case body 102, for example, perform the fingerprint entering method provided in embodiments of this application. The memory may mainly include a program storage area and a data storage area. The program storage area may store an operating system, an application program required by at least one function (for example, a voice playing function and an image playing function), and the like. The data storage area may store data (for example, audio data and an address book) and the like created based on use of the headset case body 102. In addition, the memory may be a volatile memory (Volatile Memory), for example, a random-access memory (Random-Access Memory, RAM) or a high-speed random access memory; or a non-volatile memory (Non-Volatile Memory), for example, a magnetic memory device, a flash memory device, a read-only memory (Read-Only Memory, ROM), a flash memory (Flash Memory), a hard disk drive (Hard Disk Drive, HDD), or a solid-state drive (Solid-State Drive, SSD); or a combination of the foregoing types of memories. In the foregoing embodiments, the operating system stored in the memory may be an iOS® operating system developed by Apple, an Android® open source operating system developed by Google, a Windows® operating system developed by Microsoft, or the like.

[0104] The power supply 1025 may be a storage battery, and is logically connected to the control mainboard 1020 by using a management system of the power supply

1025, to implement functions such as charging management, discharging management, and power consumption management by using the management system of the power supply 1025.

[0105] The RF circuit may be configured to receive and send a signal in an information receiving and sending process or a calling process. Particularly, the RF circuit sends received downlink information of a base station to the control mainboard 1020 for processing, and sends designed uplink data to the base station. The RF circuit usually includes but is not limited to an antenna, at least one amplifier, a transceiver, a coupler, a low noise amplifier (Low Noise Amplifier, LNA), a duplexer, and the like. In addition, the RF circuit may further communicate with a network and another device through wireless communication. The wireless communication may use any communication standard or protocol, including any one or any combination of the following: a global system for mobile communication (Global System of Mobile communication, GSM), a general packet radio service (General Packet Radio Service, GPRS), code division multiple address (Code Division Multiple Access, CDMA), wideband code division multiple access (Wideband Code Division Multiple Access, WCDMA), long term evolution (Long Term Evolution, LTE), an email, a short message service (Short Message Service, SMS), and the like.

[0106] The headset case body 102 may further include at least one sensor, such as an optical sensor, a speed sensor, a global position system (Global Position System, GPS) sensor, and another sensor. Specifically, the optical sensor may include an ambient optical sensor and a proximity sensor. The ambient optical sensor may adjust luminance of a display panel based on luminance of ambient light. The proximity sensor may turn off the display panel and/or backlight when the headset case body 102 is moved to the ear. As a type of the speed sensor, an accelerometer sensor may detect magnitudes of accelerations of the headset case body 102 in various directions (generally three axes), may detect magnitudes and directions of gravity when the headset case body 102 is still, may be used in an application used to identify a posture of the headset case body 102 (such as a landscape/portrait screen switching application, a related game, and a magnetometer posture calibration application) and an application used to implement a vibration recognition related function (such as a pedometer and a knock), and the like. Other sensors such as a gyroscope, a barometer, a hygrometer, a thermometer, an infrared sensor, and a pressure sensor may be further configured on the headset case body 102. Details are not described herein again.

[0107] Based on the foregoing description, the headset case body 102 has call and Internet access functions, and the user can operate the case by using the touchscreen 1027.

[0108] FIG. 14A and FIG. 14B are a schematic diagram of a scenario according to an embodiment of this application. As shown in FIG. 14A and FIG. 14B, the headset

case body 102 not only may be configured to charge the wireless headsets 103, but also may communicate with the wireless headsets 103. The user may control, by using the headset case body 102, the wireless headsets 103 to actively establish a Bluetooth connection to a terminal device 101.

[0109] A first application scenario: It is assumed that the wireless headsets are in the headset case, a Bluetooth apparatus on the terminal device is in an enabled state, and the wireless headsets are successfully paired with the terminal device. For a pairing process between the wireless headsets and the terminal device, refer to FIG. 3(a), FIG. 3(b), and FIG. 3(c). Details are not described herein again. The user may perform a first operation on the headset case, and the headset case controls, in response to the first operation, the wireless headsets to actively establish a Bluetooth connection to the terminal device.

[0110] With reference to FIG. 15 and the application scenario, the following describes in detail an operation method for controlling a connection between the wireless headsets and the terminal by using the headset case according to an embodiment of this application.

[0111] S101: The headset case receives the first operation of the user, where the wireless headsets are in the headset case, and the wireless headsets are successfully paired with a first terminal.

[0112] The first operation is used to trigger the wireless headsets disposed in the headset case body 102 to connect to the first terminal. For example, the first operation may be a first operation performed by the user on the touchscreen 1027 of the headset case body 102, for example, a tap operation.

[0113] S102: The headset case body 102 connects, in response to the first operation, the wireless headsets to the first terminal.

[0114] The headset case body 102 may open, in response to the first operation, an application associated with a control. The terminal displays a function interface of the application associated with the control.

[0115] For example, the headset case body 102 starts, in response to the tapping operation performed by the user on a Bluetooth icon, a Bluetooth application associated with the Bluetooth icon. For example, the first operation includes: as shown in FIG. 16(a), tapping the Bluetooth icon 2001 displayed on the touchscreen 1027 of the headset case body 102 to trigger a function interface associated with the Bluetooth icon 2001; and then, as shown in FIG. 16(b), tapping a Bluetooth switch 2002 displayed on the function interface to start Bluetooth apparatuses of the wireless headsets. As shown in FIG. 16(c), the headset case body 102 displays a list of paired devices, where the list of paired devices displays names and device types of terminal devices that have been paired with the wireless headsets. In this case, the user may perform a trigger operation on a displayed name "first terminal" 2003, in other words, connect the wireless headsets to the first terminal.

[0116] The wireless headsets in this application may be bidirectionally connected to the terminal device. The wireless headsets may be connected to the terminal (for a connection process, refer to FIG. 3(a), FIG. 3(b), and FIG. 3(c)), or the wireless headsets may be controlled, by using the case, to actively connect to the terminal. This resolves constraint that a connection can be operated only by using the terminal, enriches application scenarios of the wireless headset product, and improves user experience.

[0117] In some other embodiments of this application, the case may be operated by using the touchscreen, so that the wireless headsets "actively" switch a connection among a plurality of terminals, to meet call requirements in different scenarios.

[0118] A second application scenario: The wireless headsets are in the headset case, and the wireless headsets are successfully paired with both the first terminal and the second terminal. For a pairing process of the wireless headsets and the second terminal, refer to FIG. 3(a), FIG. 3(b), and FIG. 3(c). Details are not described herein again. In this case, the wireless headsets are connected to the first terminal, and the wireless headsets need to be used when the second terminal receives an incoming call.

[0119] The following provides specific descriptions with reference to FIG. 17 and the application scenario.

[0120] S201: The headset case receives a second operation of the user.

[0121] The second operation is used to implement that the wireless headsets "actively" switch the connection among the plurality of terminals. For example, the second operation may be a tap operation performed by the user on the touchscreen 1027 of the headset case.

[0122] S202: The headset case disconnects, in response to the second operation, the wireless headsets from the first terminal, and connects the wireless headsets to the second terminal.

[0123] For example, the second operation includes: as shown in FIG. 18(a), tapping the Bluetooth icon 2001 displayed on the touchscreen of the headset case body 102 to trigger the function interface associated with the Bluetooth icon; and then, as shown in FIG. 18(b), tapping a "second terminal" 2003 in the list of paired devices, to disconnect the wireless headsets from the first terminal, and connect the wireless headsets to the second terminal.

[0124] In the conventional technology, switching operations among the wireless headsets and the terminals need to be performed on terminal interfaces of the plurality of terminals, and steps are complex. According to the headset assembly interaction method provided in this embodiment of this application, the wireless headsets can actively switch among the plurality of terminals provided that an operation is performed on the interface of the headset case. Steps are simple and operations are convenient, and user experience is improved.

[0125] The foregoing descriptions are merely specific

implementations of this application, but are not intended to limit the protection scope of this application. Any variation or replacement within the technical scope disclosed in this application shall fall within the protection scope of this application. Therefore, the protection scope of this application shall be subject to the protection scope of the claims.

Claims

1. A headset case, wherein the headset case is configured to accommodate a wireless headset, and the headset case comprises: a headset case body, a wearable structure, and
a first clamping member and a second clamping member that cooperate with each other, wherein the first clamping member is disposed in the headset case body, the second clamping member is disposed on the wearable structure, and the first clamping member and the second clamping member cooperate with each other to enable the headset case body to be detachably clamped on the wearable structure.
2. The headset case according to claim 1, wherein the first clamping member is a slot and the second clamping member is a flange, or the first clamping member is a flange and the second clamping member is a slot.
3. The headset case according to claim 1 or 2, wherein the wearable structure comprises a wearable part for wearing and an outer frame sleeved on an outer side of the headset case, the second clamping member is disposed in an inner wall of the outer frame, the first clamping member is disposed in an outer wall of the headset case, and the wearable part is fastened on the outer frame.
4. The headset case according to claim 3, wherein the wearable part comprises a wristband, a neckband, or a buckle.
5. The headset case according to any one of claims 1 to 4, wherein the headset case body comprises a base, wherein an accommodation cavity for placing the wireless headset is disposed in the base, and the accommodation cavity has a first end corresponding to a head of the wireless headset, a second end corresponding to a tail of the wireless headset, and an inner wall corresponding to a housing of the wireless headset.
6. The headset case according to claim 5, wherein a power supply configured to charge the wireless headset is disposed in the base, charging connectors are disposed in the accommodation cavity, and the power supply is electrically connected to the

charging connectors through a control circuit; and when the wireless headset is in the headset case, the power supply charges the wireless headset by using the charging connectors, and when the wireless headset is disconnected from the charging connectors, the control circuit disconnects the power supply from the charging connectors.

7. The headset case according to claim 6, wherein the charging connectors comprise a first charging connector and a second charging connector, the first charging connector and the second charging connector are electrically connected to a positive electrode and a negative electrode of the power supply respectively, the first charging connector is disposed at the first end, and the second charging connector is disposed in the inner wall of the accommodation cavity.
8. The headset case according to any one of claims 5 to 7, wherein the headset case body further comprises an upper cover, the upper cover is rotatively connected to the base through a rotating shaft, a holding groove used to hold the wireless headset is disposed in the upper cover, and the accommodation cavity and the holding groove jointly form an enclosing cavity for accommodating the wireless headset.
9. The headset case according to claim 8, wherein the enclosing cavity is cylindrical.
10. The headset case according to claim 8 or 9, wherein a control mainboard is disposed in the upper cover, a touchscreen is disposed on an outer side of the upper cover, the touchscreen is electrically connected to the control mainboard, the touchscreen is configured to receive a touch operation input by a user, and the control mainboard is configured to control, in response to the touch operation, the wireless headset to communicate with an external terminal.
11. A wireless headset, wherein the wireless headset adapts to the headset case according to any one of claims 1 to 10, the wireless headset comprises a head and a tail, and a housing connecting the head and the tail, and the housing is configured to electrically connect to a second charging connector of the headset case;

a sound opening is disposed in the head of the wireless headset, a metal dust filter is disposed on the sound opening, and the metal dust filter is configured to electrically connect to a first charging connector of the headset case; and a storage battery is disposed in the housing, wherein the metal dust filter and the housing are electrically connected to a positive electrode and a negative electrode of the storage battery

respectively.

12. The wireless headset according to claim 11, wherein the following devices are sequentially disposed in the housing along a direction away from the sound opening: a first PCB hard board, a second PCB hard board, and a third PCB hard board, wherein the metal dust filter is electrically connected to the first PCB hard board, the first PCB hard board is electrically connected to the second PCB hard board by using a first PCB flexible board, the second PCB hard board is electrically connected to the third PCB hard board by using a second PCB flexible board, the storage battery is located between the second PCB hard board and the third PCB hard board, and the second PCB hard board and the third PCB hard board are electrically connected to the positive electrode and the negative electrode of the storage battery respectively. 5
13. The wireless headset according to claim 11 or 12, wherein an earplug is sleeved at a position that is of the housing and that is close to the sound opening, and the earplug is made of a rubber material or a silicone material. 10
14. A headset assembly, comprising the headset case according to any one of claims 1 to 10 and the wireless headset according to any one of claims 11 to 13, wherein the wireless headset adapts to the headset case. 15
15. The headset assembly according to claim 14, wherein the headset case is configured to receive a first operation of a user, the wireless headset is in the headset case, and the wireless headset is successfully paired with a first terminal; and the headset case is configured to connect, in response to the first operation, the wireless headset to the first terminal. 20
16. The headset assembly according to claim 15, wherein a second terminal is successfully paired with the wireless headset; 25
- the headset case is further configured to receive a second operation of the user; and the headset case is configured to disconnect, in response to the second operation, the wireless headset from the first terminal, and connect the wireless headset to the second terminal. 30
17. A headset assembly interaction method, wherein the headset assembly interaction method is applied to the headset assembly according to any one of claims 14 to 16, and the method comprises: 35

receiving, by a headset case, a first operation

of a user, wherein a wireless headset is in the headset case, and the wireless headset is successfully paired with a first terminal; and connecting, in response to the first operation, the wireless headset to the first terminal.

18. The headset assembly interaction method according to claim 17, wherein the wireless headset is successfully paired with a second terminal, and the method further comprises: 40

receiving, by the headset case, a second operation of the user; and disconnecting, in response to the second operation, the wireless headset from the first terminal, and connecting the wireless headset to the second terminal. 45

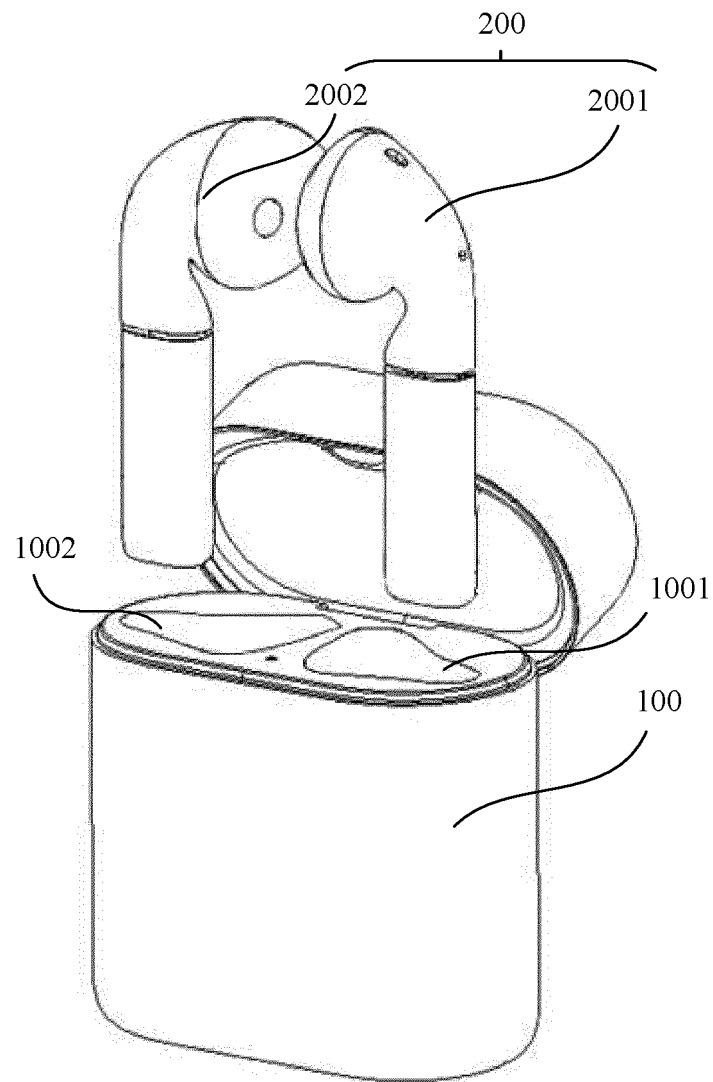


FIG. 1a

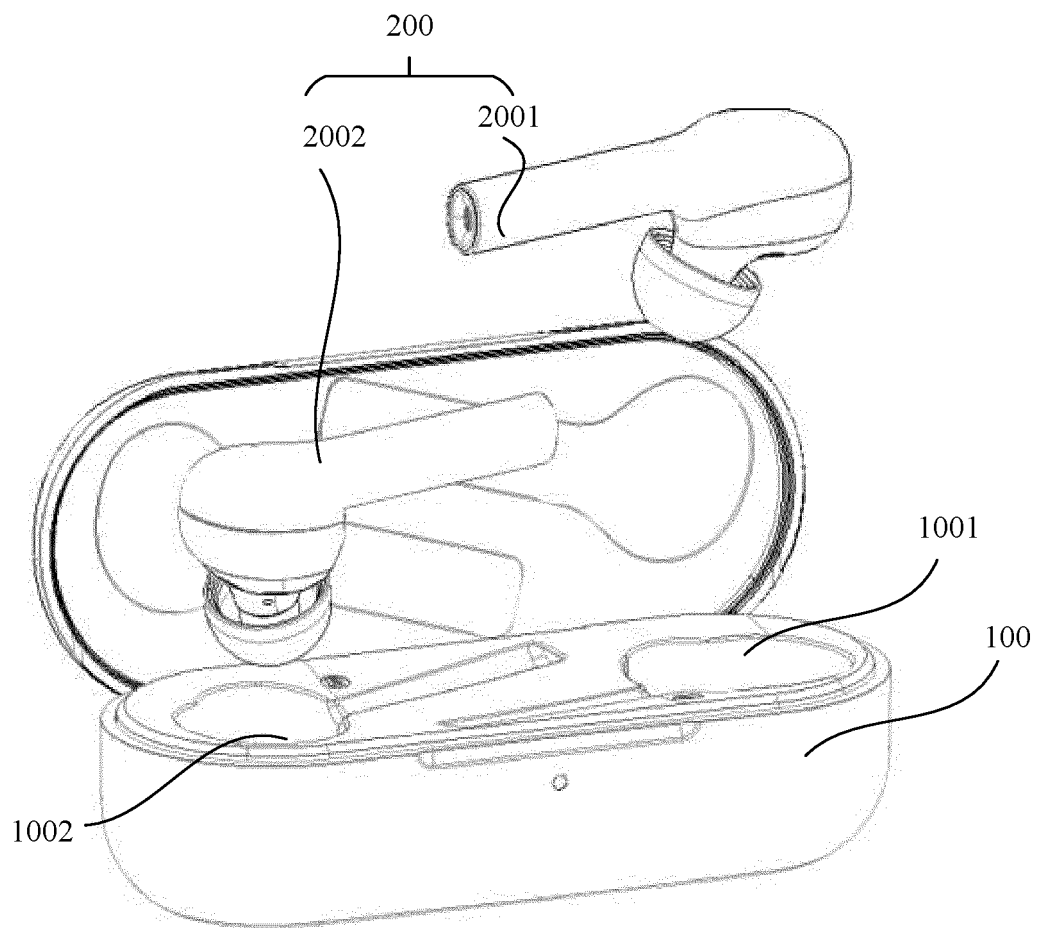
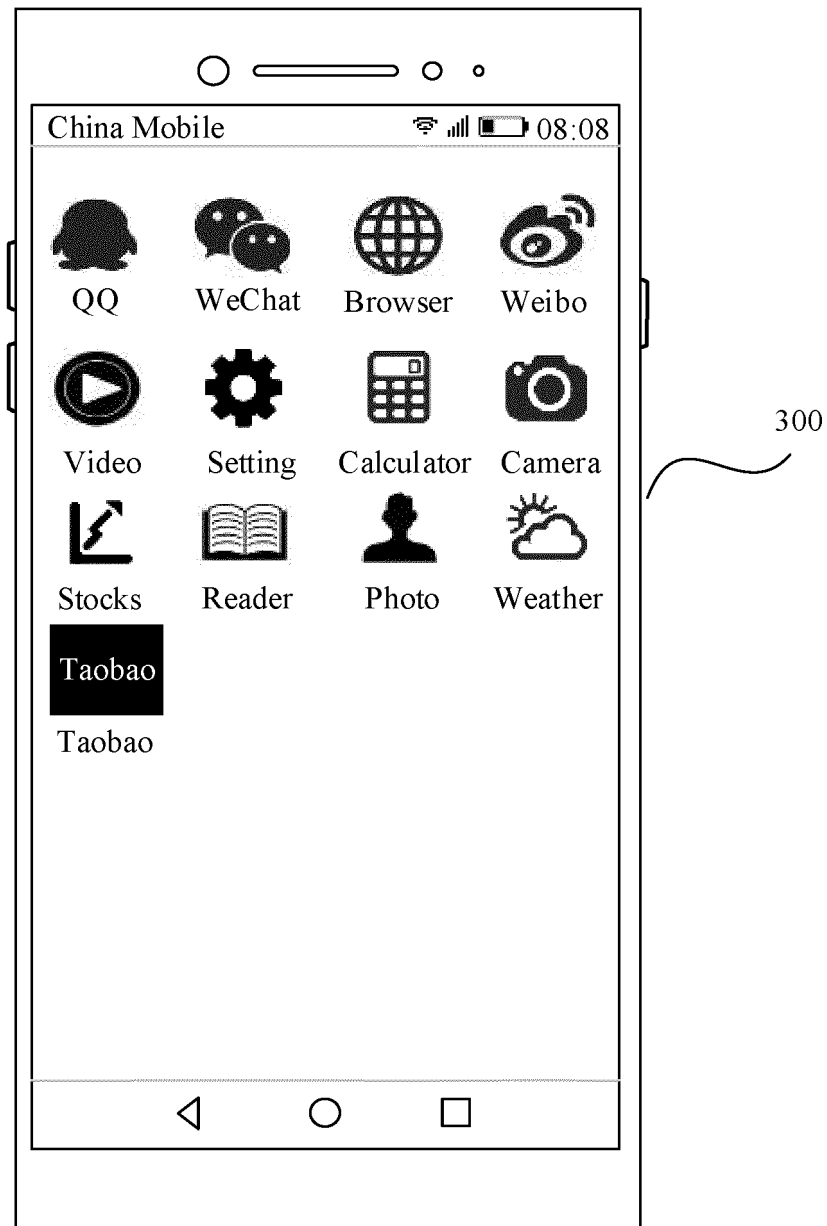


FIG. 1b



~
TO
FIG. 2B

FIG. 2A

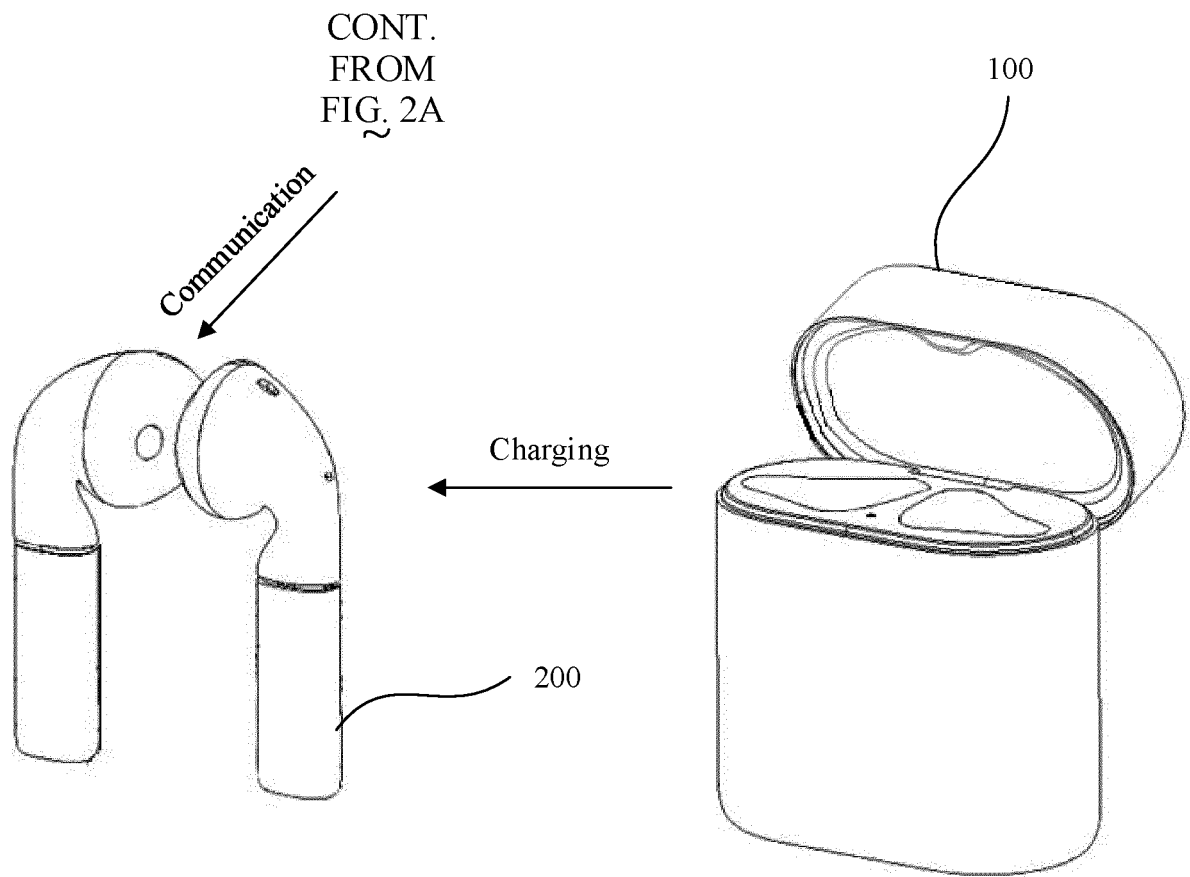


FIG. 2B

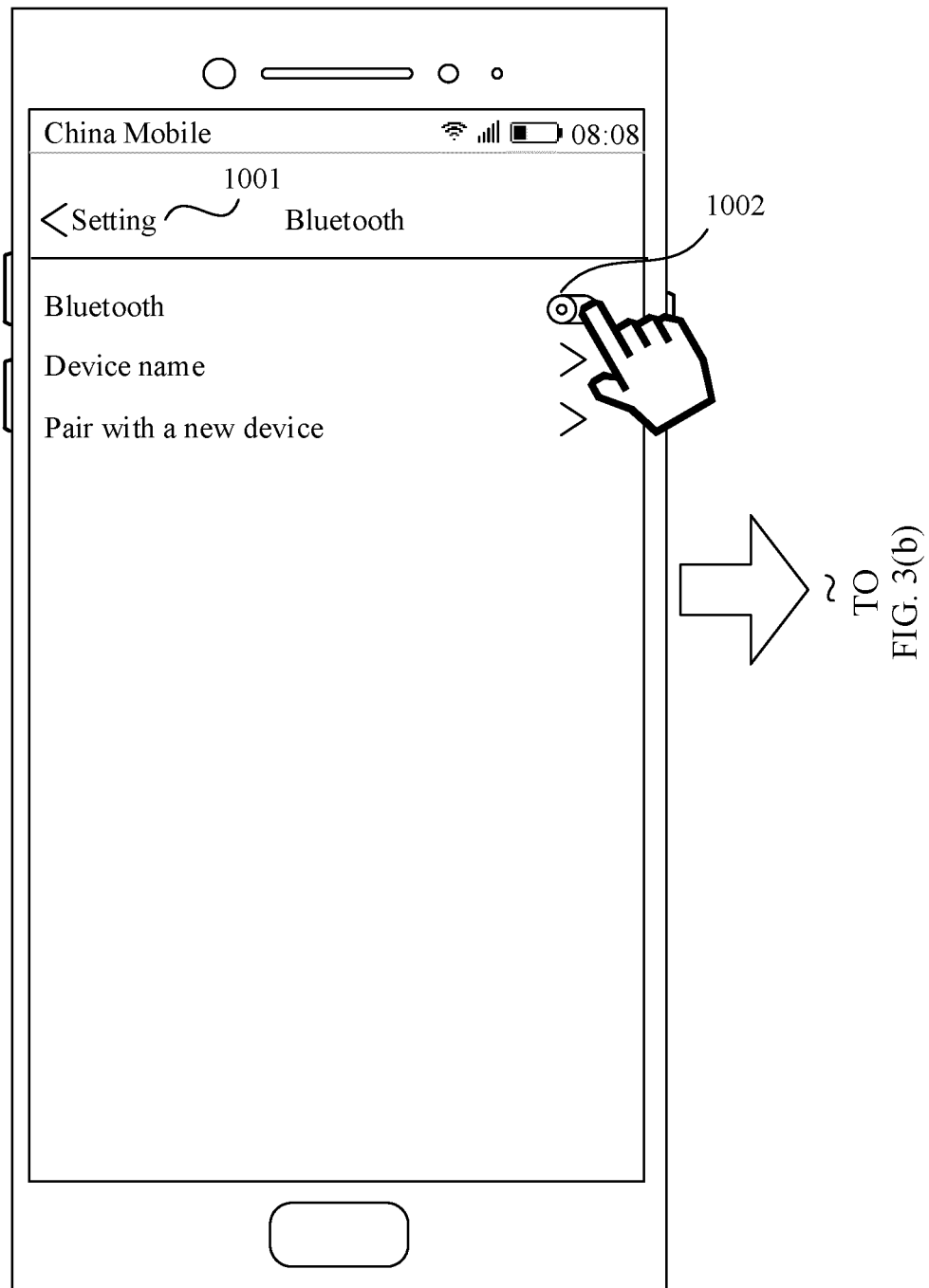
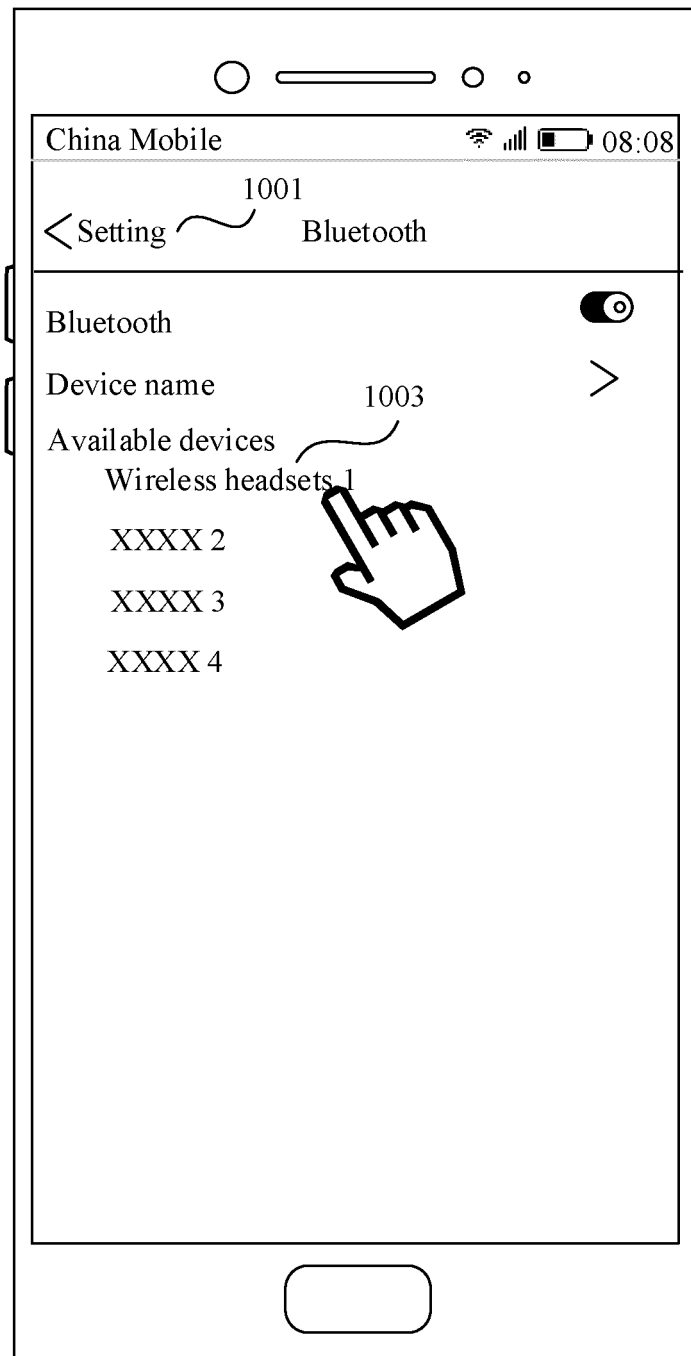


FIG. 3(a)

CONT.
FROM
FIG. 3(a)



~
TO
FIG. 3(c)

FIG. 3(b)

CONT.
FROM
FIG. 3(b)

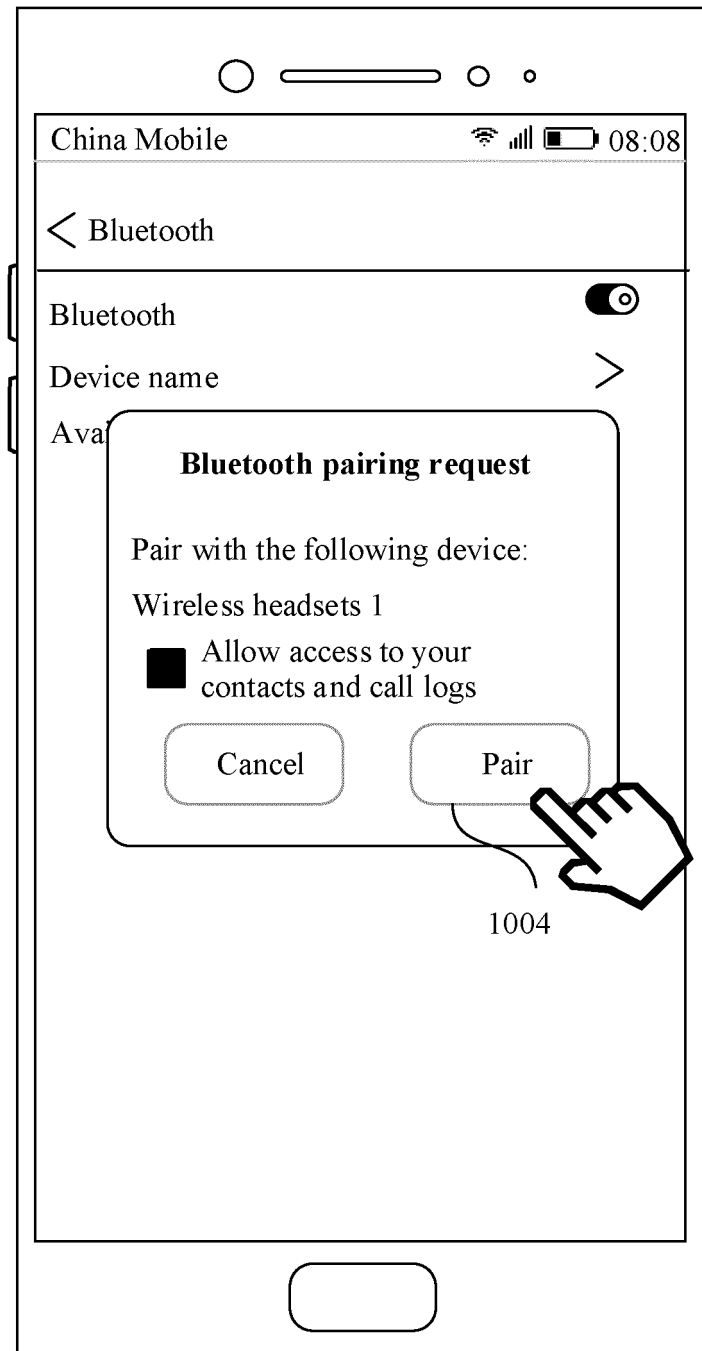
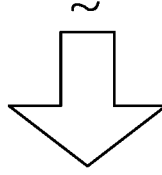


FIG. 3(c)

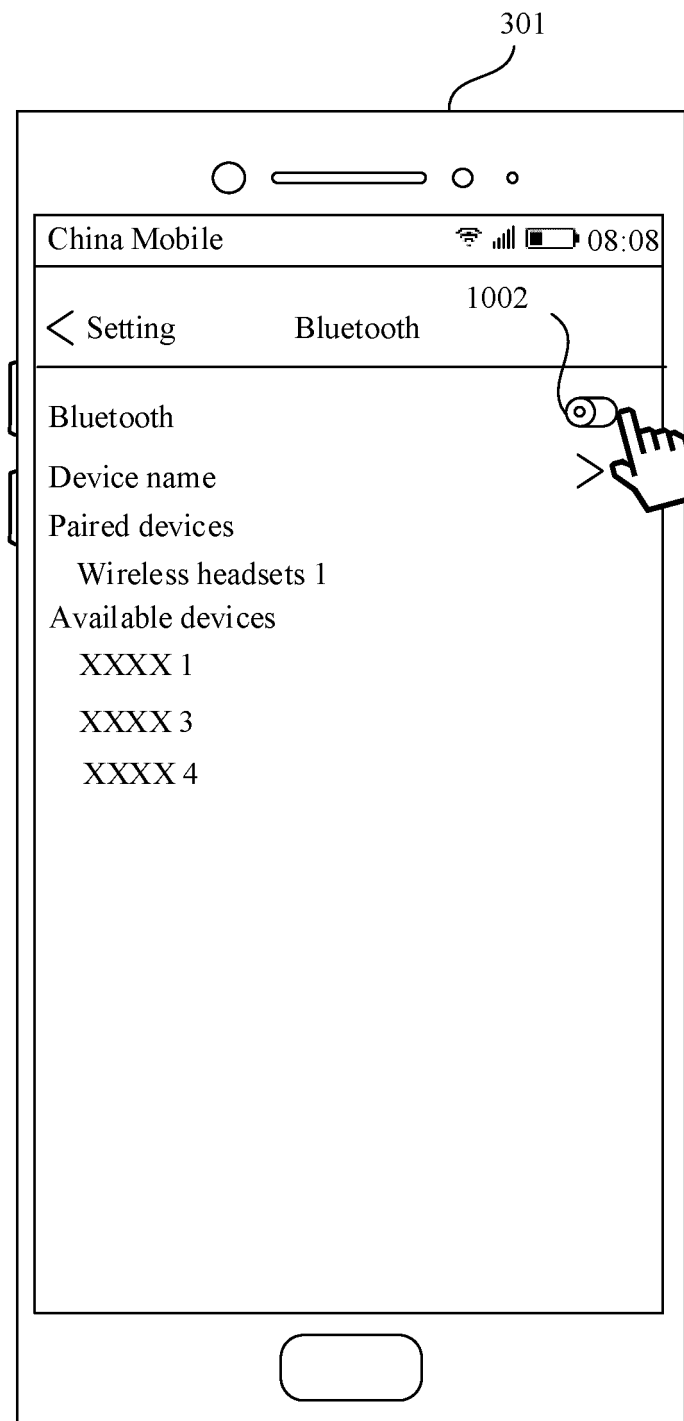
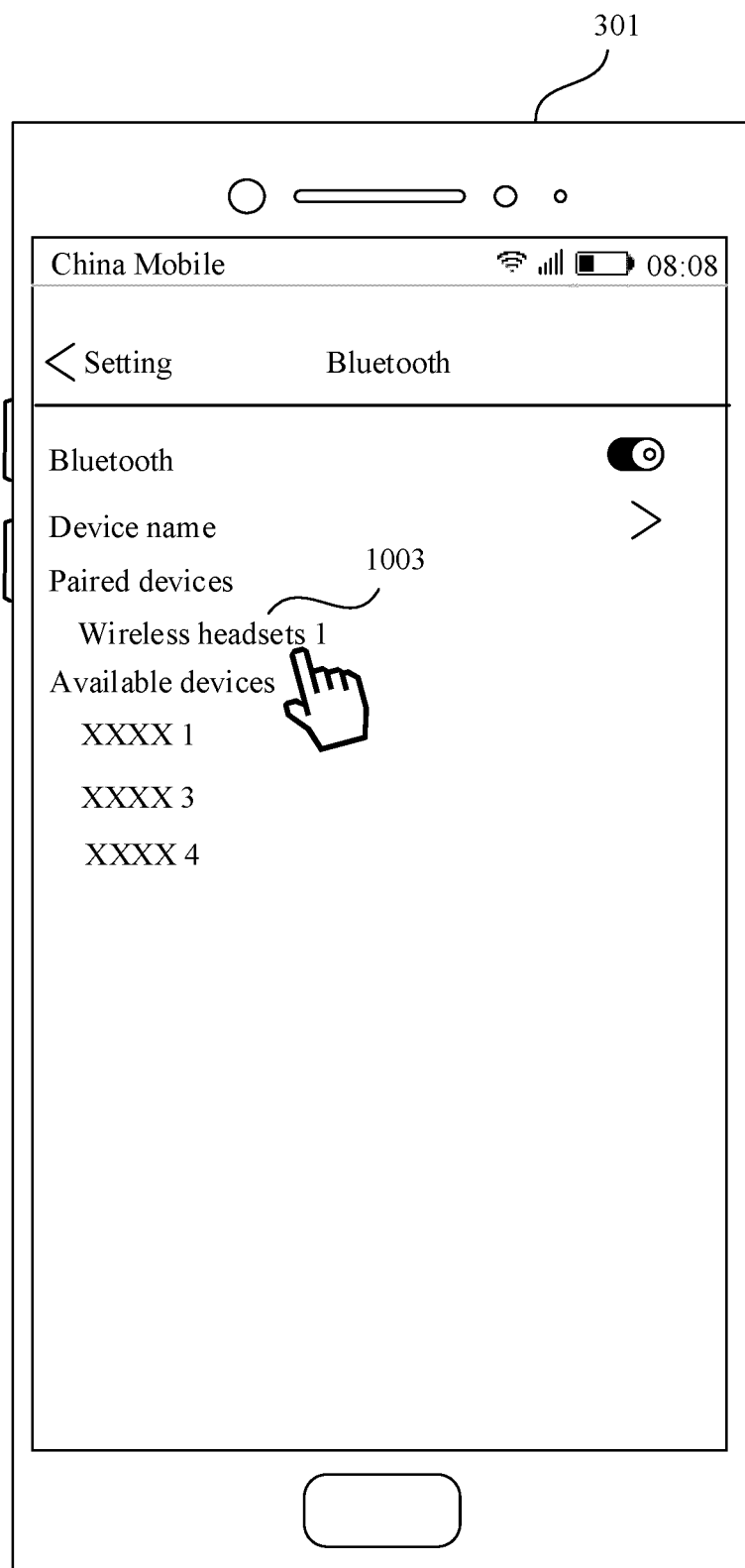
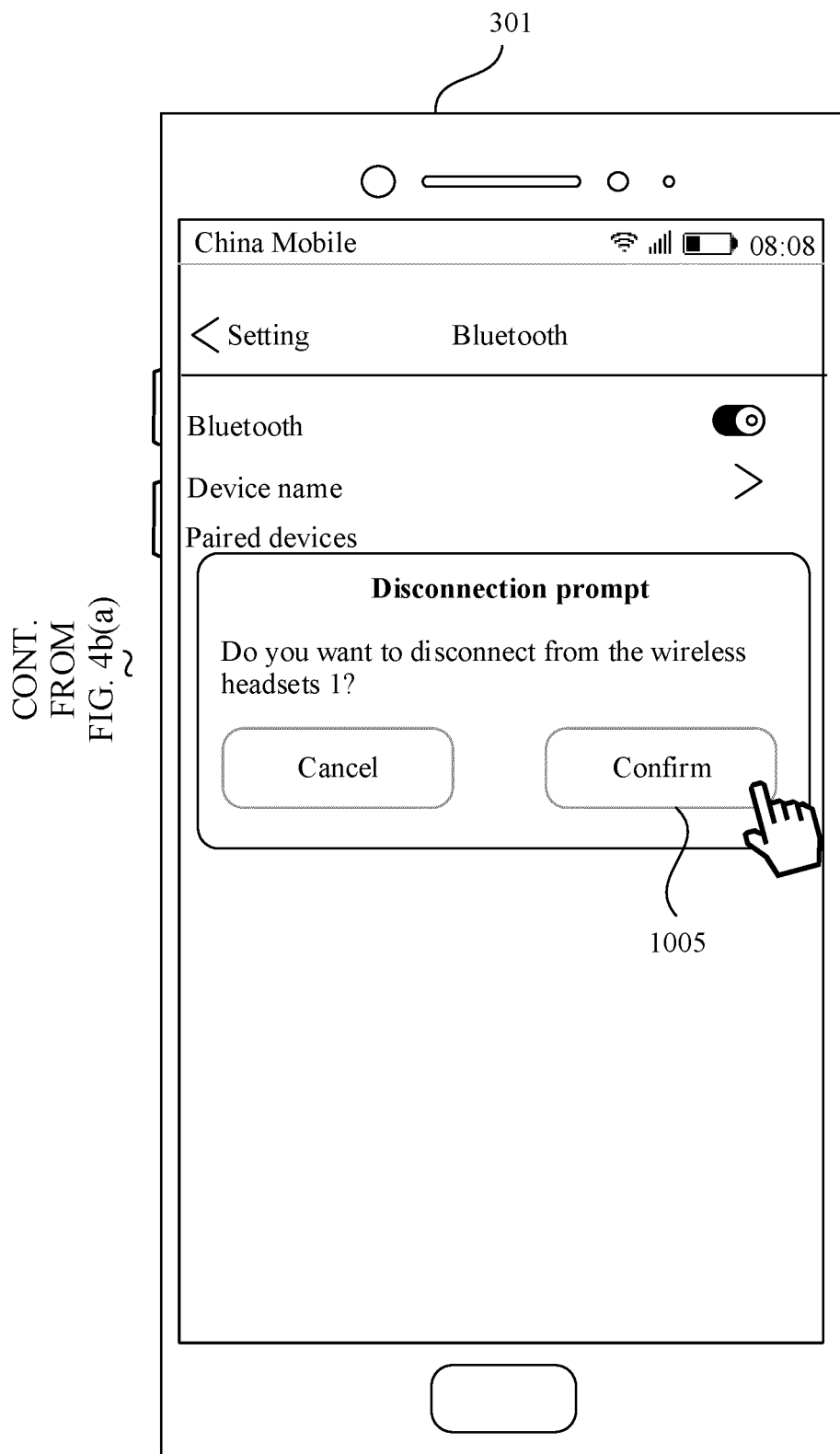


FIG. 4a



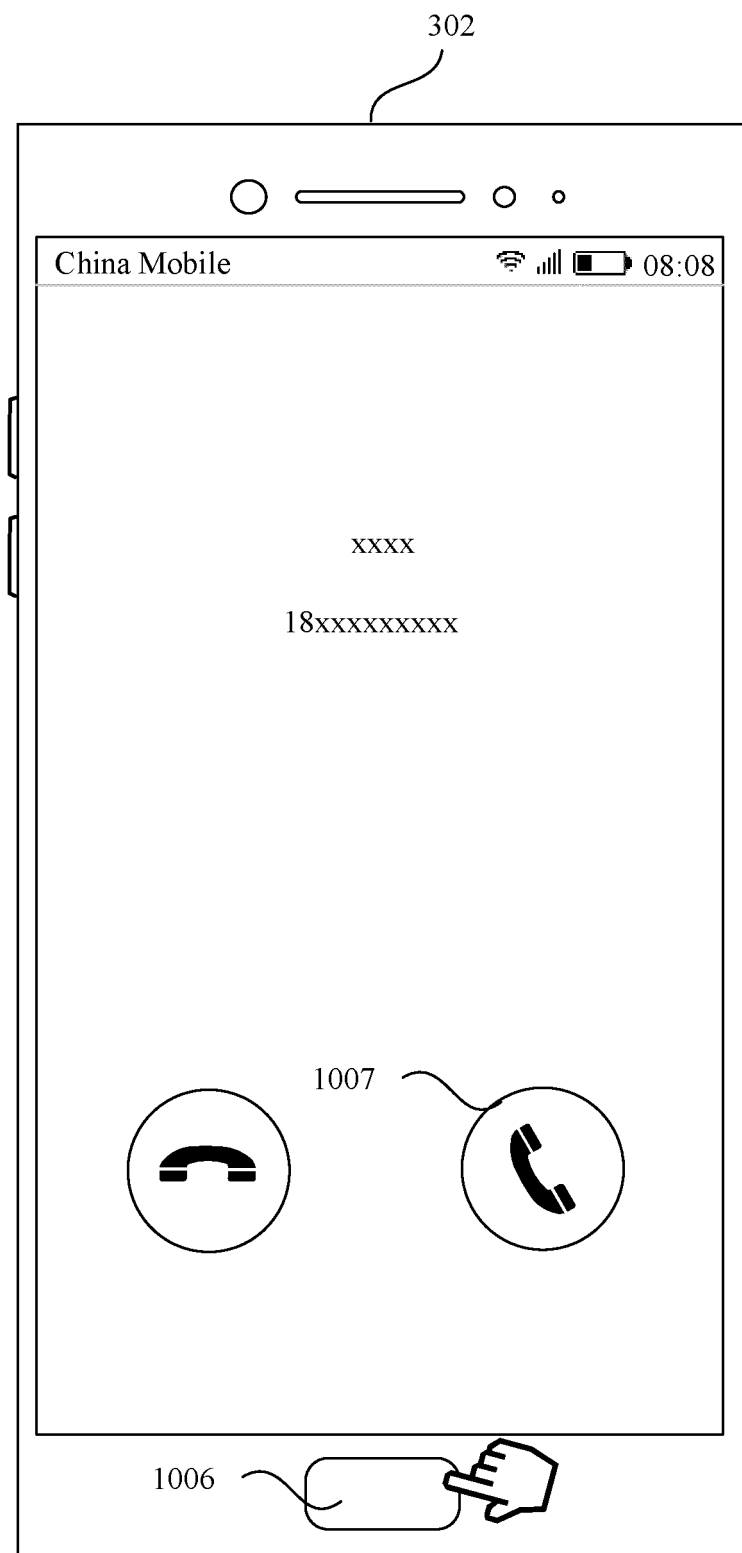
TO
FIG. 4b(b)

FIG. 4b(a)



CONT.
FROM
FIG. 4b(a)

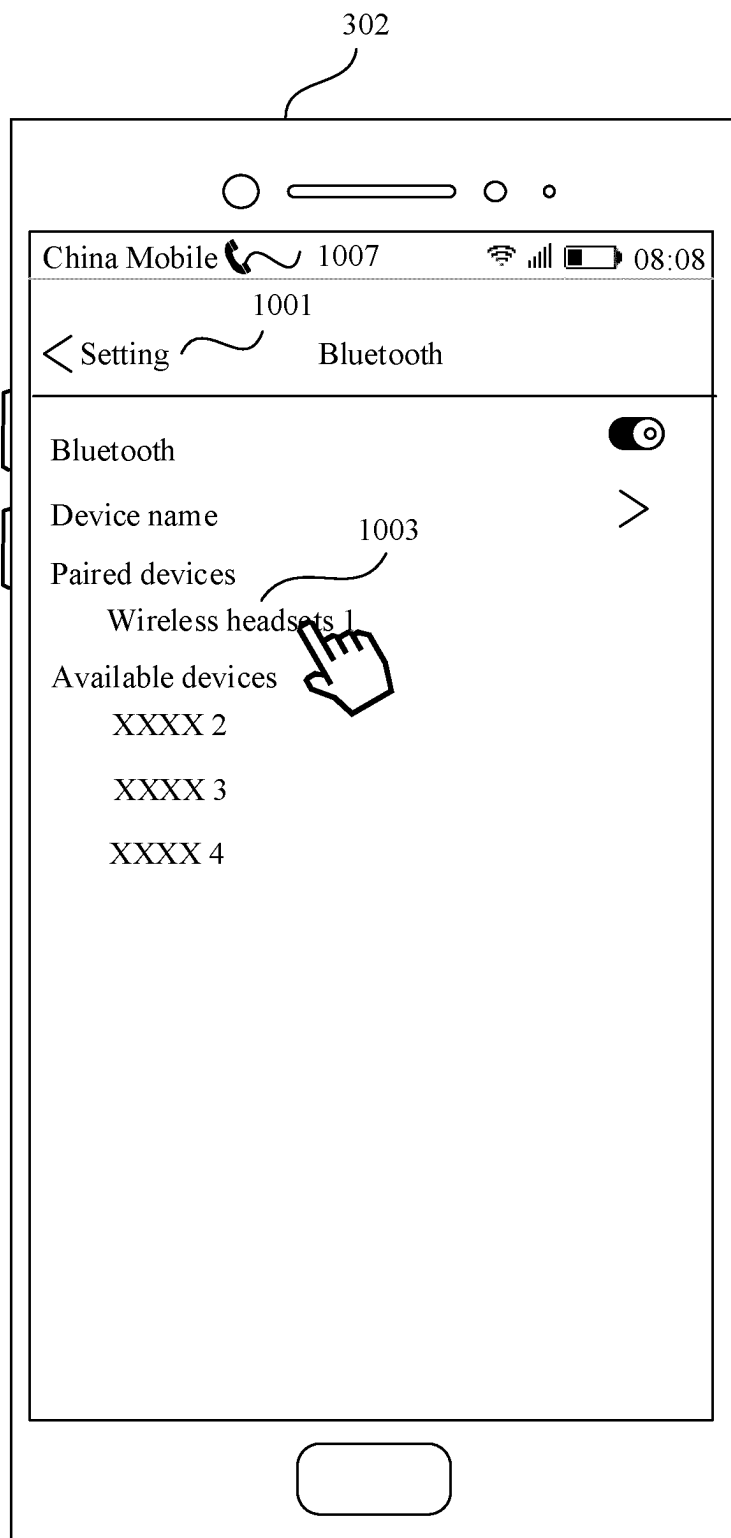
FIG. 4b(b)



→ TO
FIG. 5(b)

FIG. 5(a)

CONT.
FROM
FIG. 5(a)



~
TO
FIG. 5(c)

FIG. 5(b)

CONT.
FROM
FIG. 5(b)

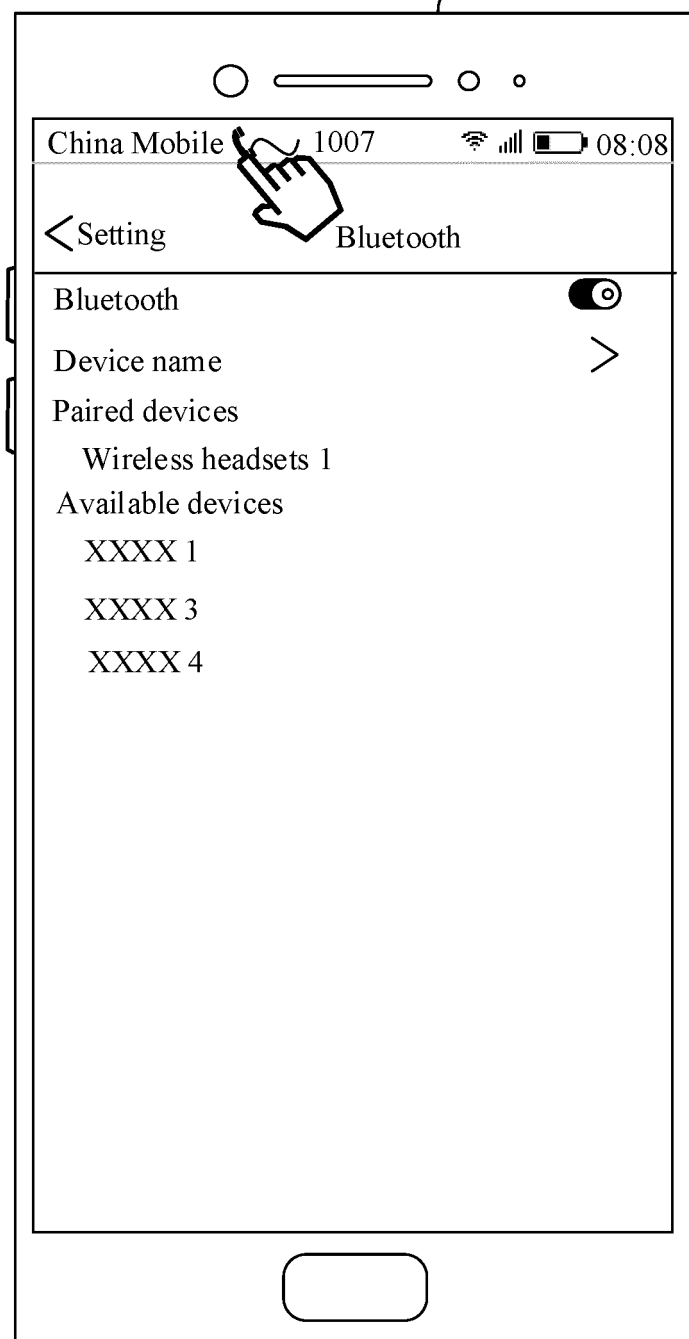
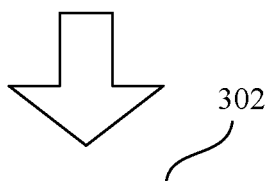


FIG. 5(c)

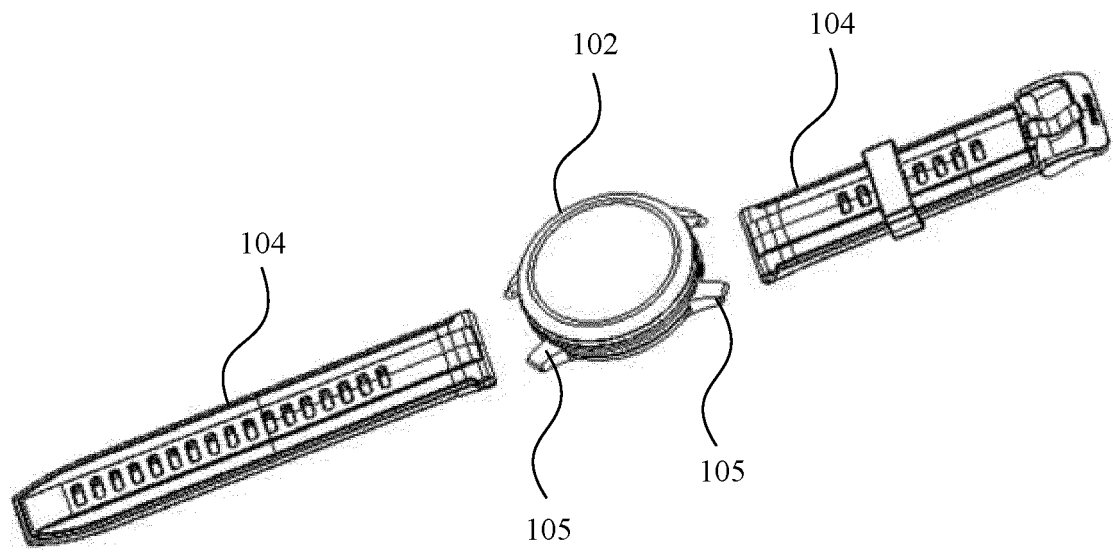


FIG. 6a

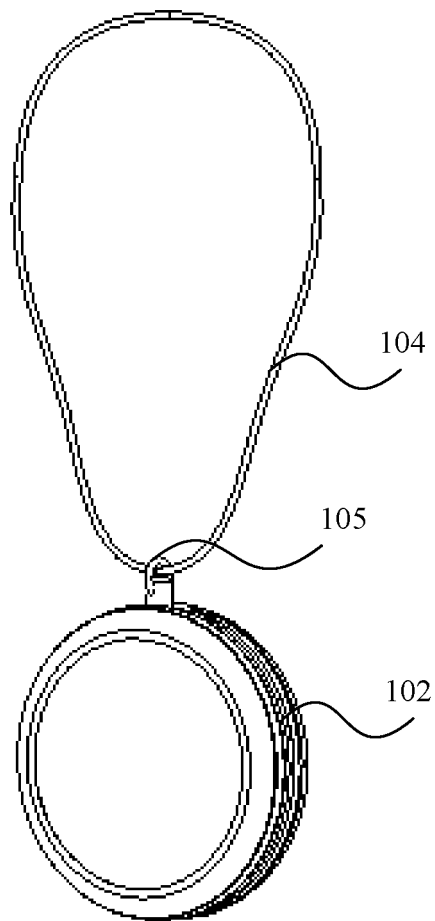


FIG. 6b

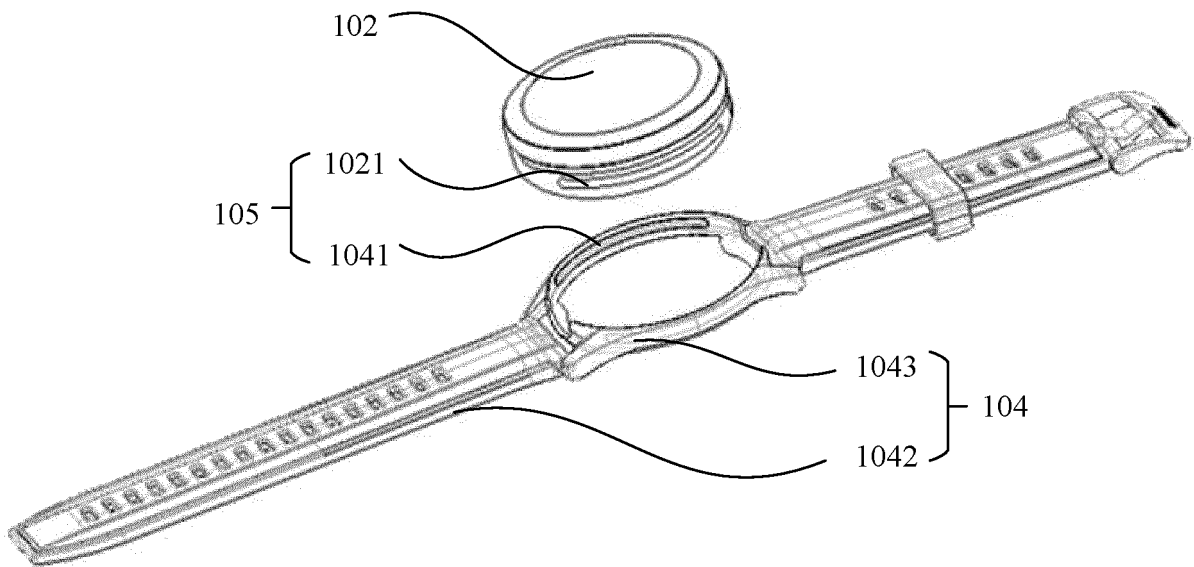


FIG. 7

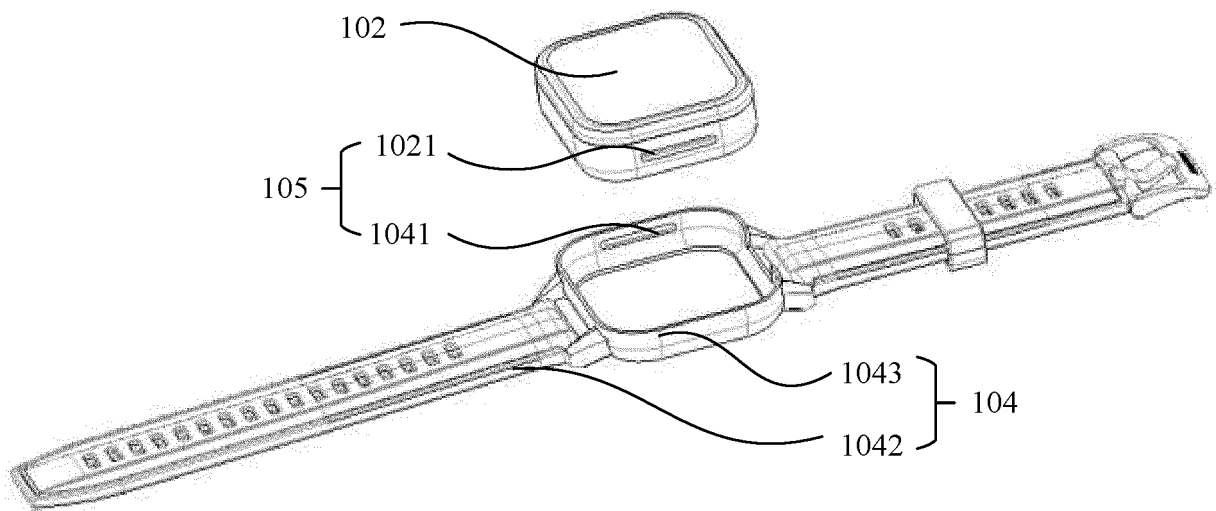


FIG. 7a

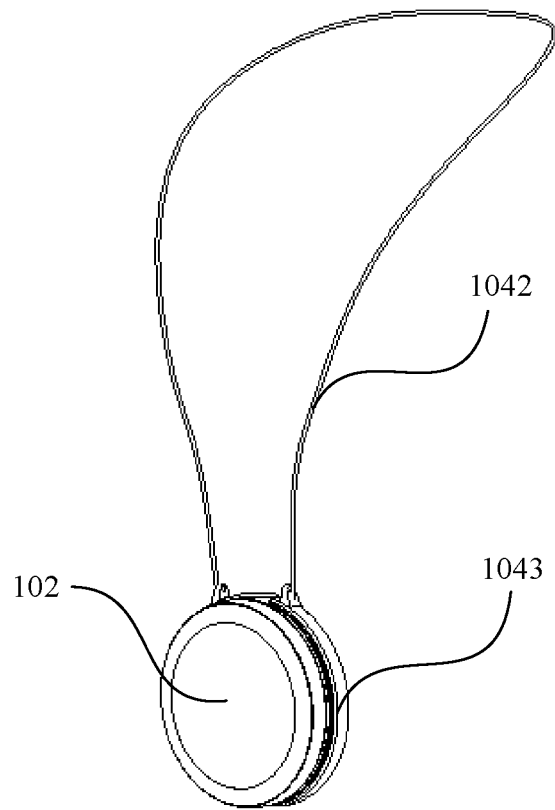


FIG. 8

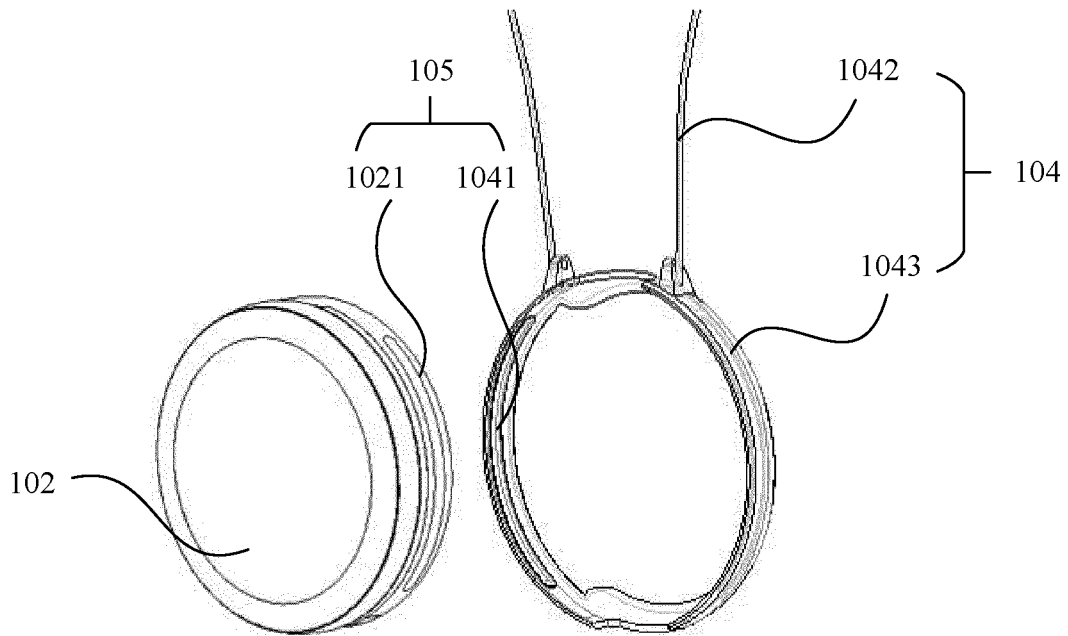


FIG. 8a

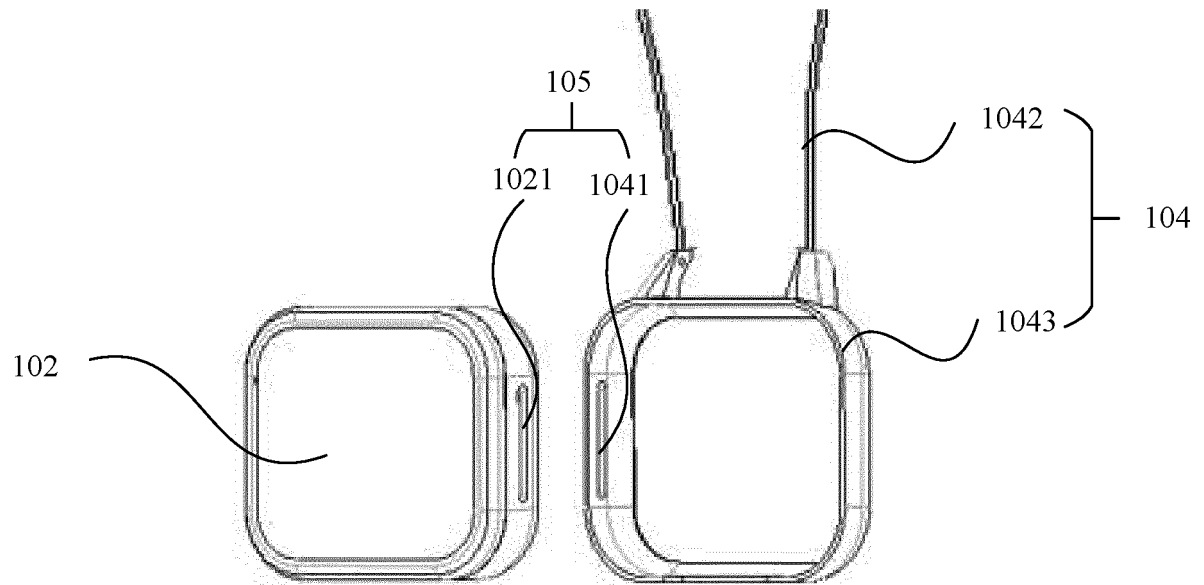


FIG. 8b

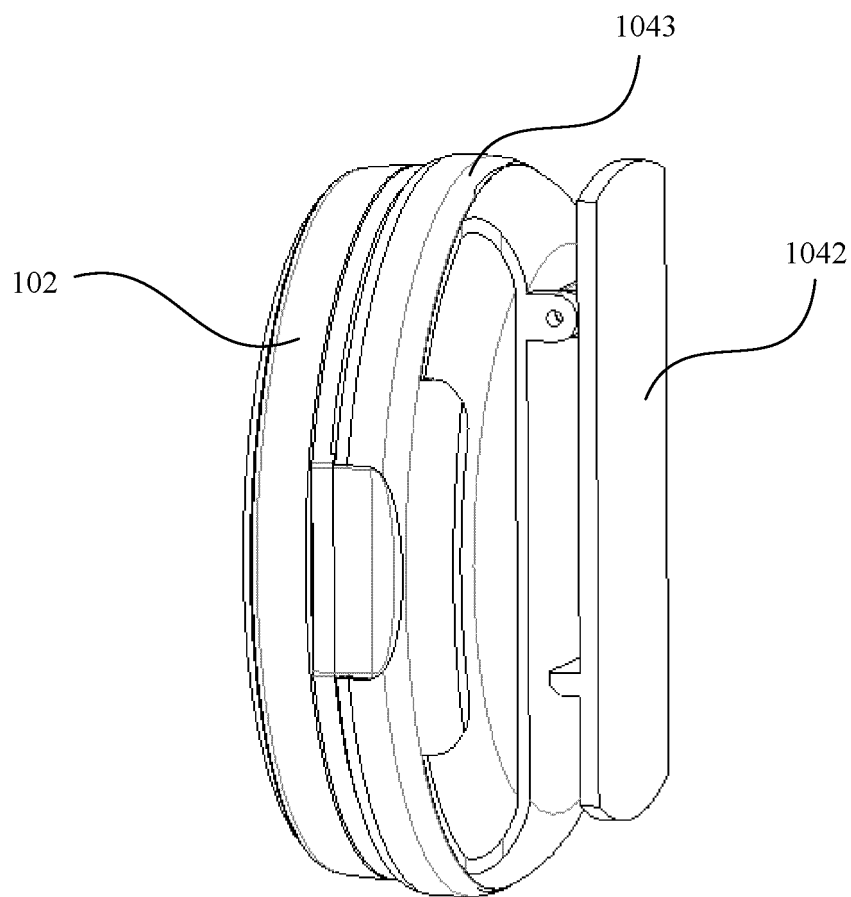


FIG. 9

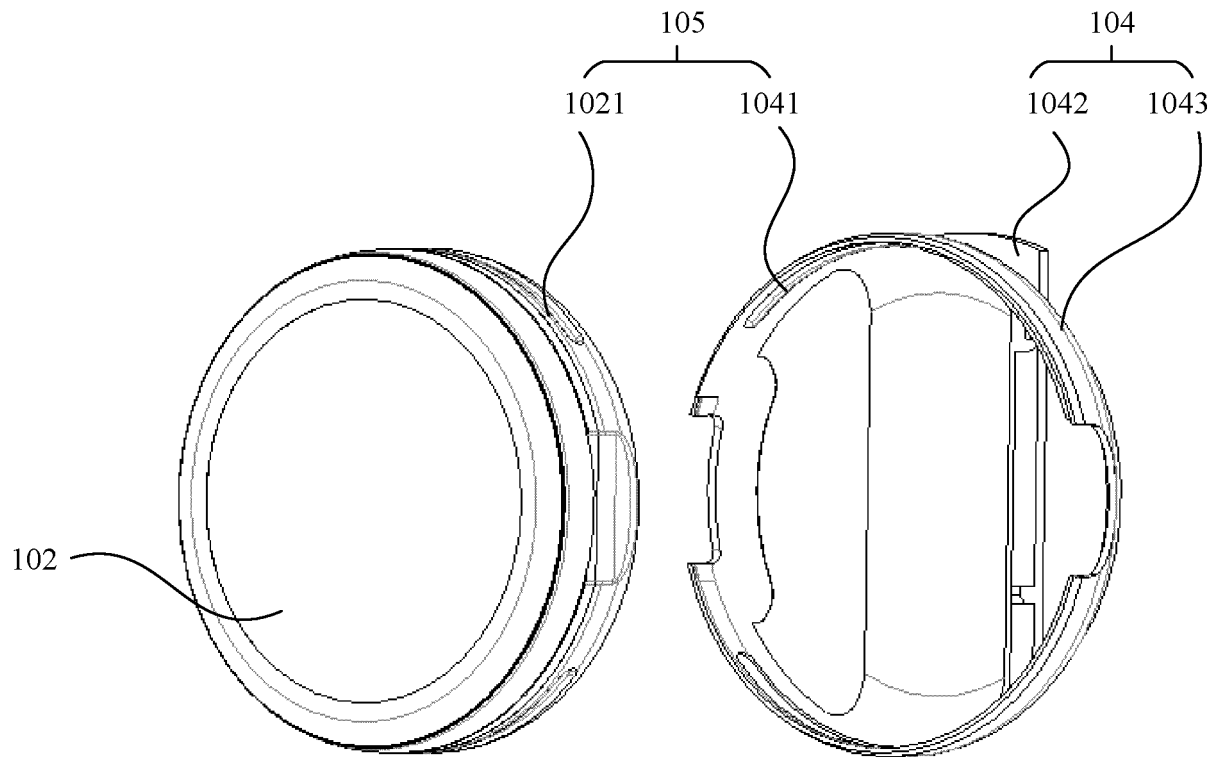


FIG. 9a

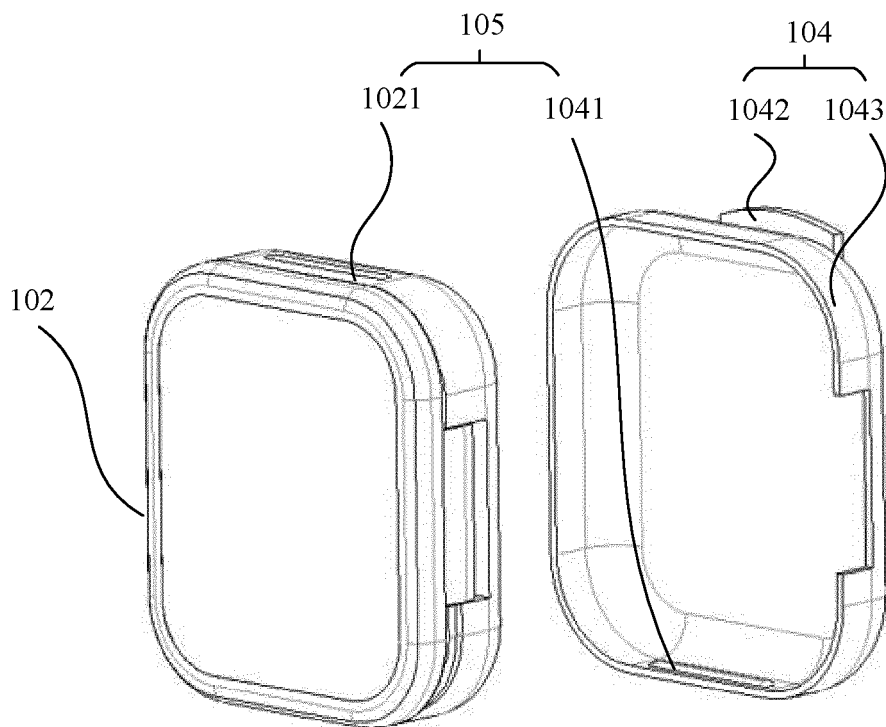


FIG. 9b

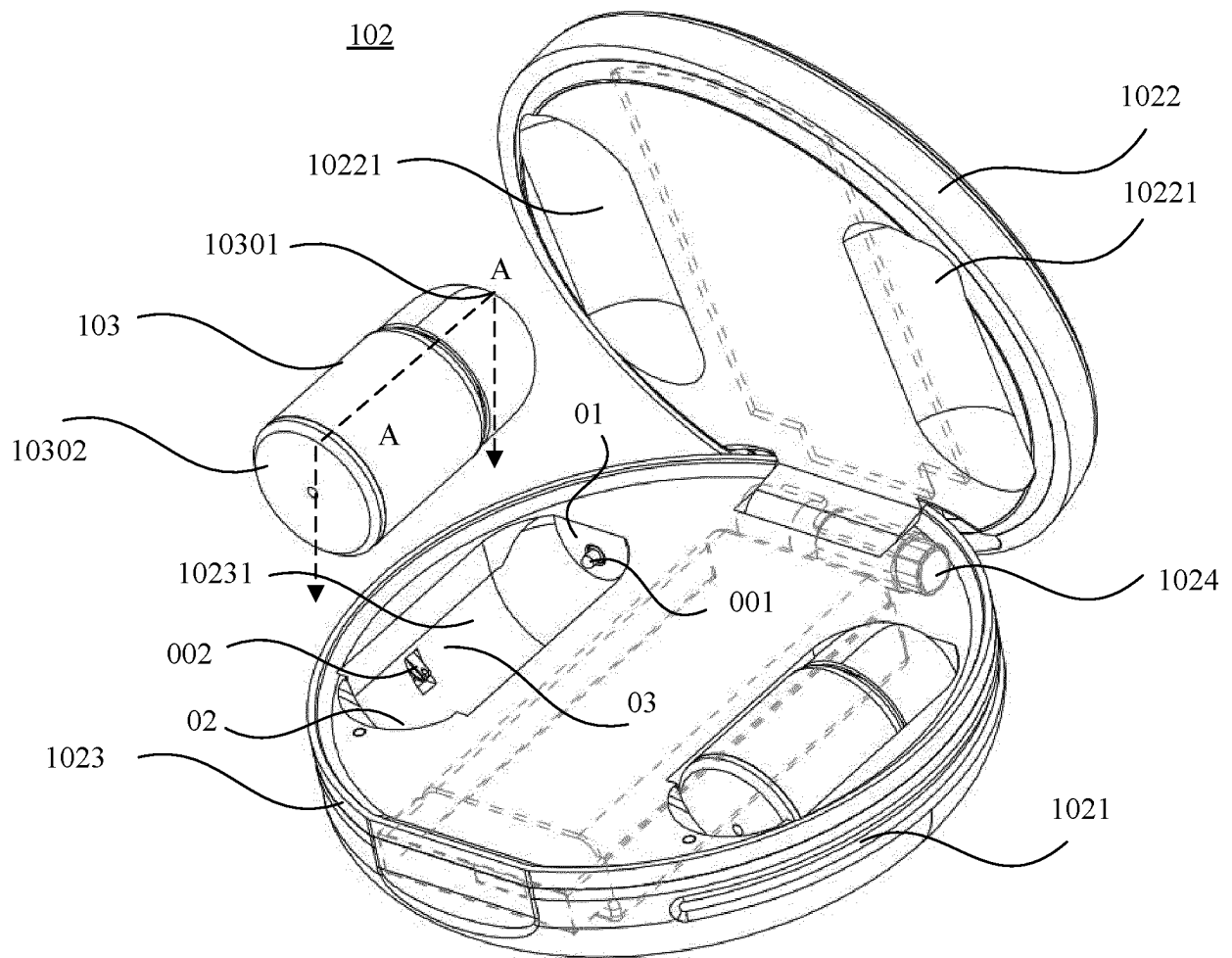


FIG. 10

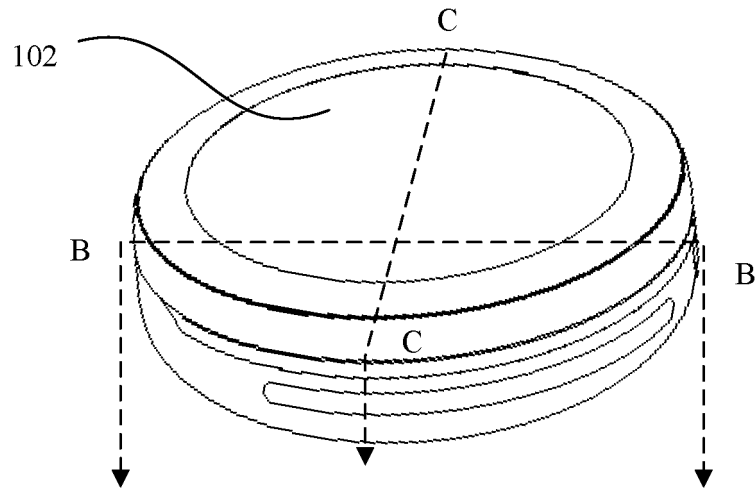


FIG. 10a

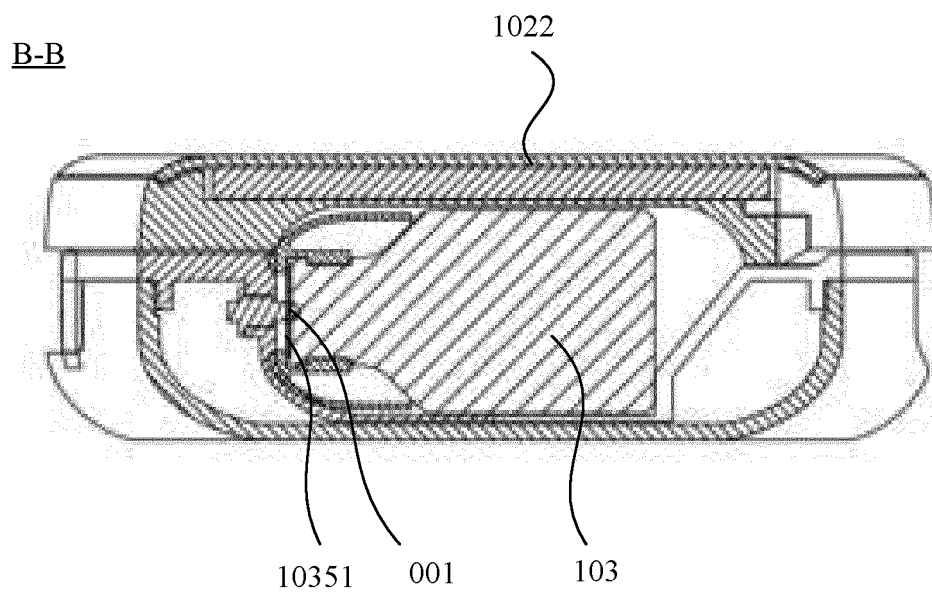


FIG. 10b

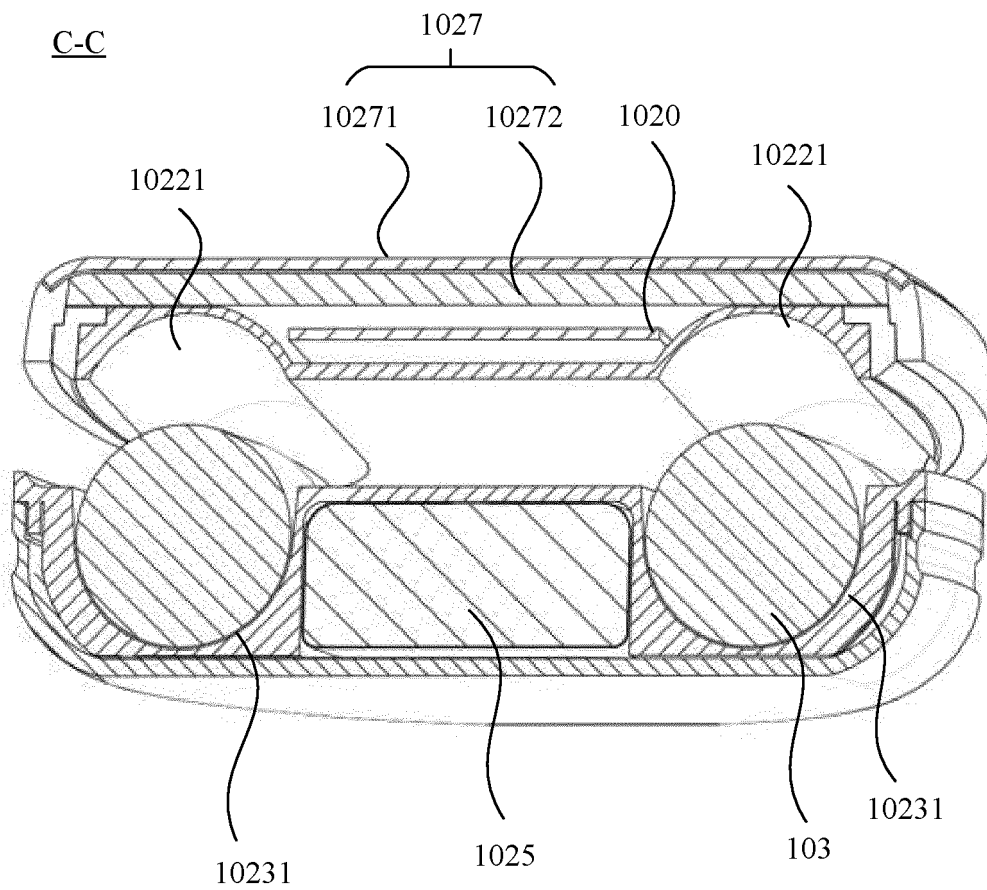


FIG. 10c

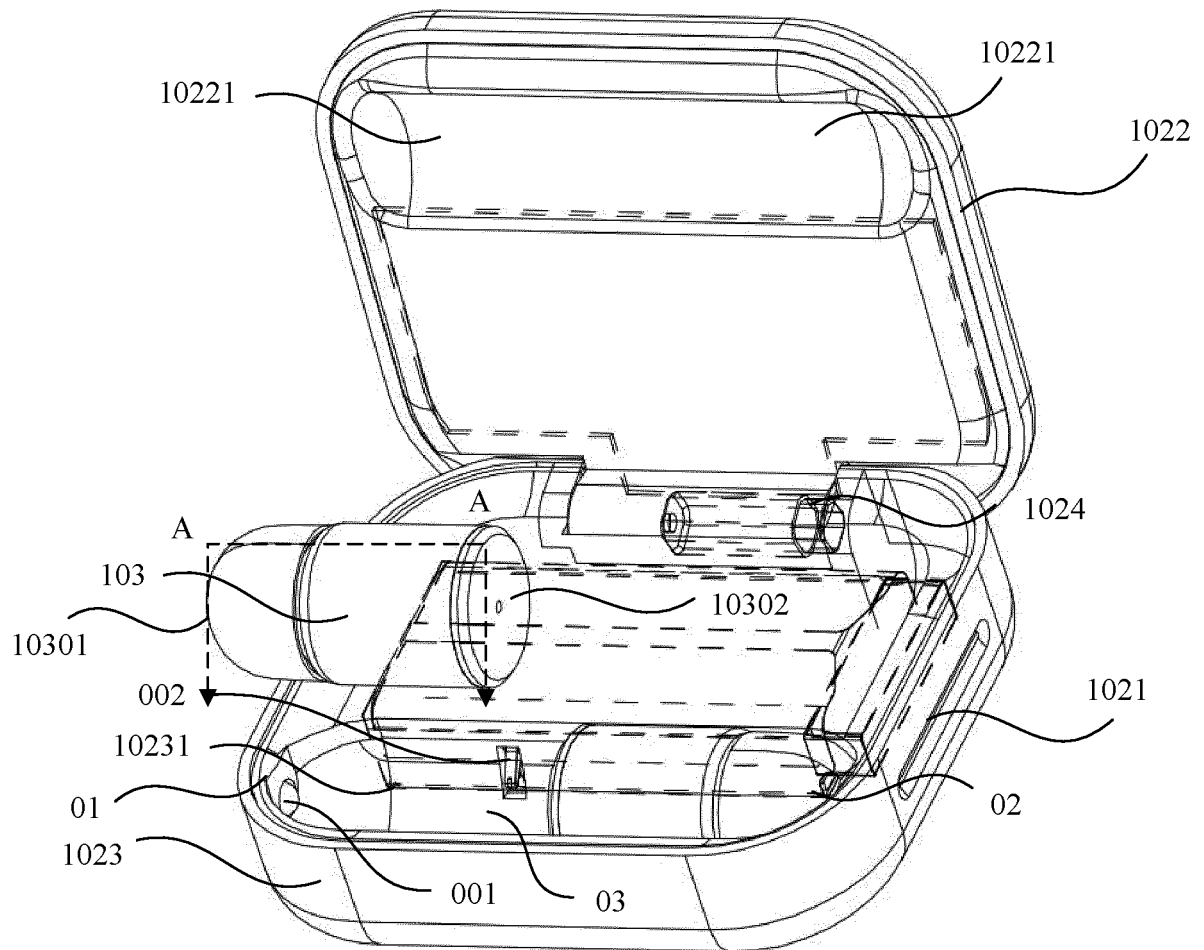


FIG. 11

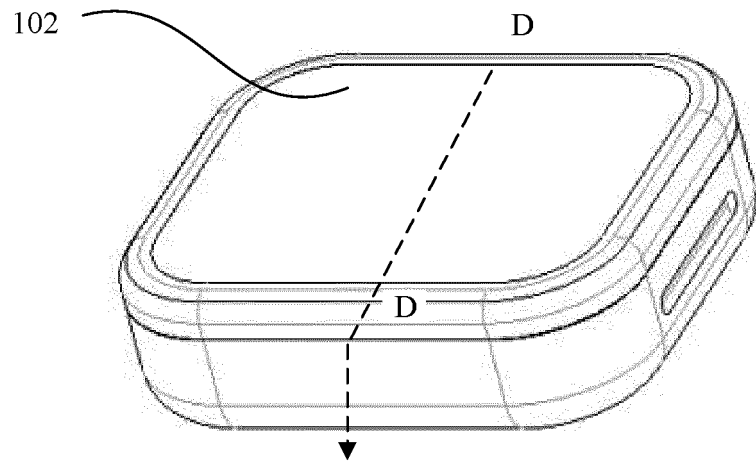


FIG. 11a

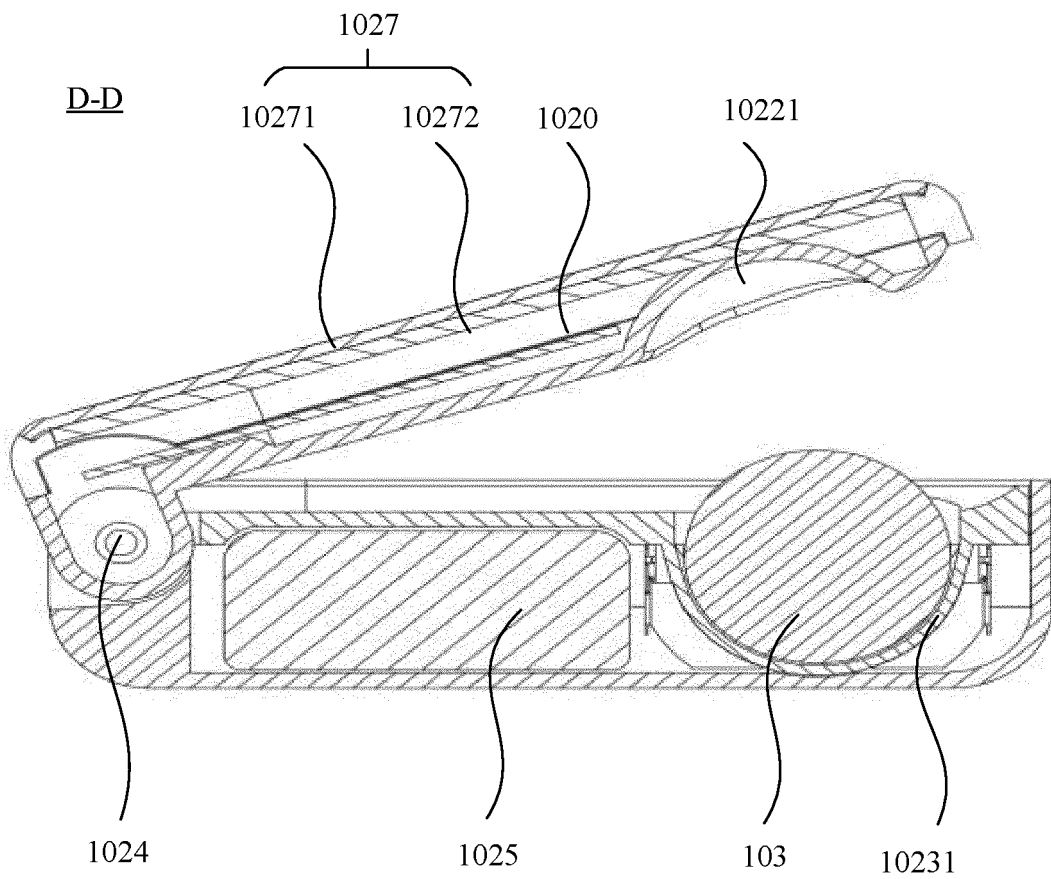


FIG. 11b

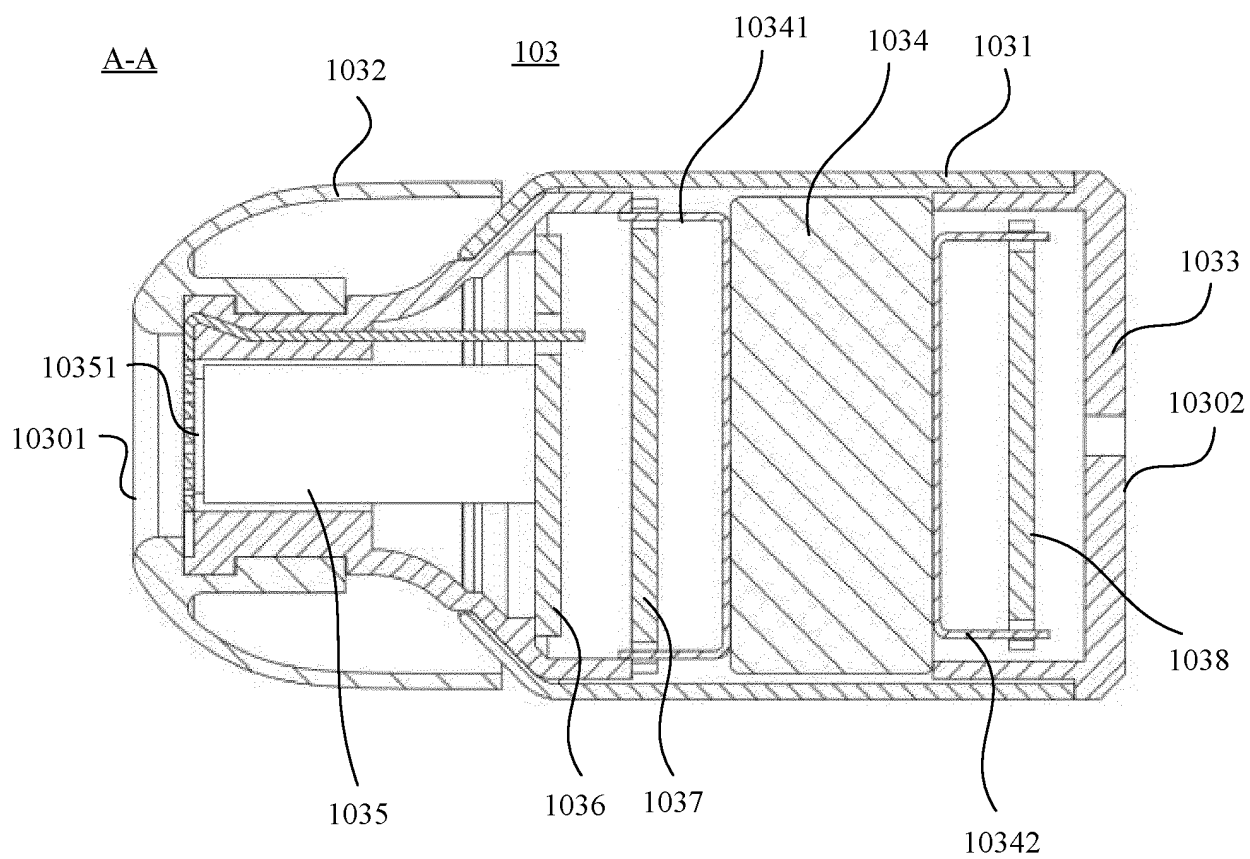


FIG. 12

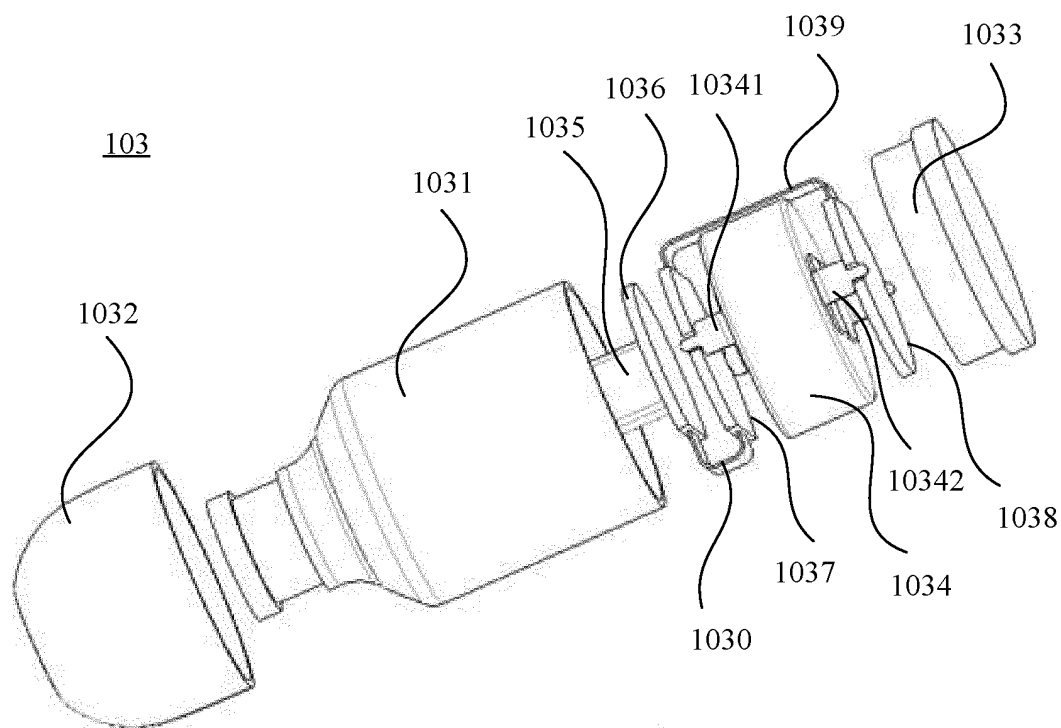


FIG. 12a

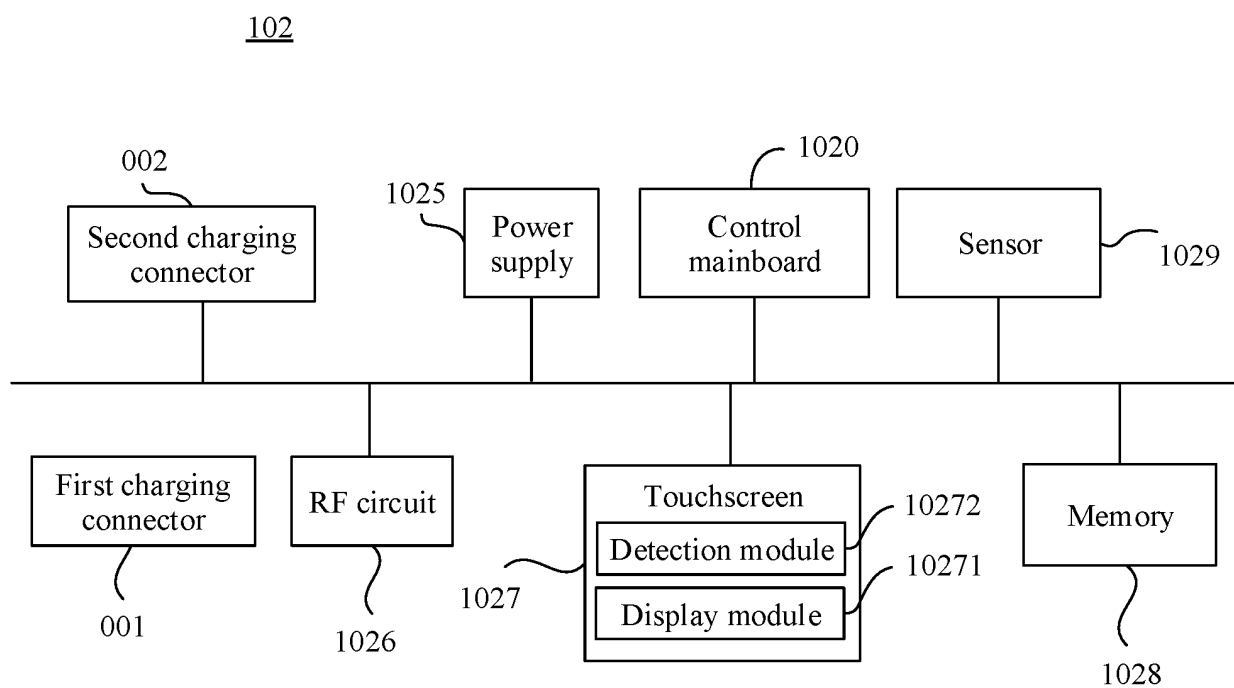


FIG. 13

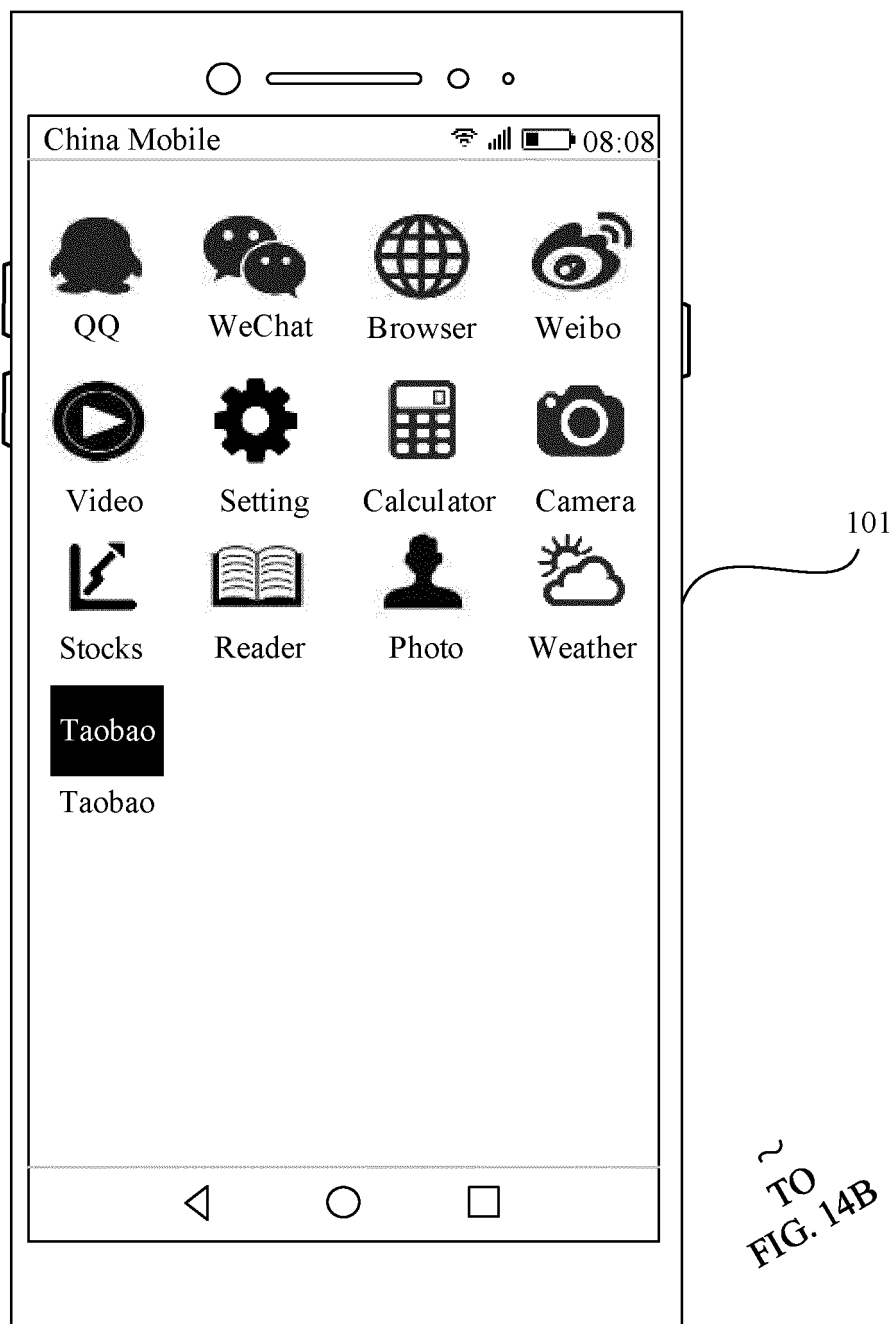


FIG. 14A

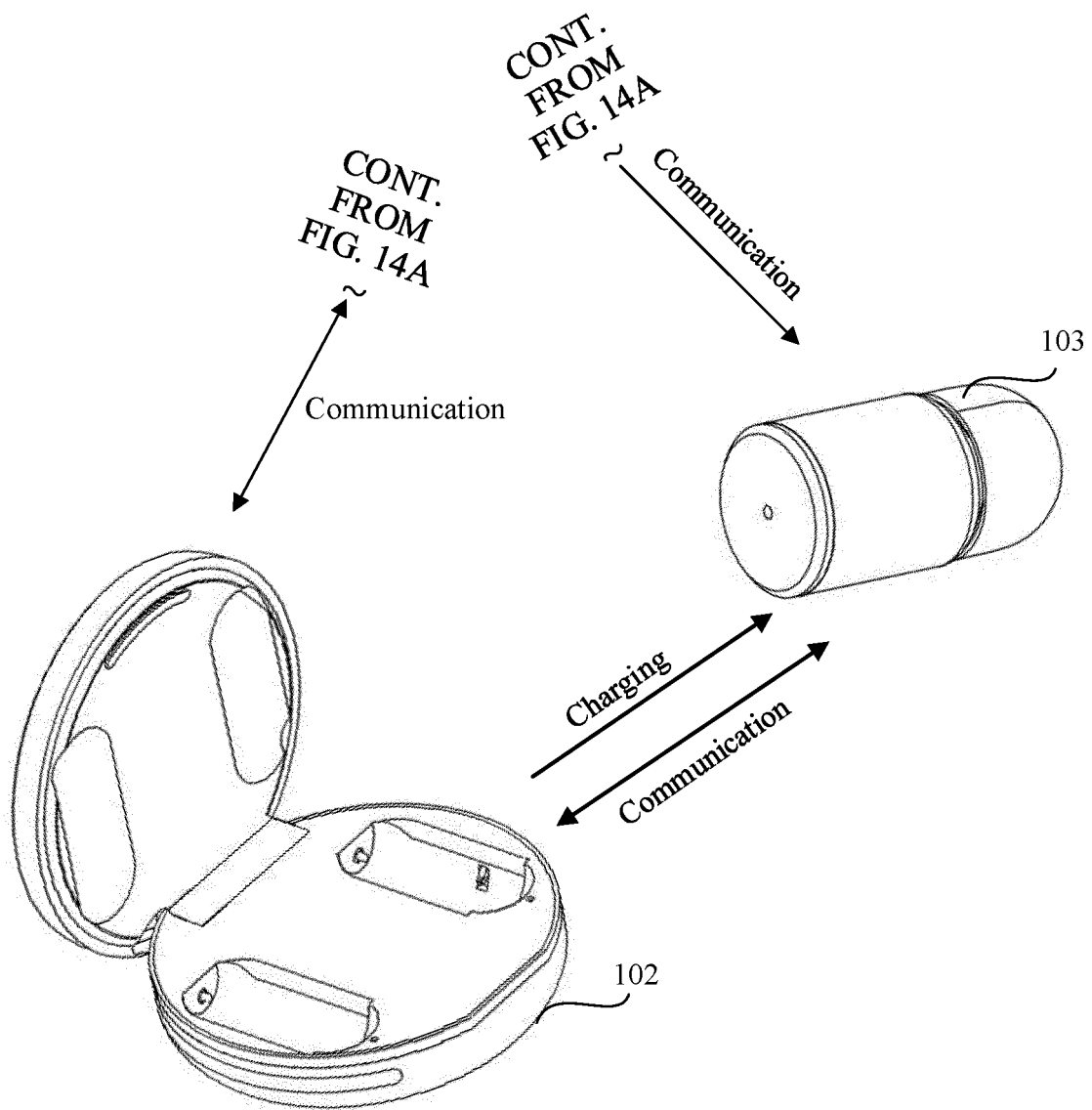


FIG. 14B

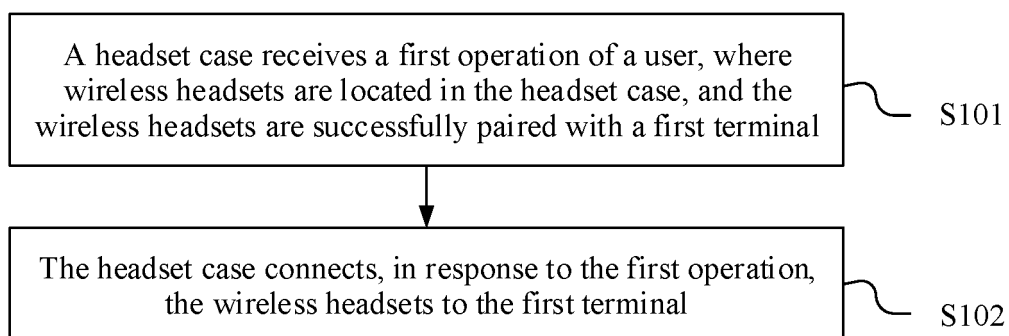
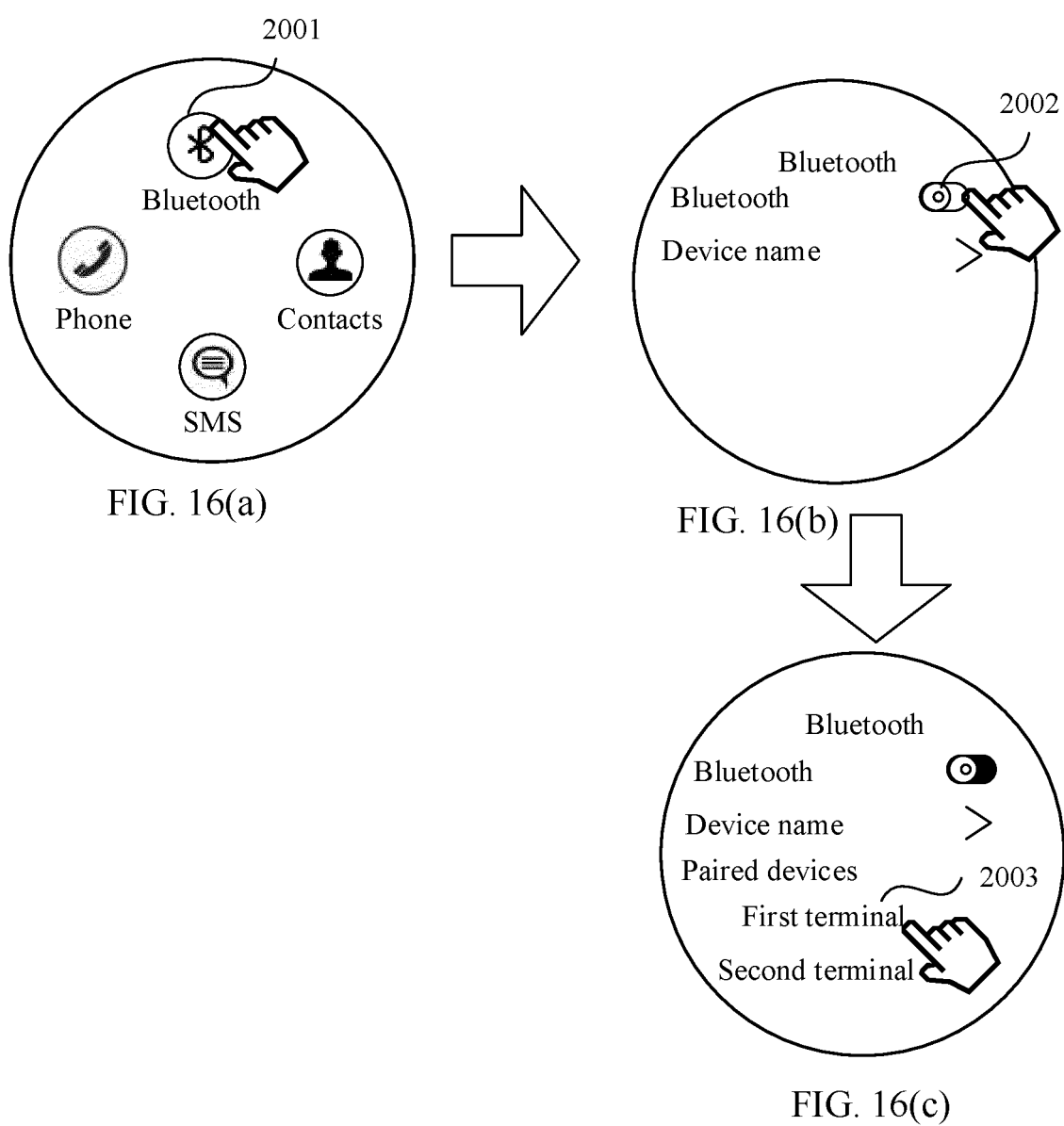


FIG. 15



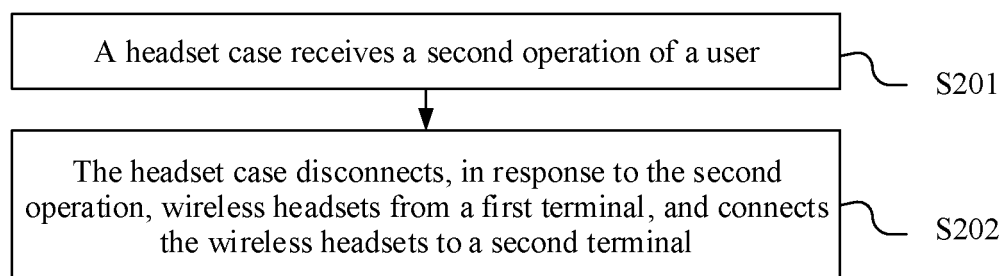


FIG. 17

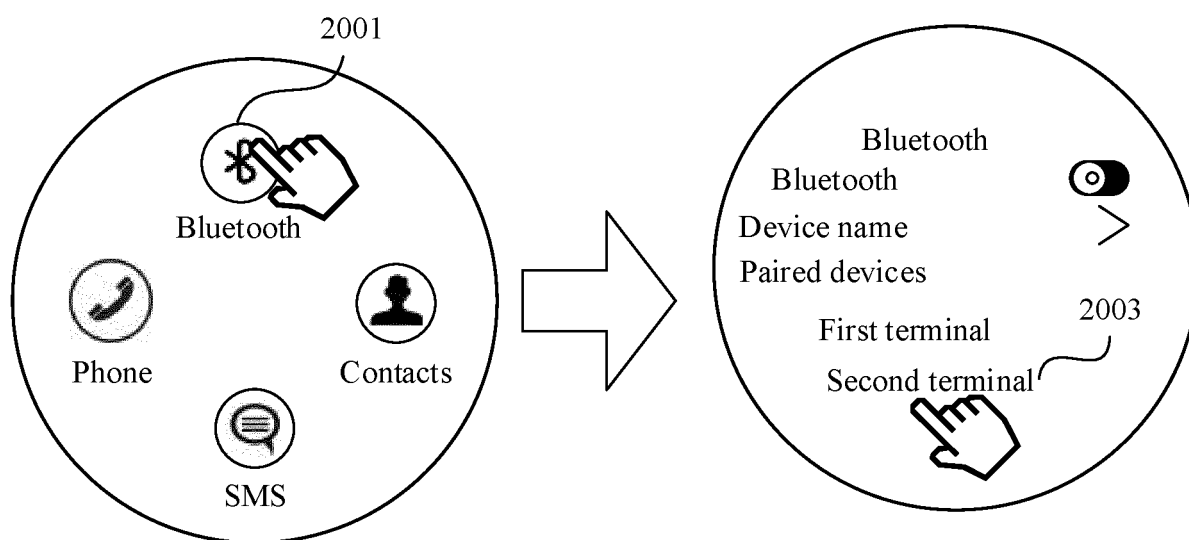


FIG. 18(a)

FIG. 18(b)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2020/111468

A. CLASSIFICATION OF SUBJECT MATTER H04R 1/10(2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC																								
B. FIELDS SEARCHED																								
Minimum documentation searched (classification system followed by classification symbols) H04R																								
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																								
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CNABS, CNTXT, VEN, USTXT, EPTXT, WOTXT, CNKI, IEEE: 耳机, 耳塞, 充电, 盒, 坞, 座, 无线, 蓝牙, 框, 壳, 穿戴, 腕带, 挂钩, 夹, 卡扣, earphone, earpiece, charge, box, dock, socket, base, wireless, bluetooth, frame, shell, housing, wear, wrist, hook, clamp, buckle																								
C. DOCUMENTS CONSIDERED TO BE RELEVANT																								
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>CN 109379663 A (GOERTEK TECHNOLOGY CO., LTD.) 22 February 2019 (2019-02-22) description, paragraphs [0003]-[0050], and figures 1-5</td> <td>1-6, 8, 10</td> </tr> <tr> <td>Y</td> <td>CN 109379663 A (GOERTEK TECHNOLOGY CO., LTD.) 22 February 2019 (2019-02-22) description, paragraphs [0003]-[0050], and figures 1-5</td> <td>7-18</td> </tr> <tr> <td>X</td> <td>CN 209072695 U (GOERTEK TECHNOLOGY CO., LTD.) 05 July 2019 (2019-07-05) description, paragraphs [0004]-[0038], and figures 1-4</td> <td>1-6, 8, 10</td> </tr> <tr> <td>Y</td> <td>CN 209072695 U (GOERTEK TECHNOLOGY CO., LTD.) 05 July 2019 (2019-07-05) description, paragraphs [0004]-[0038], and figures 1-4</td> <td>7-18</td> </tr> <tr> <td>X</td> <td>CN 206442499 U (WEIFANG GOERTEK ELECTRONICS CO., LTD.) 25 August 2017 (2017-08-25) description, paragraphs [0003]-[0030], and figures 1-11</td> <td>1-6, 8, 10</td> </tr> <tr> <td>Y</td> <td>CN 206442499 U (WEIFANG GOERTEK ELECTRONICS CO., LTD.) 25 August 2017 (2017-08-25) description, paragraphs [0003]-[0030], and figures 1-11</td> <td>7-18</td> </tr> <tr> <td>X</td> <td>US 2014270234 A1 (BEAL JASON DAVID) 18 September 2014 (2014-09-18) description, paragraphs [0003]-[0083], and figures 1-16</td> <td>1-6, 8, 10</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	CN 109379663 A (GOERTEK TECHNOLOGY CO., LTD.) 22 February 2019 (2019-02-22) description, paragraphs [0003]-[0050], and figures 1-5	1-6, 8, 10	Y	CN 109379663 A (GOERTEK TECHNOLOGY CO., LTD.) 22 February 2019 (2019-02-22) description, paragraphs [0003]-[0050], and figures 1-5	7-18	X	CN 209072695 U (GOERTEK TECHNOLOGY CO., LTD.) 05 July 2019 (2019-07-05) description, paragraphs [0004]-[0038], and figures 1-4	1-6, 8, 10	Y	CN 209072695 U (GOERTEK TECHNOLOGY CO., LTD.) 05 July 2019 (2019-07-05) description, paragraphs [0004]-[0038], and figures 1-4	7-18	X	CN 206442499 U (WEIFANG GOERTEK ELECTRONICS CO., LTD.) 25 August 2017 (2017-08-25) description, paragraphs [0003]-[0030], and figures 1-11	1-6, 8, 10	Y	CN 206442499 U (WEIFANG GOERTEK ELECTRONICS CO., LTD.) 25 August 2017 (2017-08-25) description, paragraphs [0003]-[0030], and figures 1-11	7-18	X	US 2014270234 A1 (BEAL JASON DAVID) 18 September 2014 (2014-09-18) description, paragraphs [0003]-[0083], and figures 1-16	1-6, 8, 10
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X	US 2014270234 A1 (BEAL JASON DAVID) 18 September 2014 (2014-09-18) description, paragraphs [0003]-[0083], and figures 1-16	1-6, 8, 10																						
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Date of the actual completion of the international search 20 October 2020	Date of mailing of the international search report 04 November 2020																							
Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088 China Facsimile No. (86-10)62019451	Authorized officer Telephone No.																							

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INTERNATIONAL SEARCH REPORT

International application No. PCT/CN2020/111468

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2014270234 A1 (BEAL JASON DAVID) 18 September 2014 (2014-09-18) description, paragraphs [0003]-[0083], and figures 1-16	7-18
Y	CN 204334890 U (SHENZHEN PUHUA HIGH-TECH ELECTRONIC CO., LTD.) 13 May 2015 (2015-05-13) description, paragraphs [0003]-[0027], and figures 1-4	7-18
Y	CN 108882082 A (SHENZHEN WATER WORLD CO., LTD.) 23 November 2018 (2018-11-23) description, paragraphs [0004]-[0070], and figures 1-4	15-18

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2020/111468

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	109379663	A	22 February 2019	WO	2020134245	A1	02 July 2020
				CN	209017265	U	21 June 2019
CN	209072695	U	05 July 2019	None			
CN	206442499	U	25 August 2017	None			
US	2014270234	A1	18 September 2014	US	9467763	B2	11 October 2016
CN	204334890	U	13 May 2015	None			
CN	108882082	A	23 November 2018	CN	108882082	B	18 August 2020

Form PCT/ISA/210 (patent family annex) (January 2015)

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Patent documents cited in the description

- CN 201910834102 [0001]
- CN 201911006678X [0001]