hardness is less than connector 11, connector 11 can be avoided directly to contact with user's head and cause discomfort, thus ensures to wear comfort level; Can reduce the diameter of connector 11 simultaneously, reduce memory metal material consumption, thus cost is manufactured in reduction.Sleeve pipe 12 can adopt plastic tube, rubber tube or other materials.

In the present embodiment, coupling assembling 1 is two, and two coupling assemblings 1 be arranged in parallel, to ensure the structural strength of wear-type bone conduction earphone entirety.Certainly in other embodiments, coupling assembling 1 may also be only one, or is three, or other numbers.

Wear-type bone conduction earphone also comprises contiguous block 3, contiguous block 3 is fixedly connected with two sleeve pipes 12, and contiguous block 3 is positioned at the middle part of sleeve pipe 12 length direction, utilizes the relative position that contiguous block 3 can ensure between two coupling assemblings 1, avoid two coupling assemblings 1 intersect and bring inconvenience to use.

Contiguous block 3 is provided with two through hole 30, and two sleeve pipes 12 are arranged in two through hole 30 respectively, utilize through hole 30, can facilitate the assembly connection between contiguous block 3 and sleeve pipe 12.Herein, in other implementations, contiguous block 3 also realizes the connection between contiguous block 3 and sleeve pipe 12 by the mode such as screw, clamping.

As preferably, the flexible material that contiguous block 3 can be less than connector 11 for hardness is made, and contiguous block 3 is relatively soft, and it can be resisted against the top of user's head, to improve the comfortableness that user wears.Contiguous block 3 can adopt the materials such as rubber to make.

The cross section of connector 11 is circular, so that the multi-angle of connector 11 bends, facilitates the assembly connection with sleeve pipe 12 simultaneously.Certainly, in other embodiments, connector 11 also can be cross section be other shapes such as square sheet.

The end of connector 11 has been bent to form Embedded Division 111, and osteoacusis loudspeaking component 2 is provided with the embedded groove 211 matched with Embedded Division 111, and Embedded Division 111 is installed in embedded groove 211.The Embedded Division 111 of utilization bending and coordinating of embedded groove 211, can strengthen the bonding strength between connector 11 and osteoacusis loudspeaking component 2, prevent connector 11 from deviating from from osteoacusis loudspeaking component 2.More specifically, in the present embodiment, osteoacusis loudspeaking component 2 comprises the first housing 21 and the second housing 22, embedded groove 211 is arranged on

the first housing 21, second housing 22 is fixedly connected on the first housing 21, and Embedded Division 111 is pressed in embedded groove 211, utilize coordinating of the first housing 21 and the second housing 22, the end of connector 11 can be firmly fixed between.

Osteoacusis loudspeaking component 2 also comprises electronic module 23, and electronic module 23 is housed between the first housing 21 and the second housing 22.When assembling formation osteoacusis loudspeaking component 2, can easily by connector 11 and osteoacusis loudspeaking component 2 assembly connection.In the present embodiment, electronic module 23 comprises the wireless transport module for accepting audio signal, by mode wireless reception signals such as infrared, bluetooths, thus can save the earphone cord of whole earphone, easy to use.

Wear-type bone conduction earphone also comprises wire 4, the two ends of wire 4 are electrically connected on two osteoacusis loudspeaking components 2 respectively, wire 4 is located in sleeve pipe 12, utilize wire 4 can realize the signal of telecommunication between two osteoacusis loudspeaking components 2 to connect, only audio interface can be set by module in an osteoacusis loudspeaking component 2 wherein.Certainly, also electrical signal transfer is realized by other modes such as wireless transmission between two osteoacusis loudspeaking components 2.In the present embodiment, wire 4 and one of them connector 11 are located in same sleeve pipe 12 jointly.Connector 11 can be combined closely with the inwall of sleeve pipe 12 and be embedded in sleeve pipe 12, also can be the inwall matched in clearance of connector 11 and sleeve pipe 12, therebetween gap may be used for wearing wire, or connector 11 and wire 4 are together in embedded implantation sleeve pipe 12.

The above is preferred implementation of the present utility model; it should be pointed out that for those skilled in the art, under the prerequisite not departing from the utility model principle, can also make some improvements and modifications, these improvements and modifications are also considered as protection range of the present utility model.

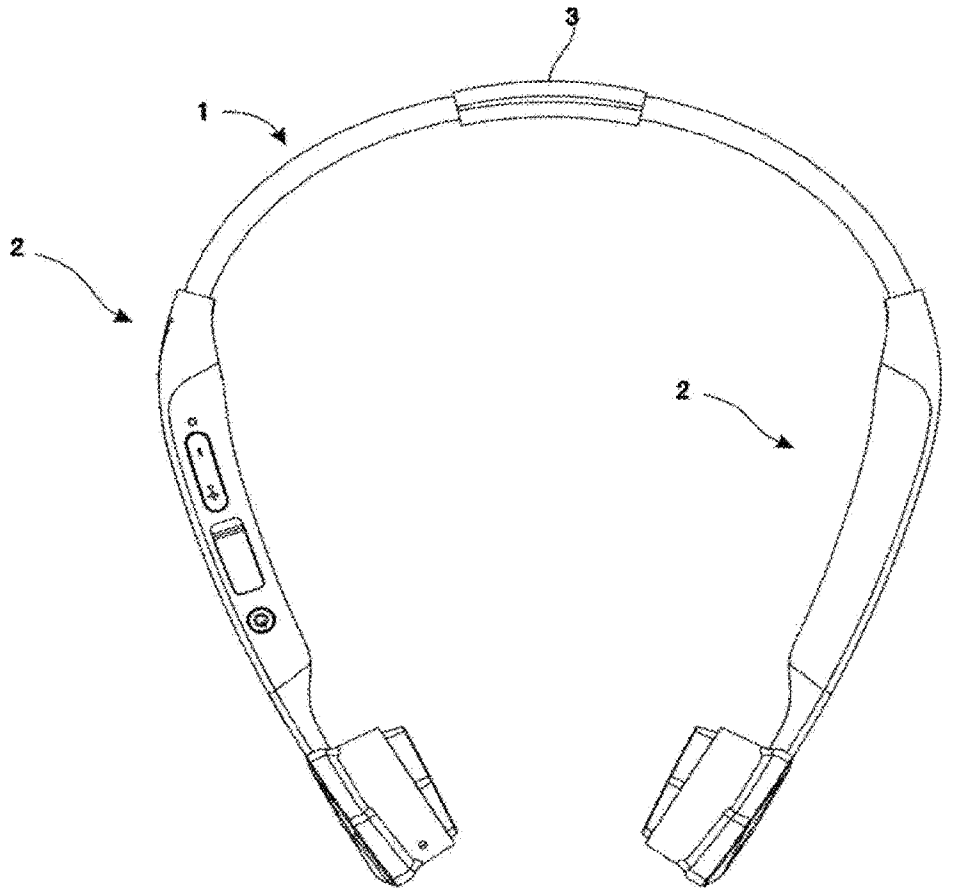


图 1

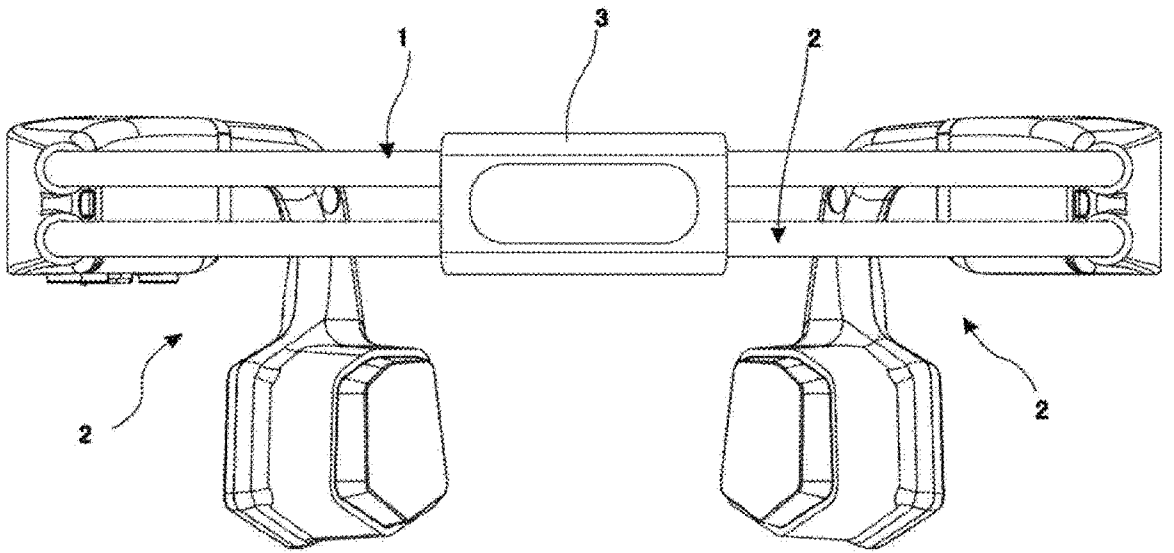


图 2

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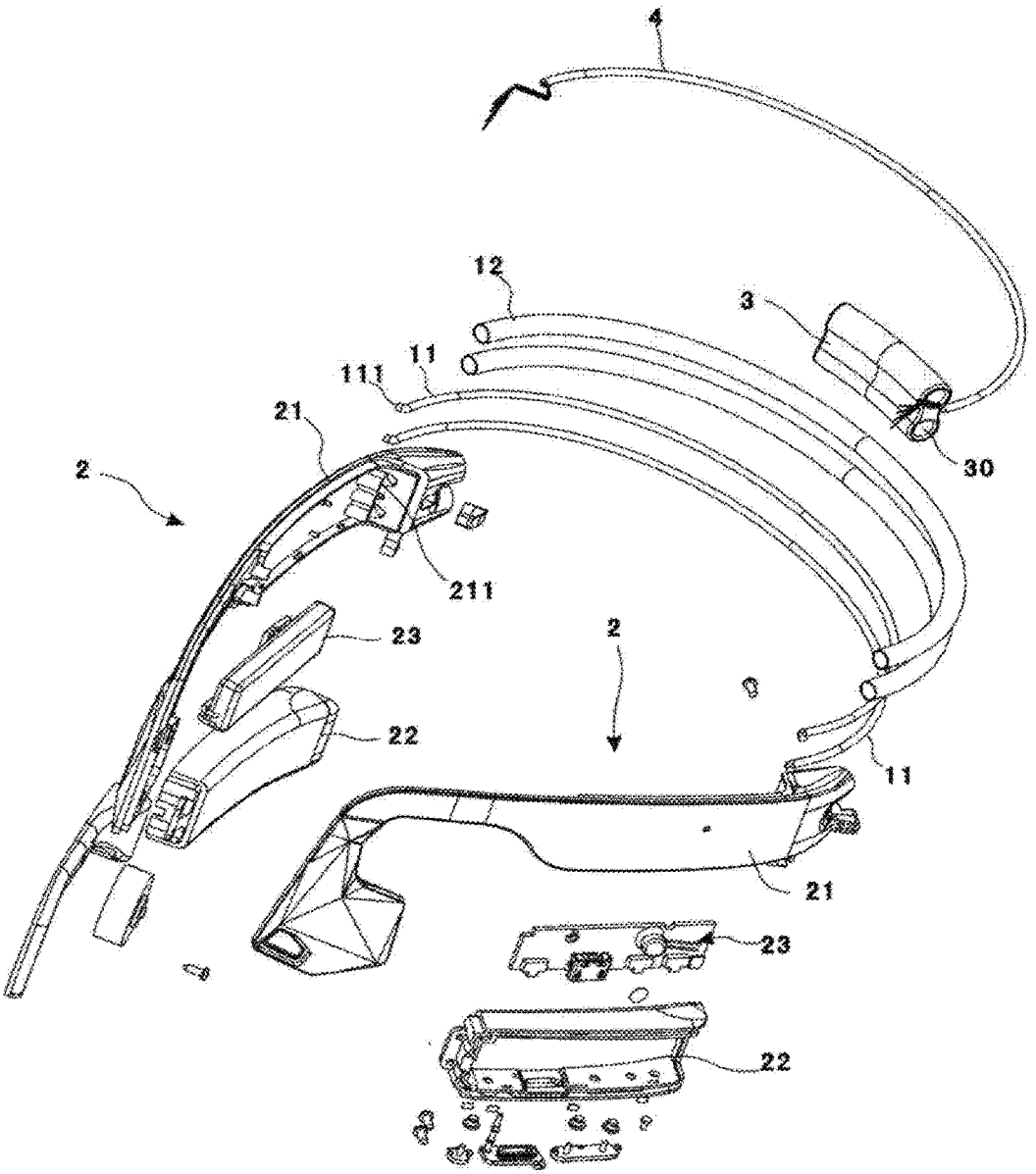


图 3

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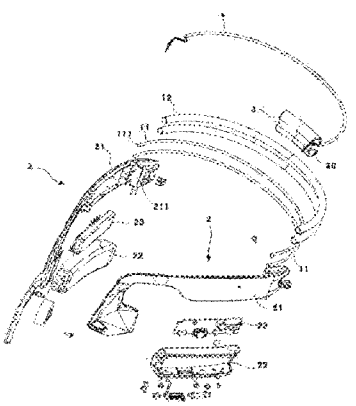
权利要求书1页 说明书3页 附图2页

(54)实用新型名称

一种头戴式骨传导耳机

(57)摘要

本实用新型公开了一种头戴式骨传导耳机，包括两个骨传导扬声组件及连接组件，连接组件包括连接件及套管，连接件为记忆金属制成的长条形，其两端分别与两骨传导扬声组件固定连接；连接件穿设于套管中；套管为柔性材料制成，其两端分别与两骨传导扬声组件连接。通过记忆金属制成的连接件，可以改变两头戴式骨传导耳机之间的位置关系，从而使得整个头戴式骨传导耳机可以弯曲，减小其收起时的体积，以便于存放；利用套管的柔性使其可以随连接件进行弯曲，且硬度小于连接件，可以避免连接件与使用者头部直接接触造成不适，从而保证头戴舒适度；同时可以减小连接件的直径，减少记忆金属材料用量，从而降低生产制作成本。



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1. 一种头戴式骨传导耳机，其特征在于，包括两个骨传导扬声组件及连接组件，所述连接组件包括连接件及套管，所述连接件为记忆金属制成的长条形，其两端分别与两所述骨传导扬声组件固定连接，所述连接件穿设于所述套管中；所述套管为柔性材料制成，其两端分别与两所述骨传导扬声组件连接。

2. 根据权利要求 1 所述的头戴式骨传导耳机，其特征在于，所述连接组件为两个，两所述连接组件平行设置。

3. 根据权利要求 2 所述的头戴式骨传导耳机，其特征在于，所述头戴式骨传导耳机还包括连接块，所述连接块与两所述套管固定连接，且所述连接块位于所述套管长度方向的中部。

4. 根据权利要求 3 所述的头戴式骨传导耳机，其特征在于，所述连接块上设有两通孔，两所述套管分别穿设于两所述通孔。

5. 根据权利要求 3 所述的头戴式骨传导耳机，其特征在于，所述连接块为硬度小于所述连接件的软性材料制成。

6. 根据权利要求 1 所述的头戴式骨传导耳机，其特征在于，所述连接件的横截面为圆形。

7. 根据权利要求 1 所述的头戴式骨传导耳机，其特征在于，所述连接件的端部弯折形成有嵌入部，所述骨传导扬声组件上设有与所述嵌入部相配合的嵌入槽，所述嵌入部安装于所述嵌入槽中。

8. 根据权利要求 7 所述的头戴式骨传导耳机，其特征在于，所述骨传导扬声组件包括第一壳体与第二壳体，所述嵌入槽设置在所述第一壳体上，所述第二壳体固定连接于所述第一壳体，并将所述嵌入部压紧在所述嵌入槽中。

9. 根据权利要求 8 所述的头戴式骨传导耳机，其特征在于，所述骨传导扬声组件还包括电子模块，所述电子模块收容在所述第一壳体与第二壳体之间。

10. 根据权利要求 1 所述的头戴式骨传导耳机，其特征在于，所述头戴式骨传导耳机还包括导线，所述导线的两端分别电连接于两所述骨传导扬声组件，所述导线穿设在所述套管内。

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一种头戴式骨传导耳机

技术领域

[0001] 本实用新型涉及耳机领域，尤其涉及一种头戴式骨传导耳机。

背景技术

[0002] 现有技术中的头戴式骨传导耳机，其形状在使用过程固定不变，收起时体积较大，不便于存放，从而给使用者带来不便。

实用新型内容

[0003] 本实用新型的目的在于提供一种头戴式骨传导耳机，其结构简单，能够缩小收起时的体积，方便存放，且保证头戴舒适度。

[0004] 为了解决上述技术问题，本实用新型提供了一种头戴式骨传导耳机，其特征在于，包括两个骨传导扬声组件及连接组件，所述连接组件包括连接件及套管，所述连接件为记忆金属制成的长条形，其两端分别与两所述骨传导扬声组件固定连接，所述连接件穿设于所述套管中；所述套管为柔性材料制成，其两端分别与两所述骨传导扬声组件连接。

[0005] 其中，所述连接组件为两个，两所述连接组件平行设置。

[0006] 其中，所述头戴式骨传导耳机还包括连接块，所述连接块与两所述套管固定连接，且所述连接块位于所述套管长度方向的中部。

[0007] 其中，所述连接块上设有两通孔，两所述套管分别穿设于两所述通孔。

[0008] 其中，所述连接块为硬度小于所述连接件的软性材料制成。

[0009] 其中，所述连接件的横截面为圆形。

[0010] 其中，所述连接件的端部弯折形成有嵌入部，所述骨传导扬声组件上设有与所述嵌入部相配合的嵌入槽，所述嵌入部安装于所述嵌入槽中。

[0011] 其中，所述骨传导扬声组件包括第一壳体与第二壳体，所述嵌入槽设置在所述第一壳体上，所述第二壳体固定连接于所述第一壳体，并将所述嵌入部压紧在所述嵌入槽中。

[0012] 其中，所述骨传导扬声组件还包括电子模块，所述电子模块收容在所述第一壳体与第二壳体之间。

[0013] 其中，所述头戴式骨传导耳机还包括导线，所述导线的两端分别电连接于两所述骨传导扬声组件，所述导线穿设在所述套管内。

[0014] 本实用新型提供的头戴式骨传导耳机，通过记忆金属制成的连接件，可以改变两头戴式骨传导耳机之间的位置关系，从而使得整个头戴式骨传导耳机可以弯曲而缩小体积，以便于存放；利用套管的柔性使其可以随连接件进行弯曲，且硬度小于连接件，可以避免连接件与使用者头部直接接触造成不适，从而保证头戴舒适度；同时可以减小连接件的直径，减少记忆金属材料用量，从而降低生产制作成本。

附图说明

[0015] 为了更清楚地说明本实用新型的技术方案，下面将对实施方式中所需要使用的附

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图作简单地介绍，显而易见地，下面描述中的附图仅仅是本实用新型的一些实施方式，对于本领域普通技术人员来讲，在不付出创造性劳动的前提下，还可以根据这些附图获得其他的附图。

[0016] 图 1 是本实用新型实施方式提供的头戴式骨传导耳机的示意图；

[0017] 图 2 是图 1 中头戴式骨传导耳机的俯视图；

[0018] 图 3 是图 1 中头戴式骨传导耳机的分解示意图。

具体实施方式

[0019] 下面将结合本实用新型实施方式中的附图，对本实用新型实施方式中的技术方案进行清楚、完整地描述。

[0020] 请一并参阅图 1 至图 3，本实用新型实施方式提供的一种头戴式骨传导耳机，包括连接组件 1 及两个骨传导扬声组件 2，连接组件 1 用于将两个骨传导扬声组件 2 连接。两骨传导扬声组件 2 分别用于输出左声道与右声道。

[0021] 连接组件 1 包括连接件 11 及套管 12。连接件 11 为记忆金属制成的长条形，其两端分别与两所述骨传导扬声组件 2 固定连接，通过记忆金属制成的连接件 11，可以改变两头戴式骨传导耳机之间的位置关系，从而使得整个头戴式骨传导耳机可以弯曲而缩小体积，以便于存放。连接件 11 穿设于套管 12 中，套管 12 为柔性材料制成，其两端分别与两骨传导扬声组件 2 连接。利用套管 12 的柔性使其可以随连接件 11 进行弯曲，其硬度小于连接件 11，可以避免连接件 11 与使用者头部直接接触造成不适，从而保证头戴舒适度；同时可以减小连接件 11 的直径，减少记忆金属材料用量，从而降低生产制作成本。套管 12 可以采用塑料管、橡胶管或其他材质。

[0022] 本实施例中，连接组件 1 为两个，两连接组件 1 平行设置，以保证头戴式骨传导耳机整体的结构强度。当然在其他实施方式中，连接组件 1 也可以仅为一个，或者为三个，或者其他数目。

[0023] 头戴式骨传导耳机还包括连接块 3，连接块 3 与两套管 12 固定连接，且连接块 3 位于套管 12 长度方向的中部，利用连接块 3 可以保证两连接组件 1 之间的相对位置，避免两连接组件 1 交叉而对使用造成不便。

[0024] 连接块 3 上设有两通孔 30，两套管 12 分别穿设于两通孔 30，利用通孔 30，可以方便连接块 3 与套管 12 之间的装配连接。此处，在其他的实施方式中，连接块 3 亦可通过螺钉、卡接等方式实现连接块 3 与套管 12 之间的连接。

[0025] 作为优选，连接块 3 可以为硬度小于连接件 11 的软性材料制成，连接块 3 相对较软，其可以抵靠在使用者头部的顶部，以提高使用者佩戴的舒适性。连接块 3 可以采用橡胶等材质制成。

[0026] 连接件 11 的横截面为圆形，以便于连接件 11 的多角度弯曲，同时方便与套管 12 的装配连接。当然，在其他实施方式中，连接件 11 也可以是横截面为方形的片状等其他形状。

[0027] 连接件 11 的端部弯折形成有嵌入部 111，骨传导扬声组件 2 上设有与嵌入部 111 相配合的嵌入槽 211，嵌入部 111 安装于嵌入槽 211 中。利用弯折的嵌入部 111 与嵌入槽 211 的配合，可以增强连接件 11 与骨传导扬声组件 2 之间的连接强度，防止连接件 11 从骨

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传导扬声组件 2 中脱出。更具体地，本实施例中，骨传导扬声组件 2 包括第一壳体 21 与第二壳体 22，嵌入槽 211 设置在第一壳体 21 上，第二壳体 22 固定连接于第一壳体 21，并将嵌入部 111 压紧在嵌入槽 211 中，利用第一壳体 21 与第二壳体 22 的配合，可将连接件 11 的端部牢固地固定在二者之间。

[0028] 骨传导扬声组件 2 还包括电子模块 23，电子模块 23 收容在第一壳体 21 与第二壳体 22 之间。在装配形成骨传导扬声组件 2 时，即可方便地将连接件 11 与骨传导扬声组件 2 装配连接。本实施例中，电子模块 23 包括用于接受音频信号的无线传输模块，通过红外、蓝牙等方式无线接受信号，从而可以省去整个耳机的耳机线，方便使用。

[0029] 头戴式骨传导耳机还包括导线 4，导线 4 的两端分别电连接于两骨传导扬声组件 2，导线 4 穿设在套管 12 内，利用导线 4 可以实现两骨传导扬声组件 2 之间的电信号连接，可以仅在其中一个骨传导扬声组件 2 中设置音频接受模块。当然，两骨传导扬声组件 2 之间亦可通过无线传输等其他方式实现电信号传递。本实施例中，导线 4 与其中一个连接件 11 共同穿设在同一套管 12 中。连接件 11 可以与套管 12 的内壁紧密结合而嵌入在套管 12 中，也可以是连接件 11 与套管 12 的内壁间隙配合，二者之间的间隙可以用于穿设导线，或者，连接件 11 与导线 4 一同嵌入式植入套管 12 中。

[0030] 以上所述是本实用新型的优选实施方式，应当指出，对于本技术领域的普通技术人员来说，在不脱离本实用新型原理的前提下，还可以做出若干改进和润饰，这些改进和润饰也视为本实用新型的保护范围。

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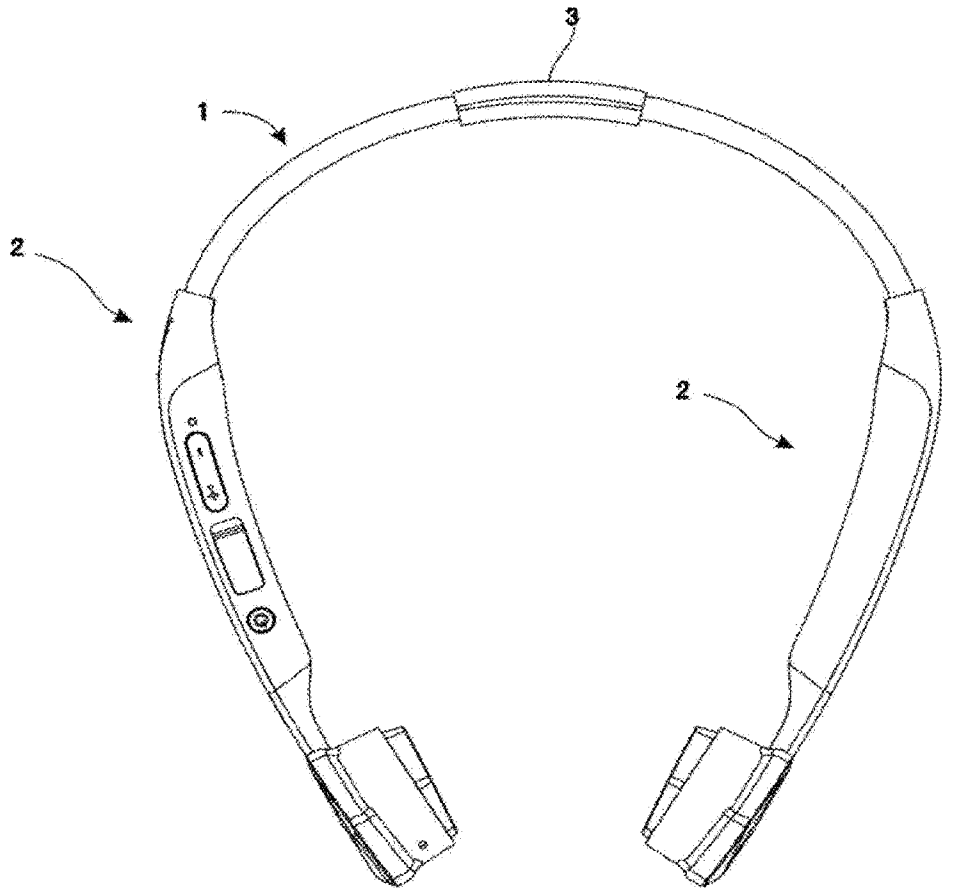


图 1

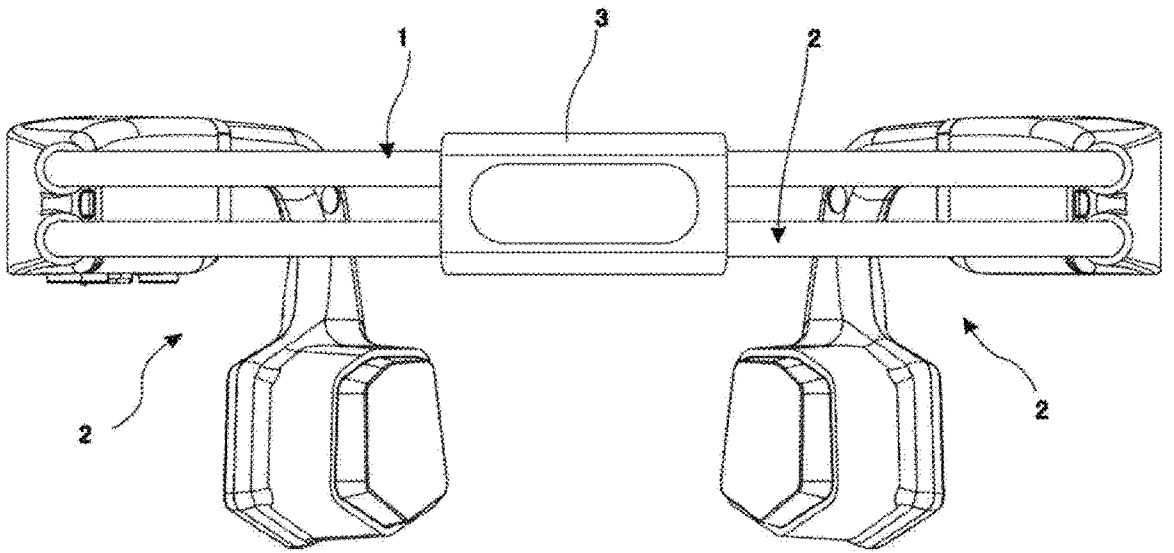


图 2

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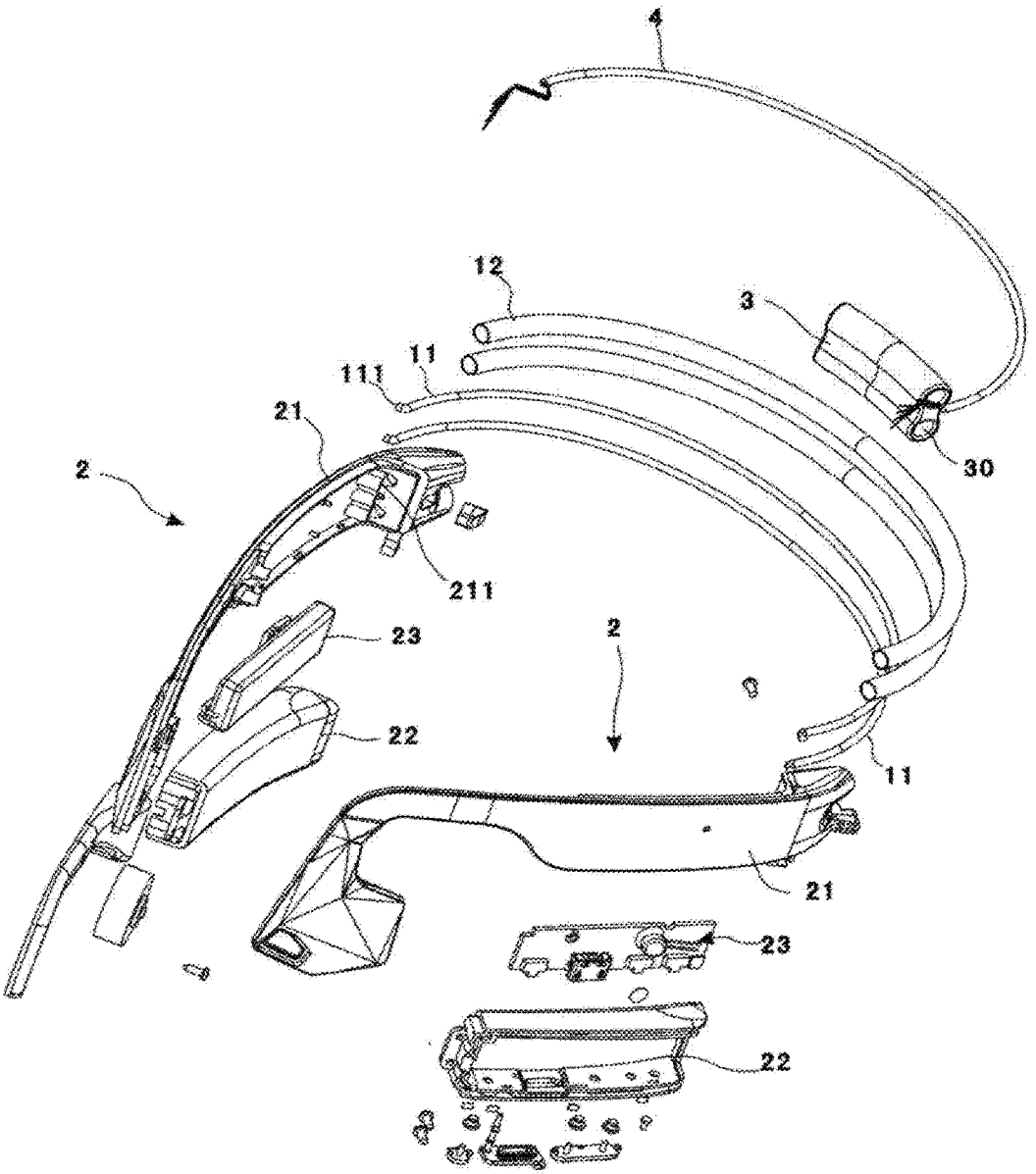


图 3

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A kind of audiphone

Abstract

The utility model provides a kind of audiphone, including：Housing, battery module and electronic system, the housing includes the first housing and the second housing that can be mutually permanently connected, the electronic system is arranged in first shell body, the battery module is arranged in second shell body, formed and be detachably connected between the electronic system and battery module of audiphone, the two forms electrical connection by way of contact, have the characteristics that it is compact-sized, be easily installed and dismantle.

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China

Other languages: Chinese

Inventor: 歐天生, 李伯陽, 余仕湘

Worldwide applications

2017 CN

Application CN201720949173.7U events

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2018-02-13	Application granted
2018-02-13	Publication of CN207010974U

Info: Cited by (2), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

A kind of audiphone

Technical field

It the utility model is related to field of hearing aids, and in particular to what a kind of compact-sized, inner part was easily installed and dismantled Audiphone.

Background technology

Audiphone (Hearing Aid) is the accessory that person hard of hearing uses, for supplying lacking caused by hearing impairment Fall into.And then improve instrument, urill and instrument with his conference communicative competence etc..Audiphone is from wearing position and profile Angle can be divided into ear-level hearing aid, duct-type audiphone, complete duct-type audiphone etc. again.

Ear-level hearing aid body is larger, typically carries out offer power supply using battery (such as lithium battery), and battery with The circuit board of electronic system is integrated with audiphone and realizes that this will result in by wire with the electrical connection of charging contact Battery is not easy autonomous assembly or

Claims (9)

Hide Dependent

1. a kind of audiphone, including：Housing, battery module and electronic system, it is characterised in that：The housing includes can be mutual The first housing and the second housing being fixedly connected, the electronic system are arranged in first shell body, the power supply of the electronic system Positive input terminal, power supply negative input end and signal output part extend to form the first contact, the second contact to the first surface of shell respectively With the 3rd contact；

The battery module comprises at least battery, and the battery module is arranged in second shell body, second housing It is above also exposed to have positive pole charging contact, negative pole charging contact and signal output contact, the positive pole charging contact, negative pole charging The anode electrode end with battery, negative electricity are extremely formed and electrically connected respectively for contact, and first housing and second shell body phase are mutual After being fixedly connected, the anode electrode end of the battery,

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disassembly, and wire is cumbersome, and easily being fractureed at solder joint leads to not normal use.

Utility model content

Therefore, the utility model provides the audiphone that a kind of compact-sized, inner part is easily installed and dismantled.

To reach above-mentioned purpose, a kind of audiphone provided by the utility model, including：Housing, battery module and electronics System, the housing include the first housing and the second housing that can be mutually permanently connected, and the electronic system is arranged on first shell In vivo, the power supply positive input terminal of the electronic system, power supply negative input end pole signal output part prolong to the first surface of shell respectively Stretch to form the first contact, the second contact and the 3rd contact ;

The battery module comprises at least battery, and the battery module is arranged in second shell body, and described second It is also exposed on housing to have positive pole charging contact, negative pole charging contact and signal output contact, the positive pole charging contact, negative pole The anode electrode end with battery, negative electricity extremely form electrical contact, first housing and the second housing to charging contact respectively After being mutually permanently connected, the anode electrode end of the battery, negative electricity extremely form electricity with the first contact, the second contact respectively Connection, and then power supply is provided for electronic system, the signal output contact forms with the 3rd contact of the first housing and electrically connected.

A kind of preferred scheme of the present utility model, the battery module also include the battery with one first storage tank Housing, the accumulator housing are provided with the 4th contact, the 5th contact and the 6th contact, the 4th contact, the extension of the 5th contact To the internal face of the first storage tank, the battery is fixed in the first storage tank of accumulator housing, its anode electrode end, is born Pole electrode tip is formed and electrically connected, and pass through the 4th contact, the 5th contact and first shell respectively with the 4th contact, the 5th contact respectively First contact of body and the second contact form electrical connection, the signal output contact pass through the 6th contact and the first housing the 3rd Contact forms electrical connection.

Another preferred scheme of the present utility model, the positive pole charging contact, negative pole charging contact and signal output Contact is arranged on accumulator housing, and second housing is provided with a window, and the positive pole charging contact, negative pole charging are touched Point and signal output contact are exposed in the window.

negative electricity are extremely formed and are electrically connected with the first contact, the second contact respectively Connect, and then power supply is provided for electronic system, the signal output contact forms with the 3rd contact of the first housing and electrically connected.

2. audiphone according to claim 1, it is characterised in that ：The battery module also includes having one first to house The accumulator housing of groove, the accumulator housing are provided with the 4th contact, the 5th contact and the 6th contact, the 4th contact, Five contacts and the 6th contact are respectively provided with to the internal face of the first storage tank, and the battery is fixed on the first appearance of accumulator housing To put in groove, its anode electrode end, negative electricity are extremely formed and electrically connected with the 4th contact, the 5th contact respectively, and respectively by the Four contacts, the 5th contact form with the first contact of the first housing and the second contact and electrically connected, and the signal output contact passes through 6th contact forms with the 3rd contact of the first housing and electrically connected.

3. audiphone according to claim 2, it is characterised in that ：The positive pole charging contact, negative pole charging contact and Signal output contact is arranged on accumulator housing, and second housing is provided with a window, the positive pole charging contact, bears Pole charging contact and signal output contact are exposed in the window.

4. audiphone according to any one of claims 1 to 3, it is characterised in that ：It is accommodating that second housing is provided with second Groove, the inner wall depression of second storage tank are provided with the first neck, and the battery module is provided with the first clamping joint, the storage Battery module is socketed in second storage tank and forms fixed clamping by the clamping engagement of the first clamping joint and the first neck.

5. audiphone according to claim 1, it is characterised in that ：On first housing or the second housing formed with one with The 3rd storage tank that the profile of second housing or the first housing matches, second housing or the first housing are socketed in the 3rd In storage tank and then make the two formation fixedly sleeved.

Another preferred scheme of the present utility model, second housing are provided with the second storage tank, and described second is accommodating The inner wall depression of groove is provided with the first neck, and the battery module is provided with the first clamping joint, and the battery module is socketed in Fixed clamping is formed in second storage tank and by the clamping engagement of the first clamping joint and the first neck.

Another preferred scheme of the present utility model, formed with one and second housing on first housing or the second housing Or first housing the 3rd storage tank that matches of profile, second housing or the first housing are socketed in the 3rd storage tank And then make the two formation fixedly sleeved.

Another preferred scheme of the present utility model, the inwall of the 3rd storage tank on first housing or the second housing Depression is provided with the second neck, and the second housing or the first surface of shell projection is provided with the second clamping joint, second housing or First housing is socketed in the 3rd storage tank and forms fixed clamping by the clamping engagement of the second clamping joint and the second neck.

Another preferred scheme of the present utility model, the electronic system comprise at least：Microphone module, processing module, Called module and electronic switch, the input of the output end connection processing module of the microphone module, the processing module Output end connects the input of called module, the positive and negative input of power supply of the microphone module, processing module and called module The first contact and the second contact are electrically connected, the electronic switch is serially connected in microphone module respectively and the electricity of called module returns Lu Zhong, the control output end connection electronic switch of processing module, the signal output part of the processing module electrically connect the 3rd contact.

Another preferred scheme of the present utility model, in addition to volume adjusting module, the output of the volume adjusting module The input of end connection processing module.

Another preferred scheme of the present utility model, in addition to shift knob module, the output of the shift knob module The input of end connection processing module.

By technical scheme provided by the utility model, have the advantages that：

Formed and be detachably connected between the electronic system and battery of audiphone, the two is formed by way of contact Electrical connection, have the characteristics that it is compact-sized, be easily installed and dismantle.

Brief description of the drawings

6. audiphone according to claim 5, it is characterised in that：The 3rd on first housing or the second housing is accommodating The inner wall depression of groove is provided with the second neck, and second housing or the first surface of shell be raised to be provided with the second clamping joint, and described the Two housings or the first housing are socketed in the 3rd storage tank and formed by the clamping engagement of the second clamping joint and the second neck Fixed clamping.

7. audiphone according to claim 1, it is characterised in that：The electronic system comprises at least：Microphone module, place Manage module, called module and electronic switch, the input of the output end connection processing module of the microphone module, the processing The output end of module connects the input of called module, and the power supply of the microphone module, processing module and called module is positive and negative Input is electrically connected the first contact and the second contact, and the electronic switch is serially connected in microphone module and called module respectively Electrical circuit in, the control output end of processing module connection electronic switch, the signal output part electrical connection of the processing module the Three contacts.

8. audiphone according to claim 7, it is characterised in that：Also include volume adjusting module, the volume adjusting mould The input of the output end connection processing module of block.

9. audiphone according to claim 7, it is characterised in that：Also include shift knob module, the shift knob mould The input of the output end connection processing module of block.

Fig. 1 show the dimensional structure diagram of audiphone in embodiment ;

Fig. 2 show the decomposed schematic diagram one of audiphone in embodiment ;

Fig. 3 show the decomposed schematic diagram two of audiphone in embodiment ;

Fig. 4 show the decomposed schematic diagram three of audiphone in embodiment ;

Fig. 5 show the decomposing schematic representation of the part-structure of audiphone in embodiment ;

Fig. 6 show the part-structure schematic diagram of audiphone in another embodiment ;

Fig. 7 show the counter structure schematic diagram of audiphone and cradle in embodiment.

Embodiment

To further illustrate each embodiment, the utility model is provided with accompanying drawing.These accompanying drawings are in the utility model discloses A part for appearance, it can coordinate the associated description of specification to explain the running of embodiment original mainly to illustrate embodiment Reason.Cooperation refers to these contents, and those of ordinary skill in the art will be understood that other possible embodiments and this practicality are new The advantages of type.Component in figure is not necessarily to scale, and similar element numbers are conventionally used to indicate similar component.

The utility model is further illustrated in conjunction with the drawings and specific embodiments.

Embodiment one

Referring to figs. 1 to shown in Fig. 5, a kind of audiphone 1 provided by the utility model, including : Housing, battery module, electricity Subsystem (not shown) and three bullion conducting strips 40, the housing include the first housing 10 and the second housing 20, institute State electronic system to be arranged in the first housing 10, power supply positive input terminal, the power supply negative input end pole signal of the electronic system are defeated Go out end to extend to form the first contact 11, the second contact 12 and the 3rd contact 13 to the surface of the first housing 10 respectively.

The battery module includes : Accumulator housing 32 and battery 31 with one first storage tank 321, the storage Battery container 32 is provided with the 4th contact 14, the 5th contact 15 and the 6th contact 16, the 4th contact 14, the 5th contact 15 and Six contacts 16 are the screw contact that can be spun, and the 4th contact 14, the 5th contact 15 and the 6th contact 16 are arranged at The internal face of one storage tank 321, three bullion conducting strips 40 are arranged in the first storage tank

321, three bullions One end of conducting strip 40 forms with the 4th contact 14, the 5th contact 15 and the 6th contact 16 electrically connect respectively, the extension of its other end Positive pole charging contact 41, negative pole charging are sequentially formed to the offside for being provided with the 4th contact 14, the 5th contact 15 and the 6th contact 16 Contact 42 and signal output contact 43.The clamping of battery 31 is arranged in the first storage tank 321 of accumulator housing 32, its anode electrode end, negative electricity are extremely formed and electrically connected, and then filled respectively with positive pole with the 4th contact 14, the 5th contact 15 respectively Electric contact 41, negative pole charging contact 42 form electrical connection.

In the present embodiment, by the setting of battery module, by the charge circuit of battery 31 and the compact knot of discharge loop Close, it has the characteristics that compact-sized, easy for installation.In other embodiments, positive pole charging contact 41, negative pole charging contact 42 And signal output contact 43 can be electrically connected by being embedded to the wire in accumulator housing 32 and corresponding contact realization respectively Connect.This is routine techniques, is no longer described in detail.

Second housing 20 is provided with the second storage tank (not shown), and the inner wall depression of second storage tank is provided with the One neck (not shown), the accumulator housing 32 of the battery module are provided with the first clamping joint 322, the battery module It is socketed in second storage tank and fixed clamping is formed by the clamping engagement of the first clamping joint 322 and the first neck.Meanwhile Second housing, 20 corresponding positive pole charging contact 41, negative pole charging contact 42 and the position of signal output contact 43 are provided with a window 22, the positive pole charging contact 41, negative pole charging contact 42 and signal output contact 43 are exposed in the window 22, and then It is exposed to the second housing 20.

First housing 10 formed with one and second housing 20 the 3rd storage tank 101 that matches of profile, the 3rd holds The inner wall depression for putting groove 101 is provided with the second neck 102, and the rat of the second housing 20 is provided with the second clamping joint 21, described Second housing 20 is socketed in the 3rd storage tank 101 and by the clamping engagement shape of the second clamping joint 21 and the second neck 102 Into fixed clamping.In other embodiments, can be without passing through the second clamping joint and second if actual size can accomplish just to coordinate The cooperation of neck, directly it can be achieved to fix by being socketed to coordinate.Furthermore the 3rd storage tank can also be arranged on the second housing On, as long as the size of the first housing and the second housing simply replace, will not be described in detail herein.

After the housing 20 of first housing 10 and second is mutually permanently connected, the 4th contact 14, the 5th contact 15 respectively with First contact 11, the second contact 12 form electrical connection, and then the anode electrode end of the battery 31, negative electricity is extremely distinguished Formed and electrically connected with the first contact 11, the second contact 12, so as to provide power supply for electronic system.The signal output contact 43 is logical Cross the 6th contact 16 to electrically connect with the 3rd contact 13 formation of the first housing 10, realize the output of signal of communication.

In the present embodiment, the electronic system includes : It is microphone module (not shown), processing module (not shown), called Module (not shown), volume adjusting module 103, shift knob module 104 and electronic switch, the output end of the microphone module The input of connection processing module, the input of the called module of output end connection of the processing module, the microphone module, The positive and negative input of the power supply of processing module and called module is electrically connected the first contact 11 and the second contact 12, the electronics Switch is serially connected in microphone module respectively and in the electrical circuit of called module, the control output end of processing module connects electronic cutting Close, the signal output part of the processing module electrically connects the 3rd contact 13.The output end junction of the volume adjusting module 103 The input of reason module realizes the regulation of volume.The input of the output end connection processing module of the shift knob module 104 Realize being turned on and off for the outside control audiphone.As above the component of the modules of electronic system, related circuit Connected mode and specific operation principle are prior art, are that those skilled in the art grasp and practice already In product.It will not be described in detail herein.

Embodiment two

Shown in reference picture 6, the audiphone that the present embodiment provides is roughly the same with the structure in embodiment one, unique different It is that in the present embodiment, the 4th contact 14, the 5th contact 15 and the 6th contact 16 are respectively by three bullion conducting strips 40 1 Body extends to be formed, more easy in fit on, it also avoid existing power-off risk between metallic conduction piece and contact.

Shown in reference picture 7, a kind of cradle 2 that charging is engaged with above-mentioned audiphone 1 of the present embodiment offer, the charging Seat 2 is provided with one the 4th storage tank 80, and the bottom of the 4th storage tank 80 is provided with three conductive poles, respectively the first conductive pole 81, Second conductive pole 82 and the 3rd conductive pole 83, the first conductive pole 81 and the second conductive pole 82 are

electrically connected in the cradle 2 The positive and negative output end of power supply of power management module (not shown), the signal input part of the 3rd conductive pole 83 and power management module Form electrical connection.Audiphone 1 is plugged to the 4th storage tank 80 of cradle 2, and the first conductive pole 81 and the second conductive pole 82 divide Do not formed and electrically connected with the positive pole charging contact 41 and negative pole charging contact 42 of audiphone 1, the 3rd conductive pole 83 and audiphone 1 Signal output contact 43 forms electrical connection.Working signal is transferred to by the electronic system of audiphone 1 by signal output contact 43 The power management module of cradle 2, judges whether audiphone 1 powers off, If audiphone 1 has powered off, power management module control Make the battery that the cradle 2 is audiphone 1 to be charged, if audiphone 1 does not power off, without charging.

In the present embodiment, the concrete structure and operation principle of cradle 2 are prior art, are technologies in the art Personnel grasp and carry out implementing production already, will not be described in detail herein.

Formed by technical scheme provided by the utility model, between the electronic system and battery of audiphone and detachably connected Connect, the two forms electrical connection by way of contact, have the characteristics that it is compact-sized, be easily installed and dismantle.

Although specifically showing and describing the utility model with reference to preferred embodiment, those skilled in the art should This is understood, is not departing from the spirit and scope of the present utility model that appended claims are limited, in form and details On the utility model can be made a variety of changes, be the scope of protection of the utility model.

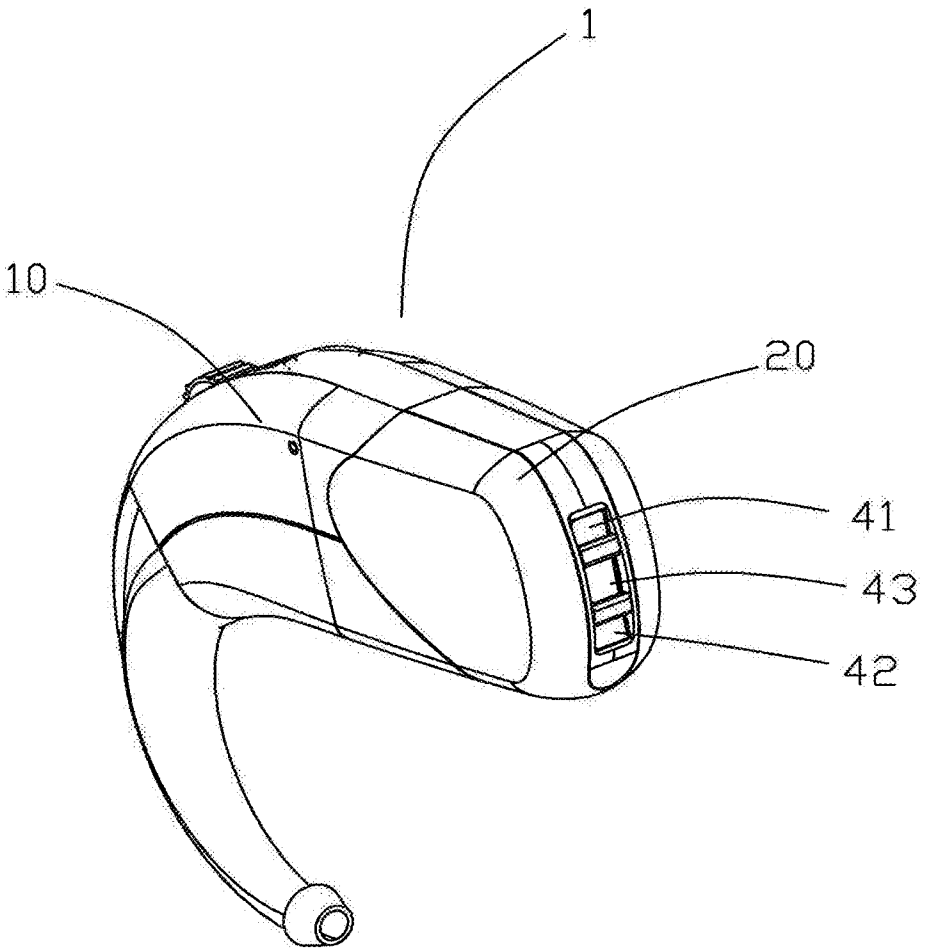


图1

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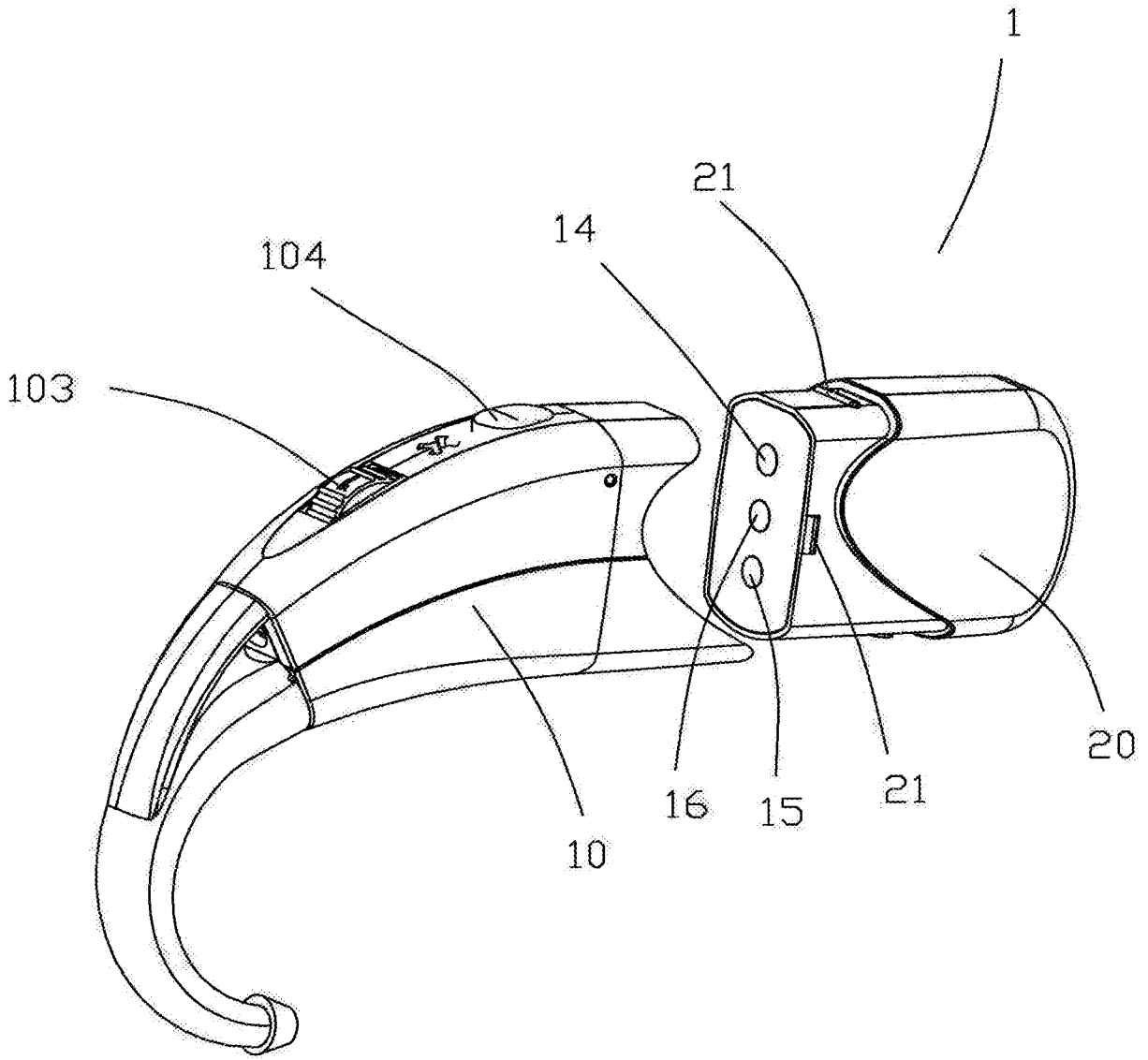


图2

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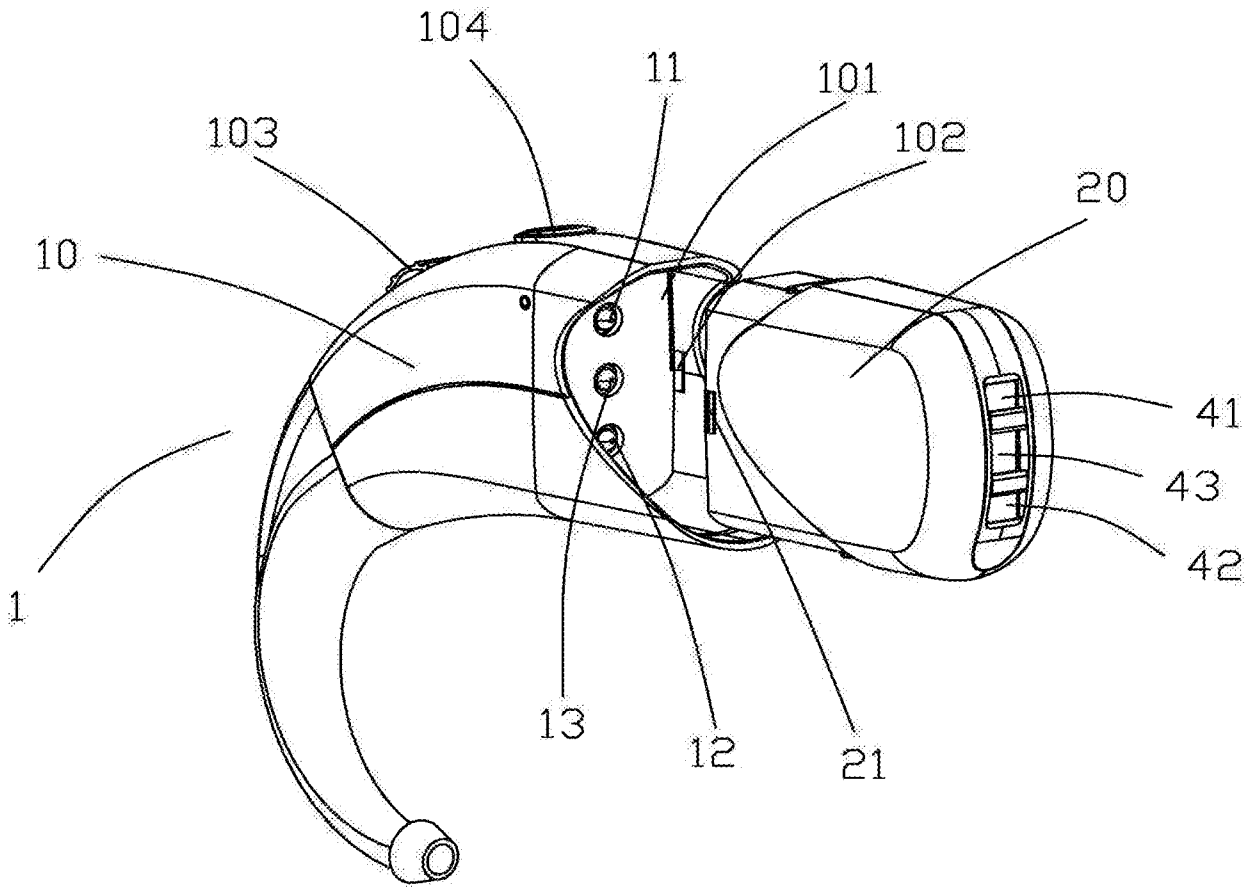


图3

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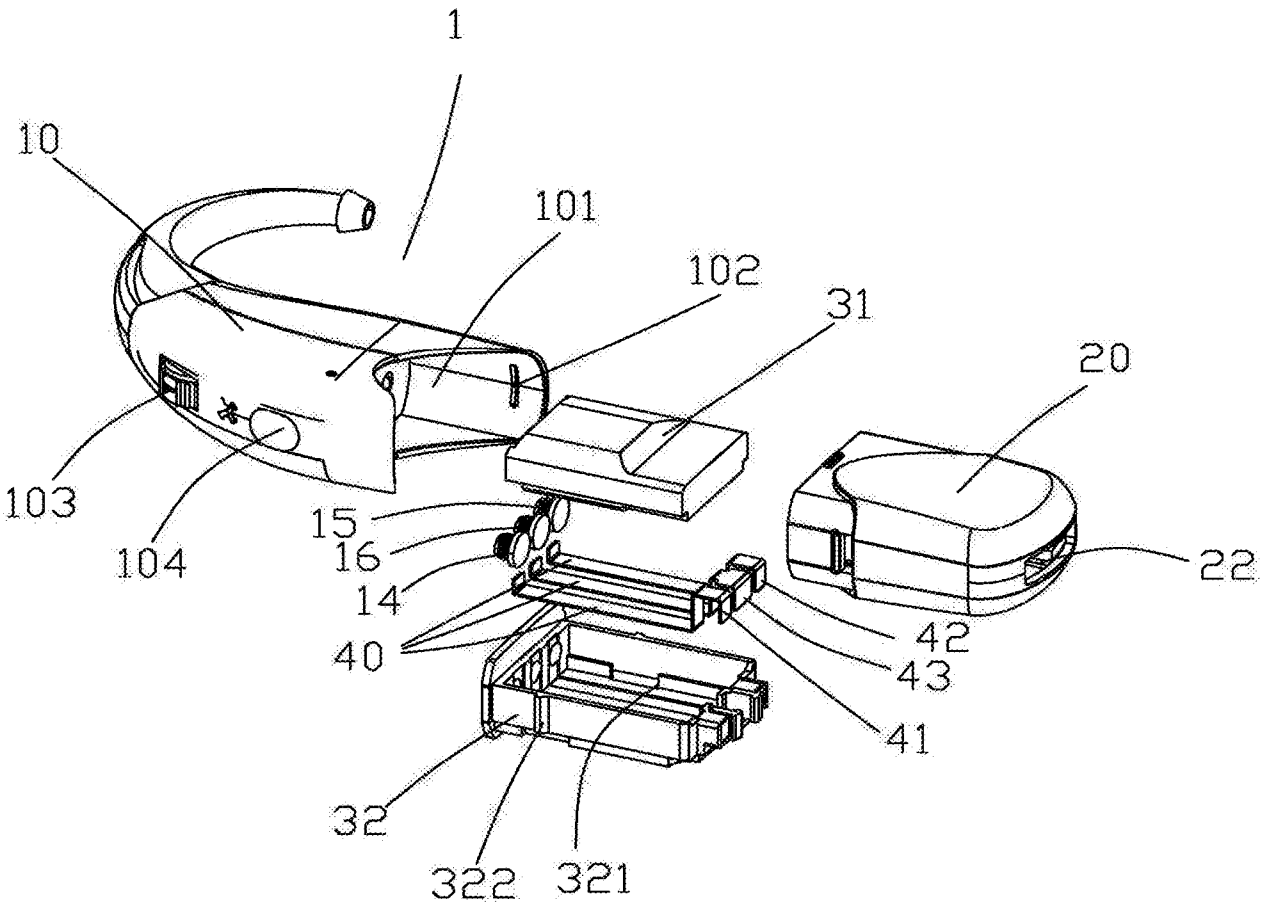


图4

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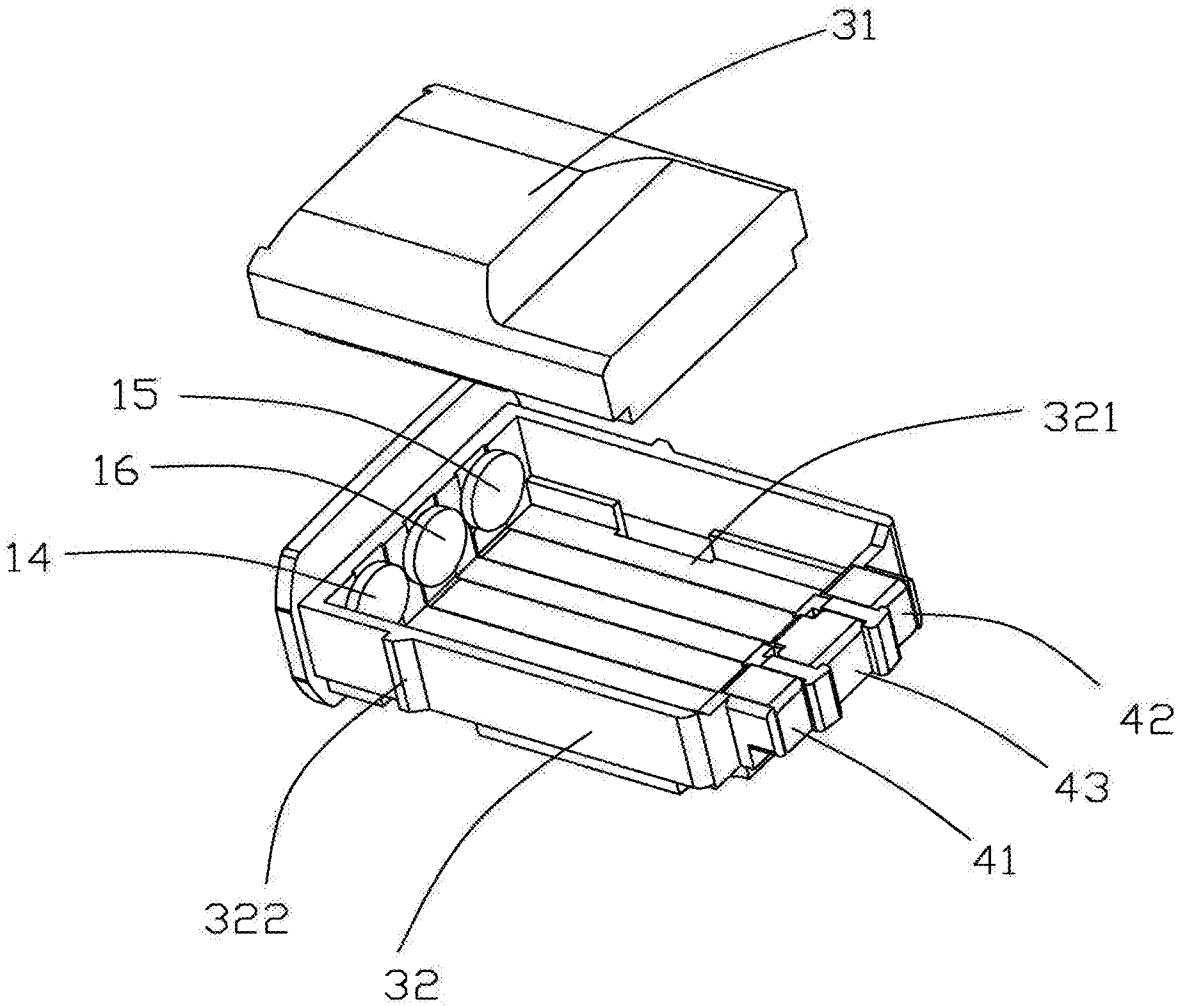


图5

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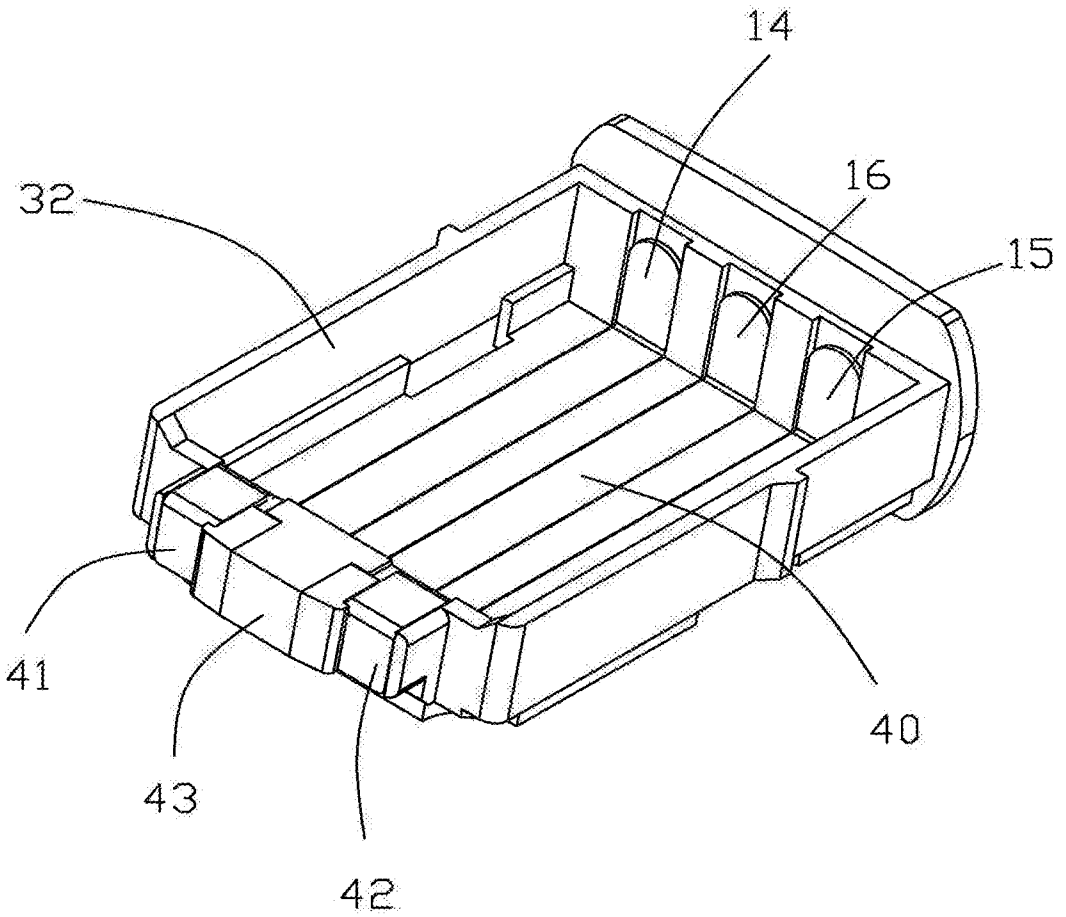


图6

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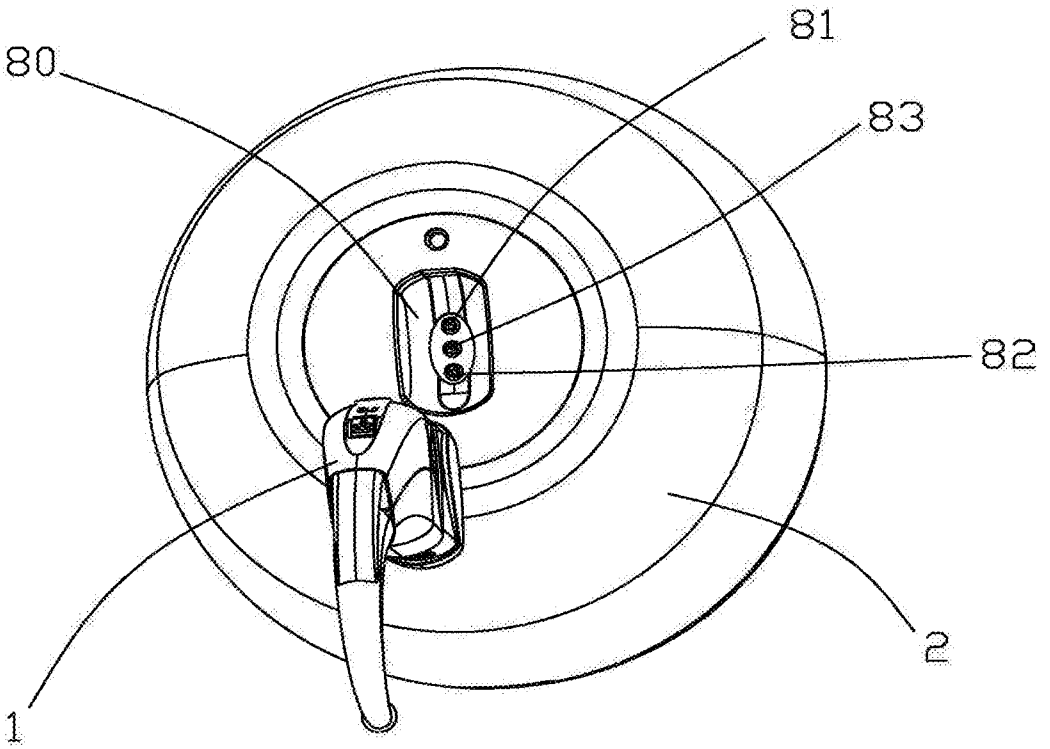


图7

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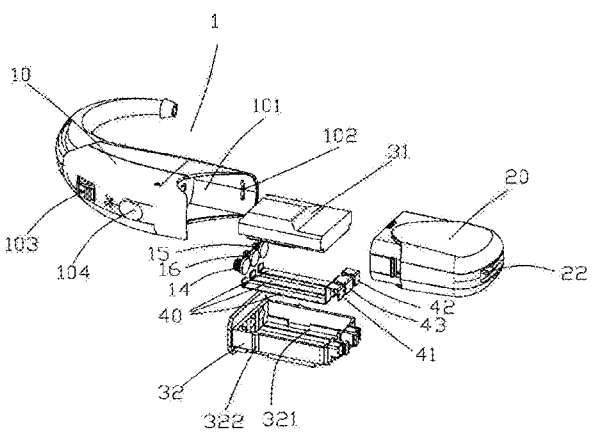
权利要求书1页 说明书4页 附图7页

(54)实用新型名称

一种助听器

(57)摘要

本实用新型提供一种助听器，包括：壳体、蓄电池模块及电子系统，所述壳体包括可相互固定连接的第一壳体和第二壳体，所述电子系统设置在第一壳体内，所述蓄电池模块设置在第二壳体内，助听器的电子系统与蓄电池模块之间形成可拆卸连接，二者通过触点接触的方式形成电连接，具有结构紧凑、易于安装和拆卸等特点。



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1.一种助听器，包括：壳体、蓄电池模块及电子系统，其特征在于：所述壳体包括可相互固定连接的第一壳体和第二壳体，所述电子系统设置在第一壳体内，所述电子系统的电源正输入端、电源负输入端及信号输出端分别向第一壳体表面延伸形成第一触点、第二触点和第三触点；

所述蓄电池模块至少包括蓄电池，所述蓄电池模块设置在第二壳体内，所述第二壳体上还裸露有正极充电触点、负极充电触点以及信号输出触点，所述正极充电触点、负极充电触点分别与蓄电池的正极电极端、负极电极端形成电连接，所述第一壳体和第二壳体相互固定连接后，所述蓄电池的正极电极端、负极电极端分别与第一触点、第二触点形成电连接，进而为电子系统提供电源，所述信号输出触点与第一壳体的第三触点形成电连接。

2.根据权利要求1所述的助听器，其特征在于：所述蓄电池模块还包括具有一第一容置槽的蓄电池壳体，所述蓄电池壳体设有第四触点、第五触点和第六触点，所述第四触点、第五触点和第六触点均设置至第一容置槽的内壁面，所述蓄电池固定在蓄电池壳体的第一容置槽内，其正极电极端、负极电极端分别与第四触点、第五触点形成电连接，并分别通过第四触点、第五触点与第一壳体的第一触点和第二触点形成电连接，所述信号输出触点通过第六触点与第一壳体的第三触点形成电连接。

3.根据权利要求2所述的助听器，其特征在于：所述正极充电触点、负极充电触点以及信号输出触点均设置在蓄电池壳体上，所述第二壳体上设有一窗口，所述正极充电触点、负极充电触点以及信号输出触点均裸露在该窗口内。

4.根据权利要求1至3任一所述的助听器，其特征在于：所述第二壳体上设有第二容置槽，所述第二容置槽的内壁凹陷设有第一卡槽，所述蓄电池模块上设有第一卡接头，所述蓄电池模块套接在该第二容置槽内并通过第一卡接头与第一卡槽的卡接配合形成固定卡接。

5.根据权利要求1所述的助听器，其特征在于：所述第一壳体或第二壳体上形成有一与第二壳体或第一壳体的外形相匹配的第三容置槽，所述第二壳体或第一壳体套接在该第三容置槽内进而使二者形成固定套接。

6.根据权利要求5所述的助听器，其特征在于：所述第一壳体或第二壳体上的第三容置槽的内壁凹陷设有第二卡槽，所述第二壳体或第一壳体表面凸起设有第二卡接头，所述第二壳体或第一壳体套接在该第三容置槽内并通过第二卡接头与第二卡槽的卡接配合形成固定卡接。

7.根据权利要求1所述的助听器，其特征在于：所述电子系统至少包括：麦克风模块、处理模块、受话模块及电子开关，所述麦克风模块的输出端连接处理模块的输入端，所述处理模块的输出端连接受话模块的输入端，所述麦克风模块、处理模块及受话模块的电源正、负输入端分别电连接第一触点和第二触点，所述电子开关分别串接在麦克风模块与受话模块的电回路中，处理模块的控制输出端连接电子开关，所述处理模块的信号输出端电连接第三触点。

8.根据权利要求7所述的助听器，其特征在于：还包括音量调节模块，所述音量调节模块的输出端连接处理模块的输入端。

9.根据权利要求7所述的助听器，其特征在于：还包括开关按钮模块，所述开关按钮模块的输出端连接处理模块的输入端。

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一种助听器

技术领域

[0001] 本实用新型涉及助听器领域，具体涉及一种结构紧凑、内部件易于安装和拆卸的助听器。

背景技术

[0002] 助听器(Hearing Aid)是听力障碍者使用的辅具，用来补足听力损伤所造成的缺陷。进而提高与他人会话交际能力的工具、设备、装置和仪器等。助听器从佩戴位置及外形的角度又可分为耳背式助听器，耳道式助听器，完全耳道式助听器等。

[0003] 耳背式助听器机体较大，一般采用蓄电池(如锂电池)进行提供电源，而蓄电池与助听器内集成有电子系统的电路板以及与充电触点的电连接均通过导线实现，这就会造成蓄电池不易自主装配和拆卸，而且导线繁琐，容易在焊点处折断导致无法正常使用。

实用新型内容

[0004] 为此，本实用新型提供一种结构紧凑、内部件易于安装和拆卸的助听器。

[0005] 为达到上述目的，本实用新型提供的一种助听器，包括：壳体、蓄电池模块及电子系统，所述壳体包括可相互固定连接的第一壳体和第二壳体，所述电子系统设置在第一壳体内，所述电子系统的电源正输入端、电源负输入端极信号输出端分别向第一壳体表面延伸形成第一触点、第二触点和第三触点；

[0006] 所述蓄电池模块至少包括蓄电池，所述蓄电池模块设置在第二壳体内，所述第二壳体上还裸露有正极充电触点、负极充电触点以及信号输出触点，所述正极充电触点、负极充电触点分别与蓄电池的正极电极端、负极电极端形成电接触，所述第一壳体和第二壳体相互固定连接后，所述蓄电池的正极电极端、负极电极端分别与第一触点、第二触点形成电连接，进而为电子系统提供电源，所述信号输出触点与第一壳体的第三触点形成电连接。

[0007] 本实用新型的一种优选方案，所述蓄电池模块还包括具有一第一容置槽的蓄电池壳体，所述蓄电池壳体设有第四触点、第五触点和第六触点，所述第四触点、第五触点延伸至第一容置槽的内壁面，所述蓄电池固定在蓄电池壳体的第一容置槽内，其正极电极端、负极电极端分别与第四触点、第五触点形成电连接，并分别通过第四触点、第五触点与第一壳体的第一触点和第二触点形成电连接，所述信号输出触点通过第六触点与第一壳体的第三触点形成电连接。

[0008] 本实用新型的另一种优选方案，所述正极充电触点、负极充电触点以及信号输出触点均设置在蓄电池壳体上，所述第二壳体上设有一窗口，所述正极充电触点、负极充电触点以及信号输出触点均裸露在该窗口内。

[0009] 本实用新型的另一种优选方案，所述第二壳体上设有第二容置槽，所述第二容置槽的内壁凹陷设有第一卡槽，所述蓄电池模块上设有第一卡接头，所述蓄电池模块套接在该第二容置槽内并通过第一卡接头与第一卡槽的卡接配合形成固定卡接。

[0010] 本实用新型的另一种优选方案，所述第一壳体或第二壳体上形成有一与第二壳体

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或第一壳体的外形相匹配的第三容置槽，所述第二壳体或第一壳体套接在该第三容置槽内进而使二者形成固定套接。

[0011] 本实用新型的另一种优选方案，所述第一壳体或第二壳体上的第三容置槽的内壁凹陷设有第二卡槽，所述第二壳体或第一壳体表面凸起设有第二卡接头，所述第二壳体或第一壳体套接在该第三容置槽内并通过第二卡接头与第二卡槽的卡接配合形成固定卡接。

[0012] 本实用新型的另一种优选方案，所述电子系统至少包括：麦克风模块、处理模块、受话模块及电子开关，所述麦克风模块的输出端连接处理模块的输入端，所述处理模块的输出端连接受话模块的输入端，所述麦克风模块、处理模块及受话模块的电源正、负输入端分别电连接第一触点和第二触点，所述电子开关分别串接在麦克风模块与受话模块的电回路中，处理模块的控制输出端连接电子开关，所述处理模块的信号输出端电连接第三触点。

[0013] 本实用新型的另一种优选方案，还包括音量调节模块，所述音量调节模块的输出端连接处理模块的输入端。

[0014] 本实用新型的另一种优选方案，还包括开关按钮模块，所述开关按钮模块的输出端连接处理模块的输入端。

[0015] 通过本实用新型提供的技术方案，具有如下有益效果：

[0016] 助听器的电子系统与蓄电池之间形成可拆卸连接，二者通过触点接触的方式形成电连接，具有结构紧凑、易于安装和拆卸等特点。

附图说明

[0017] 图1所示为实施例中助听器的立体结构示意图；

[0018] 图2所示为实施例中助听器的部分分解示意图一；

[0019] 图3所示为实施例中助听器的部分分解示意图二；

[0020] 图4所示为实施例中助听器的部分分解示意图三；

[0021] 图5所示为实施例中助听器的部分结构的分解示意图；

[0022] 图6所示为另一实施例中助听器的部分结构示意图；

[0023] 图7所示为实施例中助听器与充电座的对应结构示意图。

具体实施方式

[0024] 为进一步说明各实施例，本实用新型提供有附图。这些附图为本实用新型揭露内容的一部分，其主要用以说明实施例，并可配合说明书的相关描述来解释实施例的运作原理。配合参考这些内容，本领域普通技术人员应能理解其他可能的实施方式以及本实用新型的优点。图中的组件并未按比例绘制，而类似的组件符号通常用来表示类似的组件。

[0025] 现结合附图和具体实施方式对本实用新型进一步说明。

[0026] 实施例一

[0027] 参照图1至图5所示，本实用新型提供的一种助听器1，包括：壳体、蓄电池模块、电子系统(未示出)以及三个条形金属导电片40，所述壳体包括第一壳体10和第二壳体20，所述电子系统设置在第一壳体10内，所述电子系统的电源正输入端、电源负输入端极信号输出端分别向第一壳体10表面延伸形成第一触点11、第二触点12和第三触点13。

[0028] 所述蓄电池模块包括：具有一第一容置槽321的蓄电池壳体32和蓄电池31，所述蓄

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电池壳体32设有第四触点14、第五触点15和第六触点16，所述第四触点14、第五触点15和第六触点16均为可旋接的螺钉触点，所述第四触点14、第五触点15和第六触点16均设置在第一容置槽321的内壁面，三个条形金属导电片40均设置在第一容置槽321内，三个条形金属导电片40的一端分别与第四触点14、第五触点15和第六触点16形成电连接，其另一端延伸至设有第四触点14、第五触点15和第六触点16的对侧依次形成正极充电触点41、负极充电触点42以及信号输出触点43。所述蓄电池31卡接设置在蓄电池壳体32的第一容置槽321内，其正极电极端、负极电极端分别与第四触点14、第五触点15形成电连接，进而分别与正极充电触点41、负极充电触点42形成电连接。

[0029] 本实施例中，通过蓄电池模块的设置，将蓄电池31的充电回路和放电回路紧凑结合，其具有结构紧凑、安装方便等特点。在其他实施例中，正极充电触点41、负极充电触点42以及信号输出触点43可分别通过嵌设至蓄电池壳体32内的导线与相对应的触点实现电连接。此为常规技术，不再详述。

[0030] 所述第二壳体20上设有第二容置槽(未示出)，所述第二容置槽的内壁凹陷设有第一卡槽(未示出)，所述蓄电池模块的蓄电池壳体32上设有第一卡接头322，所述蓄电池模块套接在该第二容置槽内并通过第一卡接头322与第一卡槽的卡接配合形成固定卡接。同时，第二壳体20对应正极充电触点41、负极充电触点42以及信号输出触点43的位置设有一窗口22，所述正极充电触点41、负极充电触点42以及信号输出触点43均裸露在该窗口22内，进而裸露于第二壳体20。

[0031] 所述第一壳体10形成有一与第二壳体20的外形相匹配的第三容置槽101，第三容置槽101的内壁凹陷设有第二卡槽102，所述第二壳体20表面凸起设有第二卡接头21，所述第二壳体20套接在该第三容置槽101内并通过第二卡接头21与第二卡槽102的卡接配合形成固定卡接。在其他实施例中，若实际尺寸可做到刚好配合，可无需通过第二卡接头与第二卡槽的配合，直接通过套接配合即可实现固定。再者，第三容置槽也可以设置在第二壳体上，只要第一壳体和第二壳体的尺寸进行简单的替换即可，在此不再详述。

[0032] 所述第一壳体10和第二壳体20相互固定连接后，第四触点14、第五触点15分别与第一触点11、第二触点12形成电连接，进而使所述蓄电池31的正极电极端、负极电极端分别与第一触点11、第二触点12形成电连接，从而为电子系统提供电源。所述信号输出触点43通过第六触点16与第一壳体10的第三触点13形成电连接，实现通信信号的输出。

[0033] 本实施例中，所述电子系统包括：麦克风模块(未示出)、处理模块(未示出)、受话模块(未示出)、音量调节模块103、开关按钮模块104及电子开关，所述麦克风模块的输出端连接处理模块的输入端，所述处理模块的输出端连接受话模块的输入端，所述麦克风模块、处理模块及受话模块的电源正、负输入端分别电连接第一触点11和第二触点12，所述电子开关分别串接在麦克风模块与受话模块的电回路中，处理模块的控制输出端连接电子开关，所述处理模块的信号输出端电连接第三触点13。所述音量调节模块103的输出端连接处理模块的输入端实现音量的调节。所述开关按钮模块104的输出端连接处理模块的输入端实现外部控制该助听器的开启或关闭。如上电子系统的各个模块的元器件、相关的电路的连接方式和具体的工作原理均为现有技术，是本领域内的技术人员早已掌握并已实际运用于产品中的。在此不再详述。

[0034] 实施例二

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[0035] 参照图6所示，本实施例提供的助听器与实施例一中的结构大致相同，唯一不同的是，本实施例中，第四触点14、第五触点15和第六触点16均分别由三个条形金属导电片40一体延伸形成，在装配上更为简便，也避免了金属导电片与触点之间存在的断电风险。

[0036] 参照图7所示，本实施例提供的一种与上述助听器1相配合充电的充电座2，该充电座2上设有一第四容置槽80，该第四容置槽80底部设有三根导电柱，分别为第一导电柱81、第二导电柱82和第三导电柱83，第一导电柱81和第二导电柱82分别电连接该充电座2内的电源管理模块(未示出)的电源正、负输出端，第三导电柱83与电源管理模块的信号输入端形成电连接。助听器1插设至充电座2的第四容置槽80内，第一导电柱81和第二导电柱82分别与助听器1的正极充电触点41和负极充电触点42形成电连接，第三导电柱83与助听器1的信号输出触点43形成电连接。助听器1的电子系统将工作信号通过信号输出触点43传输给充电座2的电源管理模块，判定助听器1是否断电，若助听器1已经断电，则电源管理模块控制该充电座2为助听器1的蓄电池进行充电，若助听器1未断电，则不进行充电。

[0037] 本实施例中，充电座2的具体结构以及工作原理均为现有技术，是本领域内的技术人员早已掌握并进行实施生产的，在此不再详述。

[0038] 通过本实用新型提供的技术方案，助听器的电子系统与蓄电池之间形成可拆卸连接，二者通过触点接触的方式形成电连接，具有结构紧凑、易于安装和拆卸等特点。

[0039] 尽管结合优选实施方案具体展示和介绍了本实用新型，但所属领域的技术人员应该明白，在不脱离所附权利要求书所限定的本实用新型的精神和范围内，在形式上和细节上可以对本实用新型做出各种变化，均为本实用新型的保护范围。

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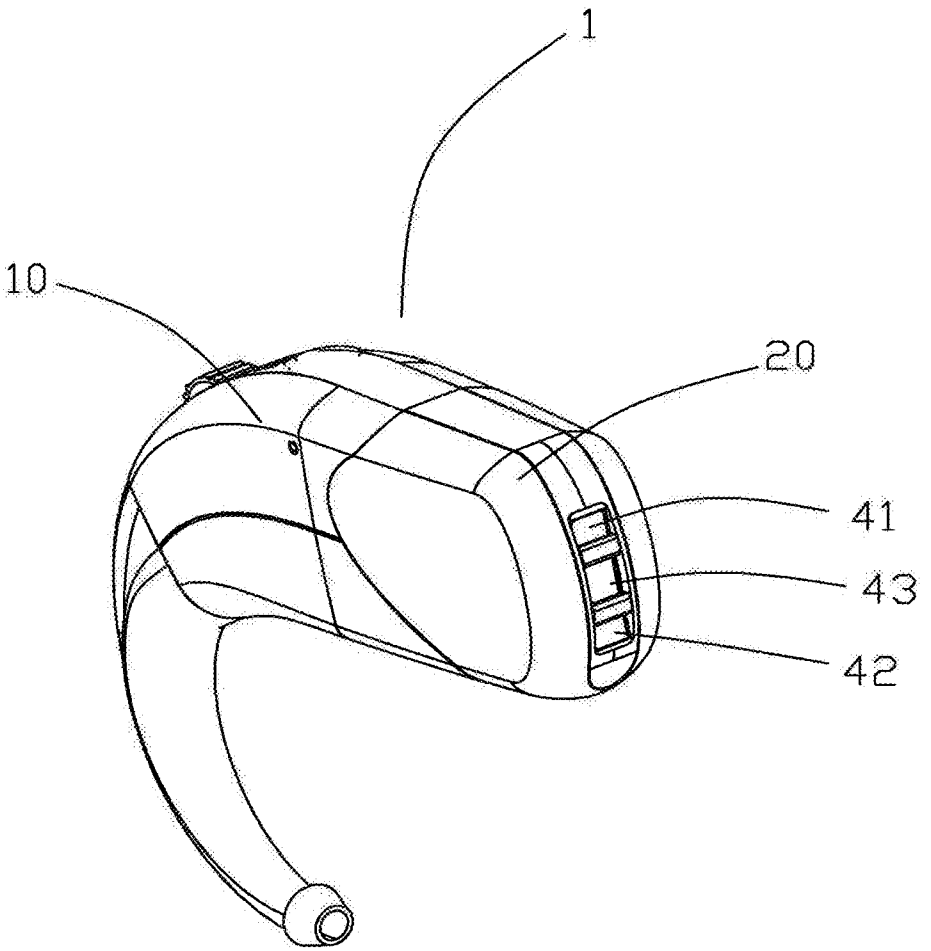


图1

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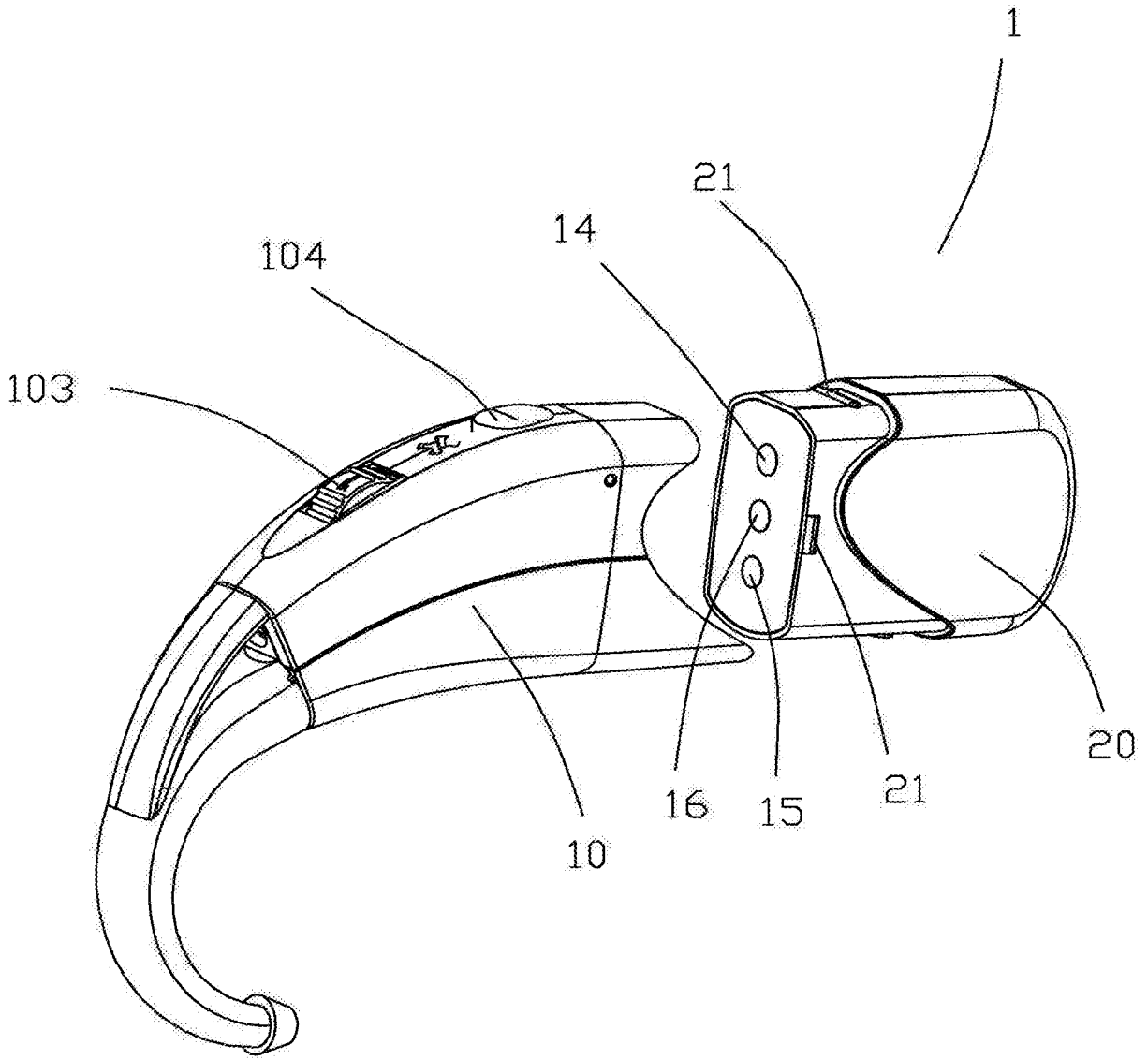


图2

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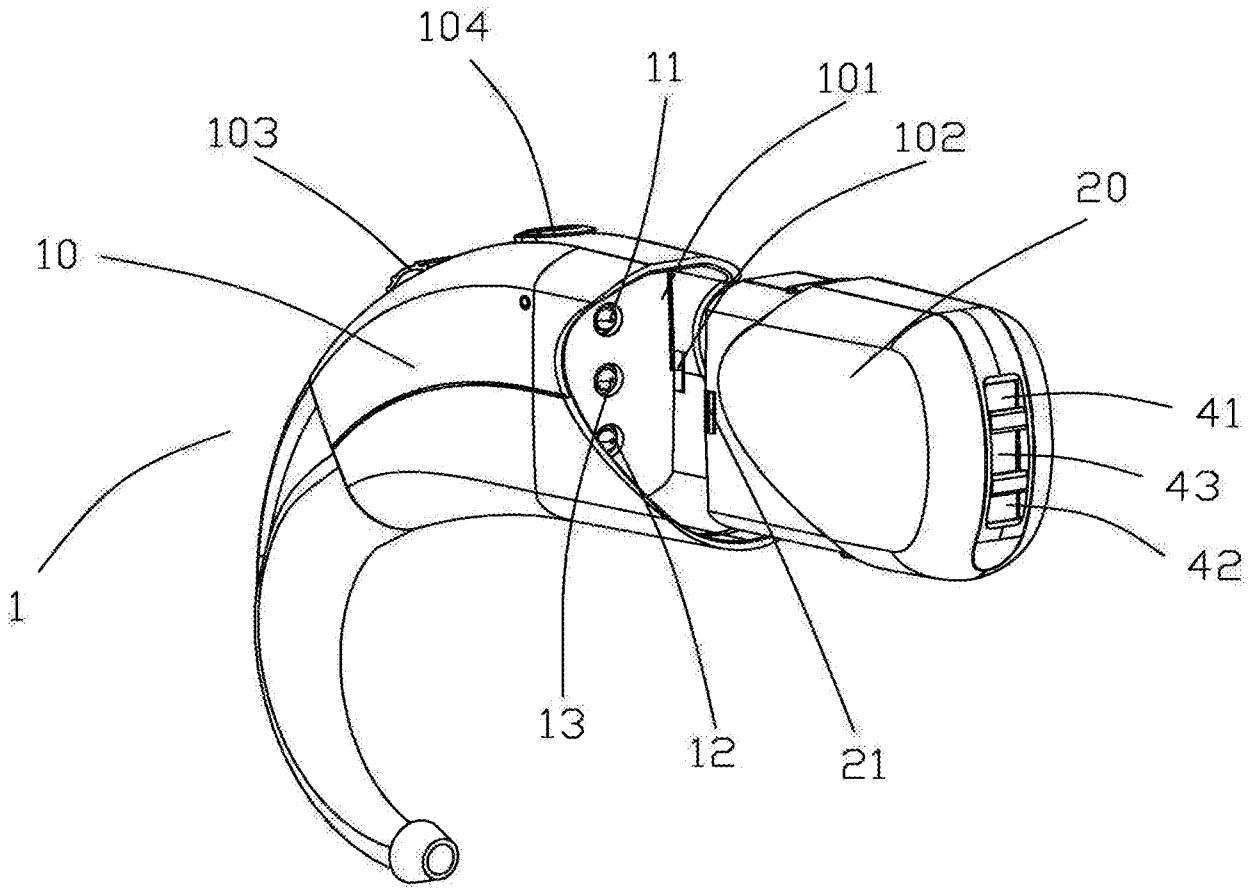


图3

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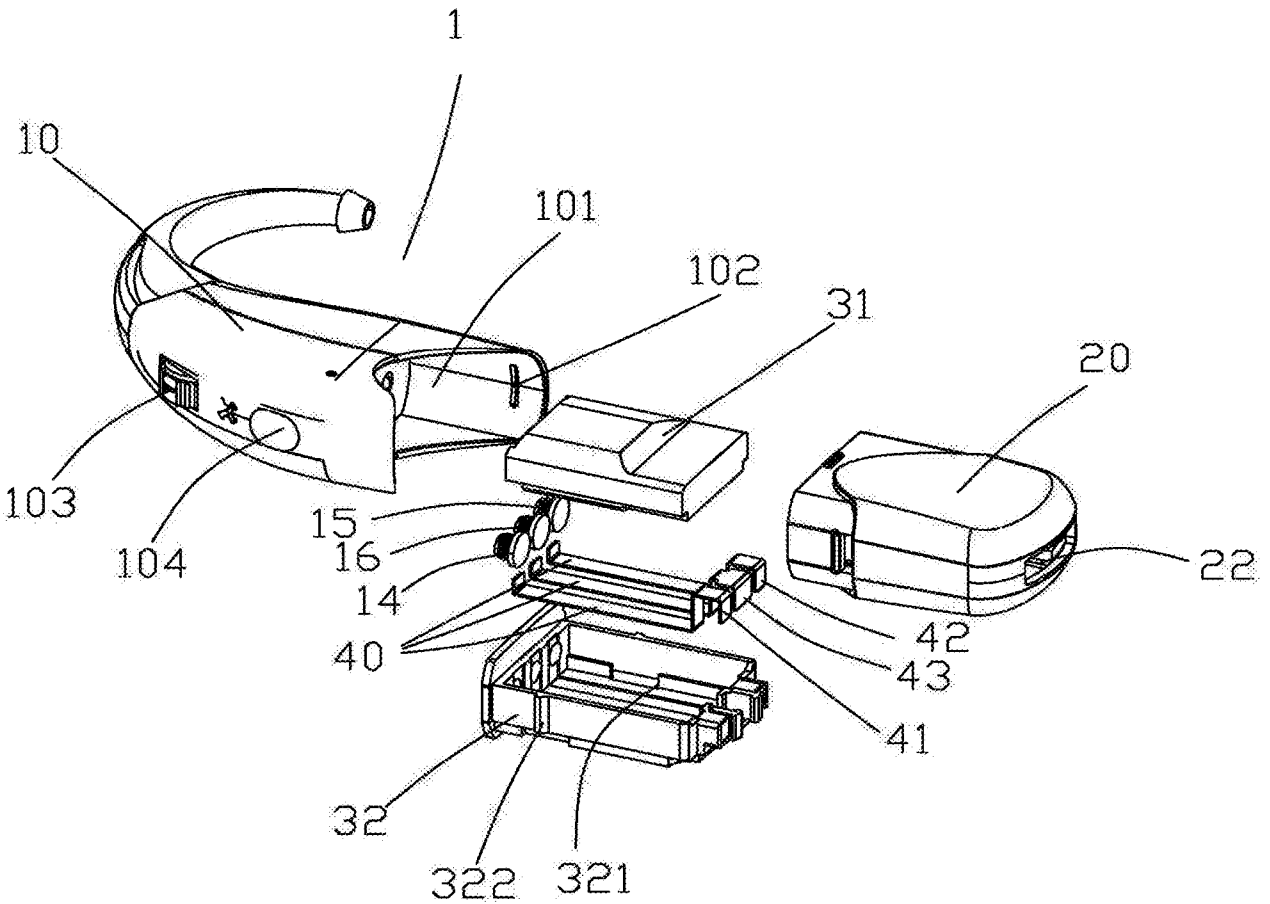


图4

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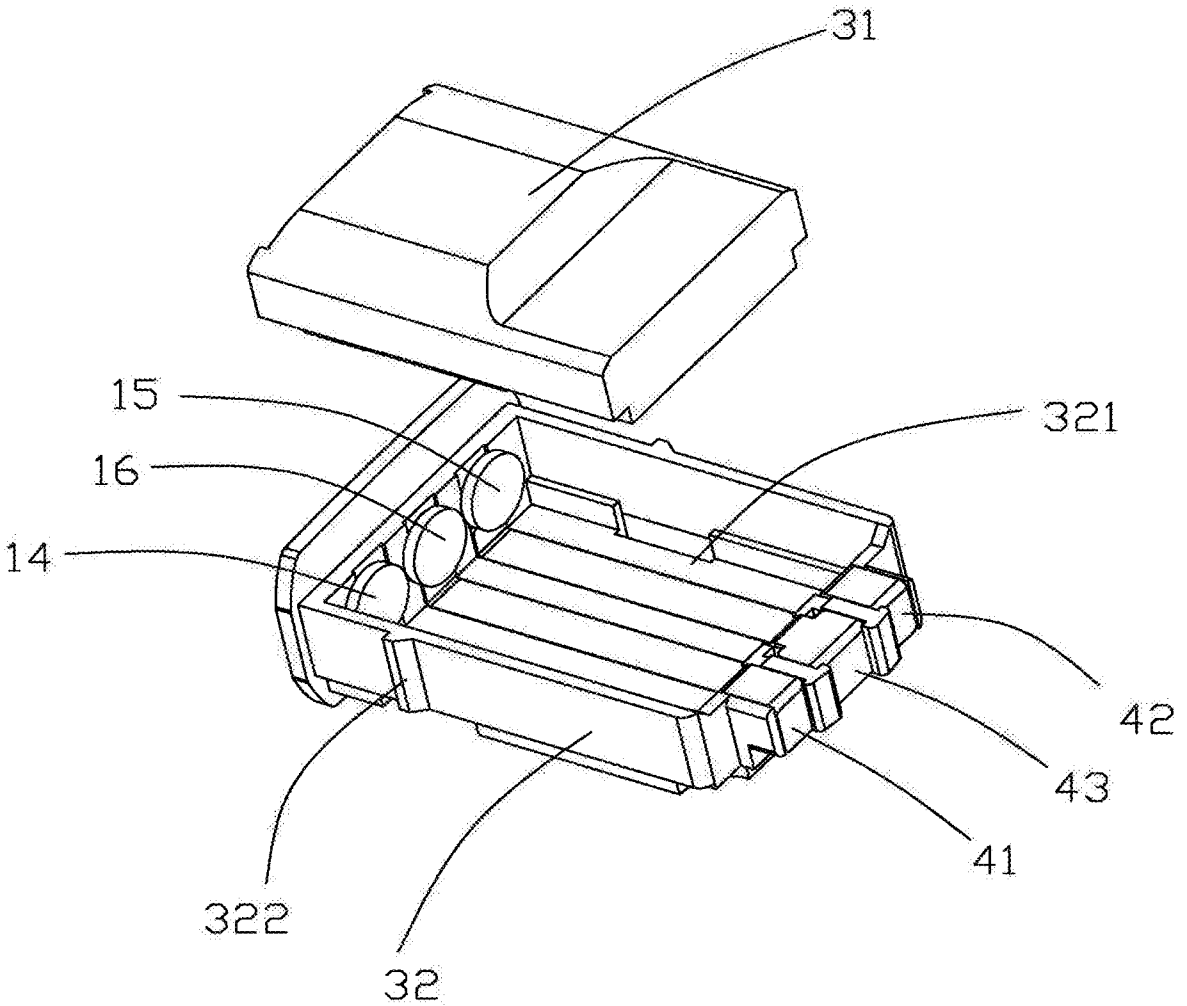


图5

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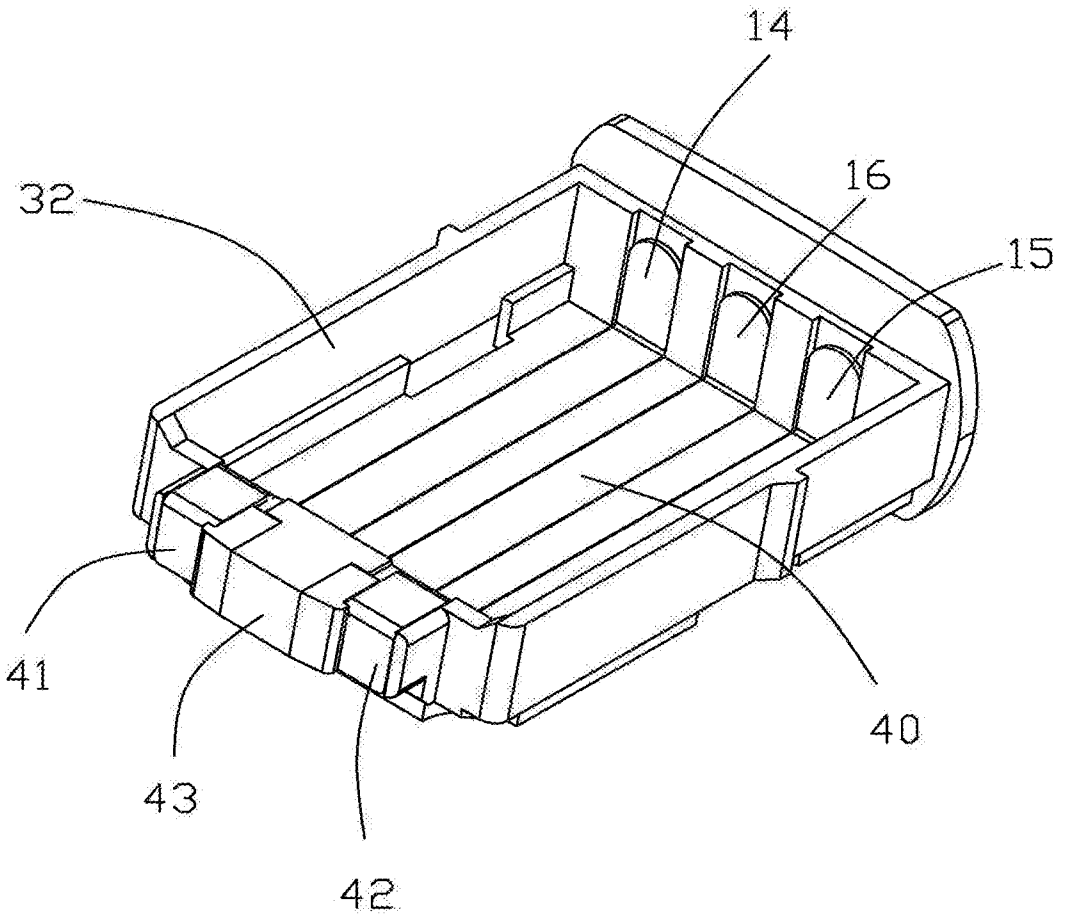


图6

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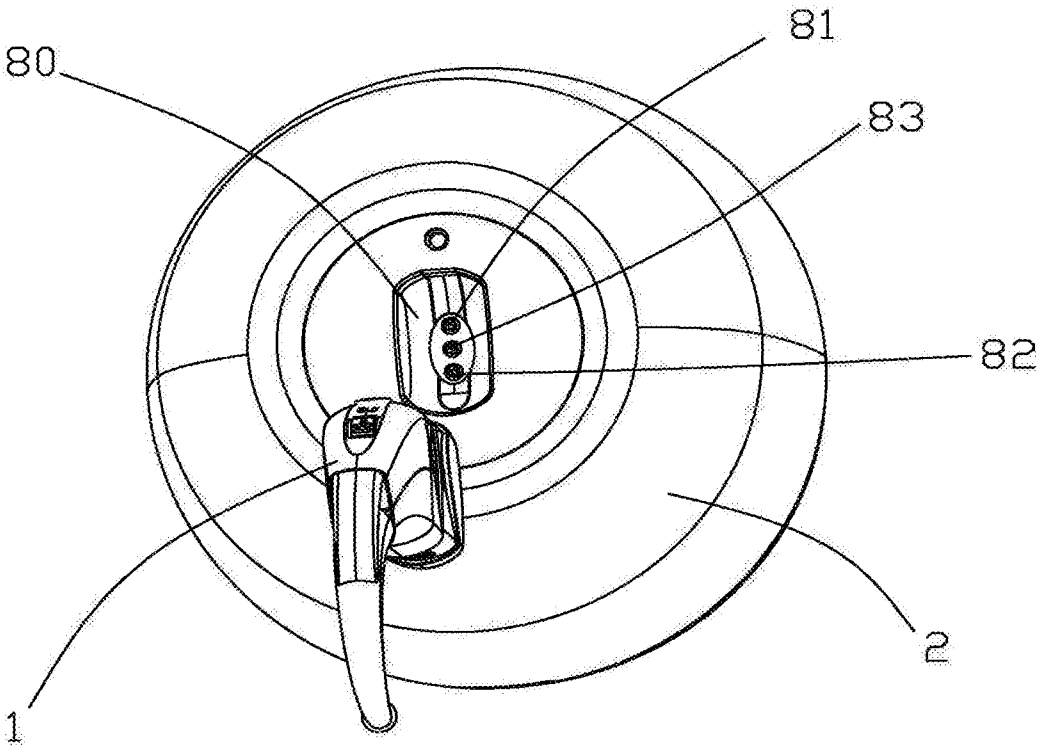


图7

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A kind of bone conduction earphone

Abstract

The utility model embodiment, which provides a kind of bone conduction earphone, includes ear-hang component, the ear-hang component includes the first housing, second housing, 3rd housing and control circuit component, 3rd housing and the first housing coordinate, to form the first accommodation space for being used for housing control circuit component, button perforate and the storage tank connected with button perforate are provided with 3rd housing, control circuit component includes circuit board, the switch being fixed on circuit board, waterproof liner and button, wherein button is arranged in button perforate and exposed through button perforate, waterproof liner includes liner plate main body and the 3rd resilient coating being coated on injection molding manner in liner plate main body, waterproof liner is arranged in storage tank and the 3rd resilient coating abuts with the sidewall elastomer of storage tank, button and switch are respectively arranged at the both sides of waterproof liner and abutted respectively with waterproof liner.By the above-mentioned means, the utility model can effectively lift the water resistance of bone conduction earphone.

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China

Other languages: Chinese

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Worldwide applications

2017 CN

Application CN201721042039.5U events

2017-08-18	Application filed by 深圳市新音科技有限公司
2017-08-18	Priority to CN201721042039.5U
2018-02-23	Application granted
2018-02-23	Publication of CN207039848U

Info: Cited by (4), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

A kind of bone conduction earphone

Technical field

Earphone field is the utility model is related to, more particularly to a kind of bone conduction earphone.

Background technology

Osteoacusic is a kind of sound conduction mode, i.e., sound is converted into the mechanical oscillation of different frequency, passes through the cranium of people Bone, osseous labyrinth, inner ear lymph transmission, spiral organ, auditory nerve, auditory center transmit sound wave.Bone conduction earphone is passed using bone Waveguide technology is called, is close to bone, and sound wave directly reaches auditory nerve by bone.Therefore ears can be opened, does not injure eardrum, Therefore liked by consumers in general.Bone conduction earphone generally needs to have certain water resistance, especially in circuit The key area of plate is with greater need for possessing good water resistance, key area water proofing property of the existing bone conduction earphone in circuit board Can be poor, it is

Claims (10)

Hide Dependent

1. a kind of bone conduction earphone, it is characterised in that the bone conduction earphone includes ear-hang component, and the ear-hang component includes the One housing, the second housing, connection member, the 3rd housing and the control circuit group for connecting first housing and the second housing Part, the 3rd housing coordinate with first housing, are used for the first accommodating sky for housing the control circuit component to be formed Between, button perforate and the storage tank connected with the button perforate, the control circuit component are provided with the 3rd housing including circuit board, the switch being fixed on the circuit board, waterproof liner and button, wherein the button be arranged at it is described by In key perforate and exposed through the button perforate, the waterproof liner is included liner plate main body and is coated on injection molding manner described The 3rd resilient coating in liner plate main body, the waterproof liner is arranged in the storage tank and the 3rd resilient coating and institute State storage tank sidewall elastomer abut, the button and it is described switch be

unfavorable for the protection of circuit board and bone conduction earphone.

Utility model content

The utility model can effectively improve osteoacusis ear mainly solving the technical problems that provide a kind of bone conduction earphone The water resistance of machine.

In order to solve the above technical problems, the utility model embodiment, which provides a kind of bone conduction earphone, includes ear-hang component, institute Stating ear-hang component includes connection member, the 3rd housing of the first housing, the second housing, connection first housing and the second housing And control circuit component, the 3rd housing coordinate with first housing, it is used to house the control circuit group to be formed First accommodation space of part, button perforate and the storage tank connected with the button perforate, institute are provided with the 3rd housing Stating control circuit component includes circuit board, the switch being fixed on the circuit board, waterproof liner and button, wherein described press Key is arranged in the button perforate and exposed through the button perforate, and the waterproof liner includes liner plate main body and with injection Mode is coated on the 3rd resilient coating in the liner plate main body, and the waterproof liner is arranged in the storage tank and described the Three resilient coatings abut with the sidewall elastomer of the storage tank, and the button and the switch are respectively arranged at the waterproof liner Both sides and abutted respectively with the waterproof liner.

Compared with prior art, the beneficial effects of the utility model are : The waterproof liner main body of the utility model embodiment On the 3rd resilient coating is coated with injection molding manner so that the 3rd resilient coating is not easy to come off from waterproof liner main body, energy Enough make the compactness between the 3rd resilient coating and waterproof liner main body more preferable, improve existing bone conduction earphone water proofing property Energy, ensure the validity of waterproof.

Brief description of the drawings

Fig. 1 is the structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 2 is that bone conduction earphone overall structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 3 is another structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 4 is the cross section structure schematic diagram of A-A in Fig. 3 ;

respectively arranged at the waterproof liner both sides and respectively with The waterproof liner abuts.

2. bone conduction earphone according to claim 1, it is characterised in that the ear-hang component further comprises the 4th shell Body, the 4th housing coordinate with second housing, to form the second accommodation space for being used for housing bone-conduction speaker, institute The 4th housing is stated to set in prism-shaped, wherein sound hole is drawn in the bar shaped that is at least provided with one side in the 4th housing, wherein The bottom surface that the length direction and the 4th housing of sound hole are drawn in the bar shaped be arranged in parallel, and the bar shaped draws the length of sound hole not Less than 2/3rds of the width of the side where it.

3. bone conduction earphone according to claim 1, it is characterised in that the connection member connects institute respectively including both ends State the first elastic metallic yarn of the first housing and second housing and be coated on first elastic metallic yarn first Resilient coating.

4. bone conduction earphone according to claim 3, it is characterised in that the inside of first resilient coating is further set The lead channels for connecting first housing and second housing are equipped with, the ear-hang component further comprises from described First housing extends to the first wire group of second housing through the lead channels, and the radial dimension of the lead channels is set Being set to allows the first wire group to be moved along the lead channels ; And/or the first son is provided with the first shell body and is housed Space, the second sub- accommodation space is provided with the 3rd housing, and when the 3rd housing and first housing coordinate First accommodation space is collectively forming with the described first sub-accommodation space, wherein the volume of the second sub- accommodation space is more than The first sub- accommodation space.

5. bone conduction earphone according to claim 3, it is characterised in that first housing and the second housing are respectively with note Modeling mode is fixedly connected with the both ends of first elastic metallic yarn, and first resilient coating is fixed with injection molding manner and is coated on On on first elastic metallic yarn and at least part outer surface of first housing and second housing.

Fig. 5 is that bone conduction earphone part-structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 6 is the cross section structure schematic diagram of C-C in Fig. 5 ;

Fig. 7 is circuit diagram in the utility model bone conduction earphone embodiment ;

Fig. 8 is the structural representation of the 4th housing in the utility model bone conduction earphone embodiment ;

Fig. 9 is that bone conduction earphone Plug Division is illustrated with patching pore structure amplification in the utility model bone conduction earphone embodiment Figure ;

Figure 10 is Plug Division and jointing holes cross section structure schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 11 is jointing holes structural representation in the utility model bone conduction earphone embodiment ;

Figure 12 is Plug Division structural representation in the utility model bone conduction earphone embodiment ;

Figure 13 is Fig. 9 B-B cross section structure schematic diagram ;

Figure 14 is that bone conduction earphone another part structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 15 is Figure 14 part-structure schematic cross-section ;

Figure 16 is control circuit component structure diagram in the utility model bone conduction earphone embodiment ;

Figure 17 is another structural representation of control circuit component in the utility model bone conduction earphone embodiment.

Embodiment

Refering to Fig. 1 and Fig. 2, the utility model bone conduction earphone embodiment includes ear-hang component 11, and ear-hang component 11 includes First housing 111, the second housing 112 and the connection member 113 of the first housing 111 of connection and the second housing 112, wherein connecting Part 113 connects the first elastic metallic yarn 1131 of the first housing 111 and the second housing 112 including both ends and is coated on respectively The first resilient coating 1132 on first elastic metallic yarn 1131.

Typically, bone conduction earphone also includes the elements such as bone-conduction speaker, battery, control circuit, such as osteoacusis is raised one's voice Device is used to export sound to user by vibration in a manner of osteoacusis.Battery is used to give bone

6. bone conduction earphone according to claim 5, it is characterised in that described formed with through hole on second housing First resilient coating covers the through hole, and further above the through hole and the side away from second housing formed with Button holding part, the ear-hang component further comprise button and switch module, hold wherein the button is arranged at the button Put in portion, the switch module is arranged at the side of remote first resilient coating of second housing, and is pressed with described First resilient coating below key abuts.

7. bone conduction earphone according to claim 1, the quantity of the ear-hang component is two, and the bone conduction earphone enters One step includes rear hanging component, and the rear hanging component includes the second elastic metallic yarn, is coated on second elastic metallic yarn Second resilient coating and the Plug Division for being arranged at the second elastic metallic yarn both ends, the Plug Division respectively with it is described two First housing of ear-hang component patches cooperation, and is fixedly connected.

8. bone conduction earphone according to claim 7, it is characterised in that the end set of first housing has for permitting Perhaps the vertical direction of the jointing holes of Plug Division insertion and the direction of insertion in the Plug Division connect the jointing holes with Outside perforate, to allow into the jointing holes to apply from the outside through the perforate glue or installation stopper, to cause Plug Division is stated to be fixed in the presence of the glue or stopper in the jointing holes.

9. bone conduction earphone according to claim 8, it is characterised in that fluting is provided with the side wall of the Plug Division, The fluting is exposed through the perforate, and for receiving the glue or stopper.

10. bone conduction earphone according to claim 9, it is characterised in that the Plug Division includes and the described second elasticity The first of wire connection patches section and patches section with described first and be connected and away from second elastic metallic yarn setting Second patches section, and direction of insertion of the jointing holes along the Plug Division is divided into patches the first of section for receiving described first Hole section and for receiving the described second the second hole section for patching section, wherein first hole section is sized to allow for described Two patch section moves

conduction earphone each power elements.Control Circuit processed is used to control bone conduction earphone function such as realizing regulation volume, switching on and shutting down, play audio and bluetooth communication.

Ear-hang component 11 is generally used for user and is hung on its ear when wearing bone conduction earphone, can so make osteoacusis ear Machine is more firmly worn on the ear of user.Ear-hang component 11 needs to have good resistance to compression and non-deformability, so as to User is not easy to damage or cause its deformation by bone conduction earphone when in use.

In the present embodiment, connection member 113 can directly contact ear and support bone conduction earphone by people's the ear portion, even Relay part 113 includes the first elastic metallic yarn 1131 and the first resilient coating being coated on the first elastic metallic yarn 1131 1132, the first housing 111 and the second housing 112 are connected by the first elastic metallic yarn 1131, can effectively strengthen osteoacusis ear The bending performance and structural stability of machine, ear-hang component 11 is set effectively to carry out elastic recovery when being bent and extensive Shape is restored, is unlikely to deform.In addition traditional bone conductors earphone can be improved using the first elastic metallic yarn 1131 and uses plastics conduct The problems such as fragile caused by the material of ear-hang component.Optionally, connection member 113 can include more first elasticity gold Belong to silk 1131, such as more the first tiny elastic metallic yarns 1131 can be set further to improve the curved of ear-hang component 11 Folding reliability, such as 3 first elastic metallic yarns 1131 of setting, the diameter 0.3mm of every first elastic metallic yarn 1131, now The material of 3 first elastic metallic yarns can with it is identical can also part it is identical or all different, every first elasticity gold certainly Belong to silk 1131 diameter can also identical, part it is identical or all different.

In the present embodiment, optionally, the first elastic metallic yarn 1131 can be metal simple-substance, or including more The alloy material of kind metal material, such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium close Gold, chrome-molybdenum steel etc. or the composite including metal material and nonmetallic materials.Optionally, the first elastic metallic Silk 1131 is titanium alloy wire, or is at least made up of titanium alloy material, such as a diameter of 0.8-1.5mm titanium alloy wire, optional For 1.0-1.25mm.

In the present embodiment, the first resilient coating of outer cladding 1132 of the first elastic metallic yarn 1131, the first resilient coating 1132 directly contact with ear, because the elastic reaction of the first resilient coating 1132 enables to user cosily to wear bone Conduct earphone.In addition, the first resilient coating 1132 can freely along the direction of insertion in first hole section, and make it that described first patches section and described first Tight fit between hole section.

more effectively coat the first elasticity gold due to the presence of its elastic reaction Belong to silk 1131, remain to effectively coat the first elastic metallic yarn 1131 even in after repeatedly bending, ensure bone conduction earphone knot The validity of structure.Optionally, the first resilient coating 1132 is layer of silica gel, certainly in other embodiments, the first resilient coating 1132 can also be emulsion layer either rubber layer or other flexible plastic layers, or be the composite comprising silica gel Layer.

Optionally, the first housing 111 and the second housing 112 are respectively with injection molding manner and the first elastic metallic yarn 1131 Both ends are fixedly connected, and the first resilient coating 1132 is fixed with injection molding manner and is coated on the first elastic metallic yarn 1131.Optionally It is that the first housing 111 and the second housing 112 are plastic casing, and the first elastic metallic yarn is fixed in a manner of injection molding 1131 both ends, and the first resilient coating 1132 are integrally formed on the first elastic metallic yarn 1131 of cladding, so that the Connection between one housing 111, the second housing 112 and the first elastic metallic yarn 1131 is more firm, and causes bone conduction earphone One body-sensing is stronger with texture, makes the more compact structure of bone conduction earphone lighter.In the present embodiment, injection molding manner can be note The one kind being moulded into type, thermoplastic shaping, compression molding etc., but not limited to this.

Refering to Fig. 3 and Fig. 4, optionally, the first resilient coating 1132 by different colours two sub- resilient coatings 1132a, 1132b are put together, and two of which elastic coating 1132a, 1132b split seam are located at connection member 113 respectively Be oppositely arranged two sides 113a, 113b on, wherein split is sewn on the throwing for example on lateral surface 113a on same side Shadow offsets one from another.Such as when carrying out injection molding, two bullets using at least two molds to the first resilient coating 1132 Property coating 1132a, 1132b are molded respectively, the two kinds of colors that thus can form different ratio be, for example, light gray with it is dark-grey The combination of color or other colors, and split seam is located on two sides 113a, 113b that connection member 113 is oppositely arranged, and Projection offsets one from another on same side so that the visual effect of bone conduction earphone more preferably, further as staggering coats the first bullet Property wire 1131 cause covered effect it is more preferable.Certain first resilient coating 1132 elastic can also be covered by two of same color Layer is put together.By injection molding twice, formation two is elastic on two sides 113a, 113b of connection member 113 respectively Coating 1132a, 1132b, due to the presence of injection pressure when can improve single injection-molded or be injected separately shaping up and down Easily causing element such as the first elastic metallic yarn 1131 in the first resilient coating 1132 to produce

displacement reduces connection member 113 Forming Quality.Certainly, in other embodiments, the first resilient coating 1132 can directly form a coating, or be formed The more than two elastic coating of quantity.

In the present embodiment, the two sides of connection member 113 include being oppositely arranged medial surface 113b and lateral surface 113a, are Refer to the ear-hang component 11 when wearing and be hung on human ear, connection member 113 towards the side of head part be medial surface 113b, towards human ear Side be lateral surface 113a.

With continued reference to Fig. 3 and Fig. 4, optionally, two sub- resilient coating 1132a, 1132b split seam are respectively positioned at company On the medial surface 113b and lateral surface 113a of relay part 113, and the split seam on the lateral surface 113a of connection member 113 The projection compared to the split seam on the medial surface 113b of connection member 113 is projected closer to connection member 113 and human ear Contact position.It can thus be appreciated that a split seam is located at the position of lateral surface 113a close contact human ear, and another is spelled Elastic coating 1132a that joint close is located at medial surface 113b almost to show same color on lateral surface 113a or 1132b, such as lateral surface 113a almost show light gray so that the body-sensing of bone conduction earphone one is stronger, more attractive in appearance.

Optionally, split seam is arranged so that two sub- resilient coating 1132a, 1132b in same side such as 113a Or the area on 113b is different from each other.In other embodiments, split seam may be arranged so that two sub-resilient coatings The area of 1132a, 1132b on same side is identical or is substantially the same.

Refering to Fig. 2 to Fig. 4, optionally, the color for being arranged so that two sub- resilient coating 1132a, 1132b is stitched in split Relatively shallower elastic coating 1132a footprint areas on lateral surface 113a are relatively large.That is, the elastic of light colour is covered Layer 1132a is more located at lateral surface 113a, and the elastic coating 1132b of dark colour is more located at medial surface 113b, so So that the surface of connector 113 has more harmony, strengthen the aesthetic properties of bone conduction earphone while structural behaviour is ensured.

With continued reference to Fig. 1, optionally, the both ends of the first elastic metallic yarn 1131 set in flat and are respectively embedded into One housing 111 and the second housing 112.Namely formed and be fixed in a manner of injection in the first housing 111 and the second housing 112 First elastic metallic yarn 1131 is in the both ends that flat is set, and can so increase the first elastic metallic yarn 1131 and the first housing 111st, the contact area of the second housing 112 so that the first elastic metallic yarn 1131 and the first housing 111, the second housing 112 are more steady Surely interfix.Optionally, it

should be in flat that the first elastic metallic yarn 1131 is more than connection in the width at the both ends of flat setting The width of the coupling part at the flat both ends set, so plays a spacing effect after shaping, prevents the first elasticity gold Category silk 1131 is pulled out or come off from the first housing 111, the second housing 112.Optionally, first elastic metallic yarn 1131 Both ends are set in shape of threads.In shaping, partial shell can be taken shape in screw thread, to play fixed effect.Certainly, first The both ends of elastic metallic yarn 1131 can be set in flat and shape of threads respectively.In other embodiments, the first elasticity gold Category silk 1131 both ends can partly be located at indent to form depressed part, the first housing 111 and the second housing 112 in shaping In depressed part, to play fixation.

Refering to Fig. 1 and Fig. 2, optionally, the first resilient coating 1132 further coats the first housing 111 and the second housing 112 at least part outer surface, such as whole outer surfaces.I.e. the first resilient coating 1132 coats first in a manner of injection molding Elastic metallic yarn 1131, at least part outer surface of the first housing 111, at least part outer surface of the second housing 112, so make It is stronger to obtain texture and the body-sensing of bone conduction earphone, and the presence of the first resilient coating 1132, can further containment vessel The element of body and enclosure interior so that bone conduction earphone is more resistant to abrasion.

Refering to Fig. 5 and Fig. 6, optionally, formed with through hole 1121 on the second housing 112.I.e. through hole 1121 runs through second The medial surface and lateral surface of housing 112 First resilient coating 1132 cover through hole 1121 and further above through hole 1121 and Side away from the second housing 112 (i.e. the medial surface away from the second housing 112) is formed with button holding part 1121a.Button holds The portion 1121a of putting is to be covered through hole 1121 in injection moulding process by the first resilient coating 1132 and formed, in button holding part 1121a Because the presence of the first resilient coating 1132 is can to completely cut off moisture content, dust etc. to enter 112 in second shell body.Ear-hang component 11 enters One step includes button 118 and switch module 119, and wherein button 118 is arranged in button holding part 1121a.Switch module 119 is set Be placed in the second housing 112 away from the first resilient coating 1132 side, i.e. the second housing 112 medial surface, and with button 118 First resilient coating 1132 of lower section abuts.Optionally, a boss 1121b, button are provided with button holding part 1121a 118 are fixed in a manner of for example pasting on boss 1121b.In the present embodiment, because the first resilient coating 1132 is with injection Mode, which is fixed, to be coated on second shell body 112, and covers through hole 1121, has more preferable waterproof effect.Optionally, boss 1121b is integrally formed when the first resilient coating 1132 covers through hole 1121 and formed by the first resilient coating 1132.

In the present embodiment, the switch module 119 on the second housing 112 is mainly used for controlling the function of bone conduction earphone Switch, such as broadcasting and the pause of music, voice are answered with hanging up, connecting wireless signal to be connected mobile device such as bluetooth Communication, or the selection etc. of bone conduction earphone mode of operation, not limited to this.

Refering to Fig. 1, Fig. 2, Fig. 4 and Fig. 7, optionally, the inside of the first resilient coating 1132 is further provided with being used for The lead channels 1134 of the first housing 111 and the second housing 112 are connected, ear-hang component 11 further comprises from the first housing 111 The first wire group 1133 of the second housing 112 is extended to through lead channels 1134, the radial dimension of lead channels 1134 is arranged to The first wire group 1133 is allowed to be moved along lead channels 1134.

By setting lead channels 1134, such as first the one end of the first wire group 1133 can be connected when assembling in the later stage Element such as bone-conduction speaker in (such as in a manner of onboard) second housing 112, then the first wire group 1133 is another Hold through lead channels 1134 with connect the first housing 111 in element such as battery component 13, control circuit component 14 or Switching circuit board 15 etc., packaging technology can be so reduced, and existing bone conduction earphone can be improved in the first resilient coating 1132 that wiring is embedded to caused by the first wire group 1133 in injection molding is difficult and the problems such as be unfavorable for later period maintenance.When So, the one end of the first wire group 1133 first can also be connected into (such as in a manner of onboard) first housing 111 when assembling in the later stage Interior element such as battery component 13, control circuit component 14 or switching circuit board 15, then the first wire group 1133 is another Hold through lead channels 1134 to connect the element in the second housing 112 such as bone-conduction speaker.

In the present embodiment, 1134 specific molding mode of lead channels for example including providing one first elasticity gold first Belong to the first housing 111 of the connection of silk 1131 and the component of the second housing 112, further in the second housing 112 and the first housing 111 Between additional metal silk (not shown) is removably set, further in the first elastic metallic yarn 1131, additional gold Belong to silk and the partial outer face of the first housing 111 and the second housing 112 and first resilient coating 1132 is formed with injection molding manner, into Additional metal silk is extracted after type to form lead channels 1134.In other embodiments, such as the first resilient coating 1132 is moided During shaping, be embedded to easily melting property material, in the first 1132 injection molding of resilient coating, this easily melting property material melts and flow out, shape into lead channels 1134.In another example lead channels 1134

can be after the shaping of the first resilient coating 1132, by way of threading a needle Passage is formed, then expands passage by way of hot melt and forms lead channels 1134.

With continued reference to Fig. 1 and Fig. 4, in the present embodiment, optionally, lead channels 1134 are arranged at the first elastic metallic The downside of silk 1131, with when in use compared to contact of first elastic metallic yarn 1131 closer to connection member 113 with human ear Position.In the present embodiment, the first lead channels 1134 are independently arranged with the first elastic metallic yarn 1131 interval.In other implementations In example, the first lead channels 1134 can merge setting with the first elastic metallic yarn 1131, i.e., the first wire group 1133 is first The first elastic metallic yarn 1131 is can contact in lead channels 1134.In the present embodiment, lead channels 1134 are arranged at the first bullet The downside of property wire 1131, with when in use compared to the first elastic metallic yarn 1131 closer to connection member 113 and human ear Contact position, due to the presence of lead channels 1134, can make it that the first resilient coating 1132 close to human ear is more elastic It is softer, wear more comfortable.In other embodiments, certain first lead channels 1134 can also be arranged on the first elasticity The upside of wire 1131, the first elastic metallic yarn 1131 is closer to human ear when in use.

Refering to Fig. 1, Fig. 2 and Fig. 8, optionally, ear-hang component 11 includes the 3rd housing 114 and the 4th housing 115.Wherein 3rd housing 114 coordinates with the first housing 111, to form the first appearance for being used for housing battery component 13 or control circuit component 14 116 between being empty.4th housing 115 coordinates with the second housing 112, is used for the second accommodating sky for housing bone-conduction speaker to be formed Between 117.Optionally, the 4th housing 115 and the 3rd housing 114 are plastic casing.

Optionally, the second housing 112 is connected with the 4th housing 115 by the first snap component (not marking), the first card Seaming element includes the first holding section and the first buckling parts, and the first holding section is arranged on the 4th housing 115, and the first buckling parts is set It is placed on the second housing 112, when the second housing 112 and the 4th housing 115 coordinate, the first holding section card on the 4th housing 115 Enter the first buckling parts of the second housing 112, the second housing 112 is fixed together with the 4th housing 115.Optionally, Two housings 112 are attached with the 4th housing 115 by least one set of first snap component such as 4 group of first snap component.When Right second housing 112 can also be bonded with the 4th housing 115 by glue, or be made simultaneously with glue by the first engaging component It is connected with being fixed, or by fasteners such as screws.

Optionally, the 3rd housing 114 is connected with the first housing 111 by the second snap component (not marking), the second card Buckle assembly includes the second holding section and the second buckling parts, and the second holding section is arranged on the 3rd housing 114, and the second buckling parts is set Put on the first housing 111, when the first housing 111 and the 3rd housing 114 coordinate, the second holding section card of the 3rd housing 114 Enter the second buckling parts of the first housing 111, the first housing 111 is fixed together with the 3rd housing 114.

In the present embodiment, the 3rd housing 114 of ear-hang component 11 coordinates with the first housing 111, is used to house to be formed First accommodation space 116 of battery component 13 or control circuit component 14, the 4th housing 115 coordinates with the second housing 112, with shape Into the second accommodation space 117 for housing bone-conduction speaker, the first wire group 1133 can move through lead channels 1134 are used to electrically connect bone-conduction speaker and battery component 13 or control circuit component 14.In the present embodiment, battery component 13 for example including battery and battery management circuit, and battery is that bone conduction earphone miscellaneous part is supplied by battery management circuit Electricity, such as battery management circuit include charging circuit, current foldback circuit, over-discharge protection circuit, overvoltage crowbar etc..Such as Battery is rechargeable battery, for example, lithium battery.Refering to Fig. 7, optionally, bone conduction earphone, which still further comprises, for example transfers Circuit board 15, it is arranged in the first accommodation space 116, battery component 14 is divided into multiple wiring solder joints by switching circuit board 15, With two bone-conduction speakers, control circuit component 14, microphone and the switch module of corresponding connection bone conduction earphone 119 etc., said elements associated tracks are connected with above-mentioned wiring solder joint and turned on by Fig. 7 modes, are easy to wiring and assembling.Such as electricity Pond component 14 connects switching circuit board 15 by two wiring solder joints of both positive and negative polarity, and switching circuit board 15 separates 10 wiring welderings Point, to connect the miscellaneous part of bone conduction earphone.

Refering to Fig. 1 and Fig. 2, optionally, the first sub-accommodation space 116a, the 3rd housing are provided with the first housing 111 The second sub-accommodation space 116b is provided with 114, and it is accommodating with the first son when the 3rd housing 114 and the first housing 111 coordinate Space 116a is collectively forming the first accommodation space 116, such as is fixedly connected by the first snap component.Wherein second son holds The volume for being empty a 116b is more than the first sub-accommodation space 116a.Such as second sub-

accommodation space 116b volume be first son hold It is empty 2-5 times of a 116a, for example, 3-4 times, for example, 3.2 times, or for example, 2.5 times.

In assembled battery component 13 or control circuit component 14, such as first by battery component 13 or control circuit component 14 are placed in the first sub-accommodation space 116a, for example, battery by glue material or sticking double faced adhesive tape in the first sub- accommodation space In 116a, or control circuit component 14 is fixed in the first sub- accommodation space 116a by snap-in structure so that battery component 13 or control circuit component 14 it is most of exposed, be easy to the techniques such as assembling and wiring, then the 3rd housing 114 is passed through into the second card Buckle assembly covers with the first housing 111, and the first sub- sub- accommodation space 116b of accommodation space 116a and second form the first accommodating sky Between 116, so improving traditional bone conductors earphone needs to assemble battery or control board and be contained in and ear-hang one In the housing of shaping and further battery control circuit plate exterior section is affixed on using silica gel strip to carry out coating caused assembling The problem of complex procedures, simplify structure and assembling procedure.

Refering to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in prism-shaped, wherein in the 4th housing 115 at least Bar shaped is provided with one side and draws sound hole 1151, the length direction of sound hole 1151 and the bottom surface of the 4th housing 115 are drawn in wherein bar shaped It is parallel or be arranged substantially in parallel, and bar shaped draw sound hole 1151 length be not less than side where it width three/ Two.In the present embodiment, bar shaped draws the relatively parallel bottom surface 115e of sound hole and refers to that the 4th housing 115 is towards human body face when wearing Plane defined in the edge of opening of the one side in portion.

Typically, bone-conduction speaker peritropous environment of meeting during vibration transmits sound, in addition to wearer, ring Other people in border can also hear that the sound of loudspeaker, such as the vibration of bone-conduction speaker cause the second accommodation space 117 The vibration of interior air and the vibration for causing the grade of the 4th housing 115, so as to occur leaking sound phenomenon, the sound of bone conduction earphone can be influenceed Matter.It is to propagate to the sound wave guiding in the second accommodation space 117 outside space to draw sound hole 1151, with leakage speech ripple with atmosphere Propagation interferes, and so as to reduce the amplitude of Lou speech ripple, reduces leakage sound.

With continued reference to Fig. 8, in order to further improve leakage sound phenomenon, the present embodiment passes through at least the one of the 4th housing 115 Side sets bar shaped to draw sound hole

1151, and is appropriately arranged with its size and direction improves the leakage sound that traditional bone conductors earphone belt comes and showed As still than it is more serious the problem of.Further, bar shaped is drawn the length direction of sound hole 1151 and parallel with the bottom surface of the 4th housing 115 set Put, can not only ensure attractive in appearance, and the uniformity of the intensity of acoustic wave through directed parallel, so as to ensure interference effect.In this reality Apply in example, bar shaped draw sound hole 1151 length be not less than side where it width 2/3rds, can effectively guide the Sound wave in two accommodation spaces 117.Be chosen as, bar shaped draw sound hole 1151 length be its where side width four/ Three.Certainly, in other embodiments, wherein being at least set side by side with least two articles of bar shapeds on one side in the 4th housing 115 Draw sound hole 1151, such as setting two parallel bar shapeds to draw sound hole 1151 at least on one side, and with the bottom of the 4th housing 115 Face 115e is parallel.

Optionally, the 4th housing 115 bone conduction earphone using when side 115d close to human ear on be not provided with bar shaped Draw sound hole 1151.Certainly, in other embodiments, can also the 4th housing 115 when bone conduction earphone uses close to human ear Side 115d on set draw sound hole, can be that point type draws sound hole, or sound hole 1151 is drawn in bar shaped.

With continued reference to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in quadrangular shape, wherein in the 4th housing 115 Bar shaped, which is provided with, on two sides 115a, 115c being disposed adjacent with connection member 113 draws sound hole 1151, further remaining two in individual side 115b, 115d bone conduction earphone using when the side 115b away from human ear equally set bar shaped to draw sound hole 1151, and in remaining two sides 115b, 115d bone conduction earphone using when side 115b close to human ear on do not set Put bar shaped and draw sound hole 1151.Namely set three bar shapeds to draw sound hole 1151 on three sides 115a, 115b, 115c, passed in bone Guide lug machine using when be not provided with bar shaped close to the side 115d of human ear and draw sound hole 1151, so can further reduce Lou sound and show As ensureing the tonequality of bone conduction earphone.

In the present embodiment, the 4th housing 115 is set in quadrangular shape, such as including four-prism and class quadrangular Shape.Such as specifically, two sides 115a, 115c being disposed adjacent with connection member 113 of the 4th housing 115 any one side The length in face is all higher than the length of remaining two sides 115b, 115d any one side, further, the 4th housing 115 It is unequal or equal with two sides 115a, 115c that connection member 113 is disposed adjacent length.In other embodiment In, the 4th housing 115 is set in quadrangular shape, and the length of its four sides can be equal.

In the present embodiment, optionally, two sides being disposed adjacent with connection member 113 of the 4th housing 115 Angle between 115a, 115c is 90 ° -150 °, is chosen as 100 ° -130 °, is chosen as 110 ° -120 °.

Optionally, it is further provided with covering the water proof and dust proof filter screen that sound hole 1151 is drawn in bar shaped, example in the 4th housing 115 Such as waterproof ventilated membrane (not shown).Water proof and dust proof filter screen is set, can prevent the dust outside bone conduction earphone and waterproof bone from passing The water inlet of guide lug machine enters damage bone-conduction speaker.

In the present embodiment, a microphone aperture (not shown) is respectively arranged with the second housing 112 and the 4th housing 115, Specifically, the first microphone aperture be arranged on the not direct remaining two sides 115b being connected with connection member 113 of the 4th housing 115, 115d junction, second microphone hole are arranged on the lateral surface of the second housing 112 and close to the 4th housing 115 and connection members 113 junction.By setting two microphones in the microphone aperture of two stagger settings, phonetic entry matter can be strengthened Amount, and effective Noise Reduction is played, thus improve the definition of phonetic entry.

Refering to Fig. 2 and Fig. 9, in the present embodiment, the quantity of ear-hang component 11 is two, and bone conduction earphone further wraps Include rear hanging component 12.Hanging component 12 includes the second elastic metallic yarn 121, second be coated on the second elastic metallic yarn 121 afterwards Resilient coating 122 and the Plug Division 123 for being arranged at the both ends of the second elastic metallic yarn 121.Plug Division 123 respectively with two ear-hangs First housing 111 of component 11 patches cooperation, and is fixedly connected.Optionally, Plug Division 123 is fixed on second with injection molding manner The both ends of elastic metallic yarn 121, Plug Division 123 can be so set more securely to be fixed on the both ends of the second elastic metallic yarn 121. Optionally, the second elastic metallic yarn 121 can be metal simple-substance, or include the alloy material of various metals material, Such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium alloy, chrome-molybdenum steel etc. or bag Include metal material and the composite of nonmetallic materials.In the present embodiment, the second elastic metallic yarn 121 is titanium alloy wire, or Person is at least made up of titanium alloy material.In the present embodiment, the second resilient coating 122 is layer of silica gel.In other embodiment mode In, the second resilient coating 122 can also be rubber layer or emulsion layer, or the composite layer including silica gel.

Carry out patching cooperation by the Plug Division 123 of rear hanging component 12 and the first housing 111 of

two ear-hang components 11, change It has been apt to the problems such as earphone size that existing bone conduction earphone is brought using the fixed form such as screw is larger, so as to simplify structure, Mitigate the weight of bone conduction earphone, facilitate later stage wiring and cost can be reduced.

Refering to Fig. 9 and Figure 10, optionally, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111 and the vertical direction connection jointing holes 1111 of direction of insertion in Plug Division 123 and the perforate 1112 of outside, To allow into jointing holes 1111 to apply from the outside through perforate 1112 glue or installation stopper (not shown), to cause Plug Division 123 are fixed in the presence of glue or stopper in jointing holes 1111.In this embodiment, perforate 1112 is positioned at the described first son In accommodation space 116a.In other embodiments, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111, there is a recess on Plug Division 123, there is a resilient projection in jointing holes 1111, Plug Division 123 is inserted and patched During hole 1111, resilient projection is caught in recess, and Plug Division 123 and jointing holes 1111 are coordinated into fixation.Such as Plug Division 123 is inserted During jointing holes 1111, resilient projection is first extruded, after be caught in the presence of elastic restoring force in recess.Optionally, patch The depth that portion 123 inserts jointing holes 1111 is 6-11mm, is chosen as 8-10mm.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is provided with the side wall of Plug Division 123.The warp of fluting 1231 Perforate 1112 is exposed or part is exposed, and for receiving glue or stopper.Optionally, Plug Division 123 is at least one It is provided with side wall on fluting 1231, such as two side walls and is provided with fluting 1231.In other embodiments, can make simultaneously With glue and stopper, such as first fixed using stopper, then apply glue and further fix.In the present embodiment, stopper E.g. chock or pin or the fixture insertion fluting 1231 with certain elasticity is interference fitted.

Refering to Fig. 2, Fig. 9 and Figure 10, optionally, Plug Division 123 includes first be connected with the second elastic metallic yarn 121 Patch section 123a and patch section 123a with first and be connected and second patch section away from what the second elastic metallic yarn 121 was set 123b.Direction of insertion of the jointing holes 1111 along Plug Division 123 is divided into for receiving the first the first hole section for patching section 123a 1111a and the second hole section 1111b that section 123b is patched for reception second.Wherein the first hole section 1111a is sized to permit Perhaps second patch section 123b and moved freely along direction of insertion in the first hole section 1111a, and cause first to patch section 123a and the Tight fit between one hole section 1111a.Section and both ends hole section are

patched by two sections to be respectively cooperating with fixing, and can cause Plug Division 123 are more securely fixed in the first housing 111, strengthen the structural stability of bone conduction earphone.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is further disposed at the second side wall for patching section 123b. Perforate 1112 connects the second hole section 1111b of jointing holes 1111.In the present embodiment, a section 123b is patched in Plug Division 123 second The first hole section 1111a and the second hole section 1111b is passed sequentially through, so that first patches section 123a and the first hole section 1111a close-fittings Close, second patch section 123b fluting 1231 it is exposed through perforate 1112, for receiving glue or stopper.Connect by first Insert section 123a and the first hole section 1111a tight fit and the second jointing holes 1111 and the second hole section 1111b further cooperation It is fixed, effectively rear extension can be fixedly connected with ear-hang.In other embodiments, fluting 1231 can be arranged on first and patch In section 123a side wall.Perforate 1112 connects the second hole section 1111b of jointing holes 1111.

Optionally, the second hole section 1111b be dimensioned so that second patch section 123b and the second hole section 1111b it Between tight fit.Thus by the first tight fit, the second jointing holes 1111 and the second hole for patching section 123a and the first hole section 1111a Section 1111b tight fit and the glue of application or stopper are fixed, and effectively further hang by after and are fixed with ear-hang Connection, and structure can be simplified, make bone conduction earphone lighting.Certainly, in other embodiments, first section 123a and are patched Tight fit between one hole section 1111a, and second to patch section 123b and the second hole section 1111b can be other kinds of secure fit Such as it is clasped.

Refering to Figure 11, optionally, first patches the shape of section 123a both sides and the first hole section 1111a contact surfaces contacted It is different.First patches section 123a both sides shape difference, and accordingly the first hole section 1111a patches what section 123a was contacted with first 1111a1,1111a2 are also different for two sides.For example, the curved setting in the first hole section 1111a two sides, medial surface 1111a2 Radius of curvature be more than lateral surface 1111a1 radius of curvature, namely medial surface 1111a2 radian change is relatively slow, and outer Side 1111a1 radian change is relatively large, and first patches section corresponding setting in 123a two sides.Certainly, in other embodiment In, the first hole section 1111a curved setting in two sides, medial surface 1111a2 radius of curvature is less than lateral surface 1111a1's Radius of curvature, namely medial surface 1111a2 radian change are relatively large, and the change of lateral surface 1111a1 radian is relatively small. First hole section 1111a two sides are medial surface 1111a2 close to human body head when

wearing, and are outer away from human body head Side 1111a1.First patches the shape difference of section 123a both sides and the first hole section 1111a contact surfaces contacted so that first connects Insert section 123a and be unable to anti-plug, and two Plug Divisions 123 are hung from mixed insertion after also causing, play effective fool proof effect, facilitate group Dress.

Refering to Fig. 9 and Figure 10, optionally, first, which patches section 123a and second, patches section 123b bottom surface and stepped sets Put and patch section 123a first and the second junction for patching section 123b is provided with the first wedge-shaped changeover portion 123c, and the first hole Section 1111a and the second hole section 1111b junction is provided with the second wedge-shaped changeover portion corresponding with the first wedge-shaped changeover portion 123c 1111c。

In the present embodiment, first section 123a is patched and the second bottom surface for patching section 123b refers to when wearing close to human ear The one side of root.Top surface is then the one side away from people's the ear portion.

In the present embodiment, first patch section 123a thickness and be greater than the second thickness for patching section 123b and i.e. stepped set Put, there is thickness difference in both junctions, and set the first wedge-shaped changeover portion 123c, it is corresponding in the first hole section 1111a and Second hole section 1111b junction sets the second wedge-shaped changeover portion 1111c being adapted with the first wedge-shaped changeover portion 123c, the One patches section 123a and second when patching a section 123b and being sequentially inserted into the first hole section 1111a and the second hole section 1111b, the first wedge-shaped mistake Cross section 123c and the second wedge-shaped changeover portion 1111c to abut against, second can be facilitated to patch section 123b and first and patch section 123a's Insertion, and play a part of buffering transition, spacing and further fixation.

Refering to Fig. 9, Figure 12 and Figure 13, optionally, rear hanging component 12 further comprises being wrapped by the second resilient coating 122 The the second wire group 124 covered, wherein the both ends of the second wire group 124 are exposed from the second resilient coating 122, the top of Plug Division 123 Face is provided with the groove 1232 of sunkening cord of the exposed parts for accommodating the second wire group 124.In the present embodiment, the second wire group 124, for connecting the element in two ear-hang components 11 such as connecting battery and control circuit component 14.Setting is sunken cord groove 1232, the second wire group 124 on the one hand effectively can be arranged and fixed, on the other hand can reduce volume.In other embodiment In, groove 1232 of sunkening cord can also be not provided with, and by other means enter the second

wire group 124 such as glue or double faced adhesive tape Row is fixed, or the top surface of Plug Division 123 is provided with the projection (not shown) that two rows are set up in parallel, and can be held between two row's projections Receive the second wire group 124.

Refering to Fig. 2, optionally, bone conduction earphone further comprises battery component 13 and control circuit component 14, wherein Battery component 13 is arranged at the first accommodation space 116 of one of two ear-hang components 11, and control circuit component 14 is arranged at In first accommodation space 116 of the other of two ear-hang components 11.

Refering to Figure 14 and Figure 15, optionally, the 3rd housing of the ear-hang component 11 for accommodating control circuit component 14 Button perforate 1141 and the storage tank 1142 connected with button perforate 1141 are provided with 114, control circuit component 14 includes electricity Road plate 141, the switch 142 being fixed on circuit board 141, waterproof liner 143 and button 144, wherein button 144 be arranged at by in key perforate 1141 and exposed through button perforate 1141, waterproof liner 143 includes liner plate main body 143a and with injection molding manner bag The 3rd resilient coating 143b overlayed on liner plate main body 143a, waterproof liner 143 is arranged in storage tank 1142 and the 3rd elasticity Coating 143b abuts with the sidewall elastomer of storage tank 1142, and button 144 and switch 142 are respectively arranged at the two of waterproof liner 143 Side and abutted respectively with waterproof liner 143.In this embodiment, the 3rd resilient coating 143b coats liner plate main body 143a one side And liner plate main body 143a edge, at least covered section edge, can also coat whole edges certainly.In other embodiment In, the 3rd resilient coating 143b can coat liner plate main body 143a completely, that is, coat liner plate main body 143a two sides.

In the present embodiment, the switch 142 on circuit board 141 be mainly used for switching on and shutting down, volume adjusting or other cut Change function etc..

With continued reference to Figure 14 and Figure 15, the 3rd resilient coating 143b is coated with injection molding manner in the main body of waterproof liner 143, So that the 3rd resilient coating 143b is not easy to come off from the main body of waterproof liner 143, and the 3rd resilient coating 143b and proof liner Compactness between plate main body 143a is more preferable, improves existing bone conduction earphone water resistance, ensures the validity of waterproof.At this In embodiment, liner plate main body 143a can be plastics, and the 3rd resilient coating 143b can be silica gel, latex, rubber or be conjunction into thing.

Optionally, waterproof liner 143 is provided with the locating slot for accommodating switch 142 close to the side of switch 142 1431.

In the present embodiment, the method for assembly control circuit component 14 for example first by button 144, waterproof liner 143 according to It is secondary to be placed on the 3rd housing 114, and button 144 set it is exposed through button perforate 1141, then circuit board 141 pass through switch 142 And the locating slot 1431 of waterproof liner 143 abuts with waterproof liner 143.By setting locating slot 1431, the essence of switch 142 can be made Location fit accurately is carried out with button 144, so as to pass through effectively Operation switch 142 of button 144.

Refering to Figure 16 and Figure 17, optionally, control circuit component 14 further comprises the day being arranged on circuit board 141 Line 145, antenna 145 include antenna body 145a spaced with circuit board 141 and are connected antenna body 145a and circuit The grounding parts 145b and current feed department 145c of plate 141, wherein when being looked up perpendicular to the side of circuit board 141, antenna body 145a is bent from grounding parts 145b to the side of circuit board 141 to be extended.In the present embodiment, antenna body 145a is to circuit board 141 side bending, the length of antenna 145, Enhanced Radiation Reduced Blast efficiency can be increased in the confined space.In the present embodiment, day Line 145 is generally used for what is communicated wirelessly, such as bluetooth communication.In other embodiments, WiFi communication, honeybee be can also be Nest data communication, NFC etc..

Optionally, antenna body 145a includes parallel portion 145a1 and kink 145a2, perpendicular to circuit board 141 Side looks up, and parallel portion 145a1 width is more than kink 145a2 width, parallel portion 145a1 one end connection grounding parts 145b and current feed department 145c, it is in rank that the other end, which connects kink 145a2, parallel portion 145a1 and kink 145a2 in junction, Scalariform is set, and kink 145a2 is bent from junction to the side of circuit board 141.

Optionally, control circuit component 14 further comprises the grounded parts 146 being arranged on circuit board 141, wherein Antenna body 145a bends extension to the side of the remote grounded parts 146 of circuit board 141.In the present embodiment, grounded parts 146 be the switch 142 on USB interface and/or circuit, or other grounded parts 146.Typically, such as USB of grounded parts 146 Interface, certain interference can be all caused to antenna 145, in the present embodiment, antenna body 145a connects to the remote of circuit board 141 The side bending extension of ground part 146, can improve interference of the grounded parts 146 to the signal of antenna 145 in the confined space, protect Demonstrate,prove signal quality.In the present embodiment, USB interface can be used in bone conduction earphone and external device such as mobile terminal transmission number According to, it can also be used to charged for battery component 13.

Optionally, bearing of trend of the antenna body 145a width along antenna body 145a tapers into.It is such as specific Ground, the parallel portion 145a1 width width that passes through is constant, kink 145a2 width gradually along bearing of trend by Gradual change is small.Certainly in other embodiments, parallel portion 145a1 width passes through and can tapered into, but parallel Width of the width of portion's 145a1 other ends still greater than kink 145a2.

Optionally, bearing of trend of the antenna body 145a bending angle along antenna body 145a becomes larger.Such as Bending angle becomes larger, usually in order to which remote grounded parts 146 is such as USB, so as to ensure that the radiation of antenna 145 is imitated Rate.Optionally, there is bending pin 145a3, bending angle herein in the one end of kink 145a2 away from parallel portion 145a1 Maximum, on the other hand it is to lift radiation efficiency on the one hand in order to meet the needs of the size of antenna 145.

Embodiment of the present utility model is the foregoing is only, not thereby limits the scope of the claims of the present utility model, it is all It is the equivalent structure or equivalent flow conversion made using the utility model specification and accompanying drawing content, or directly or indirectly uses In other related technical areas, similarly it is included in scope of patent protection of the present utility model.

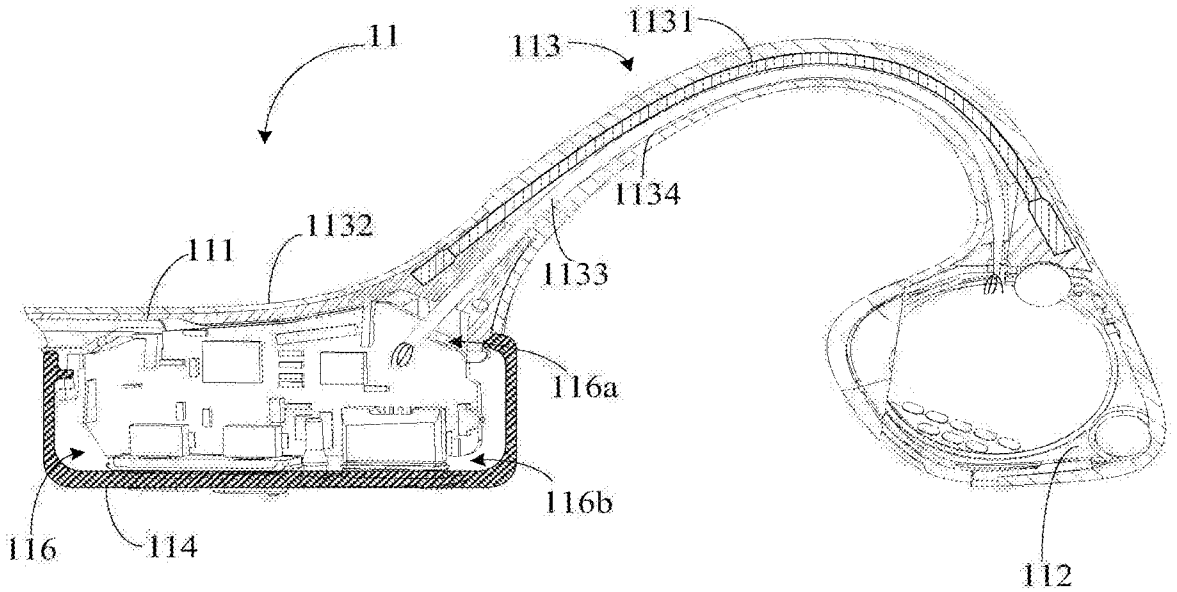


图1

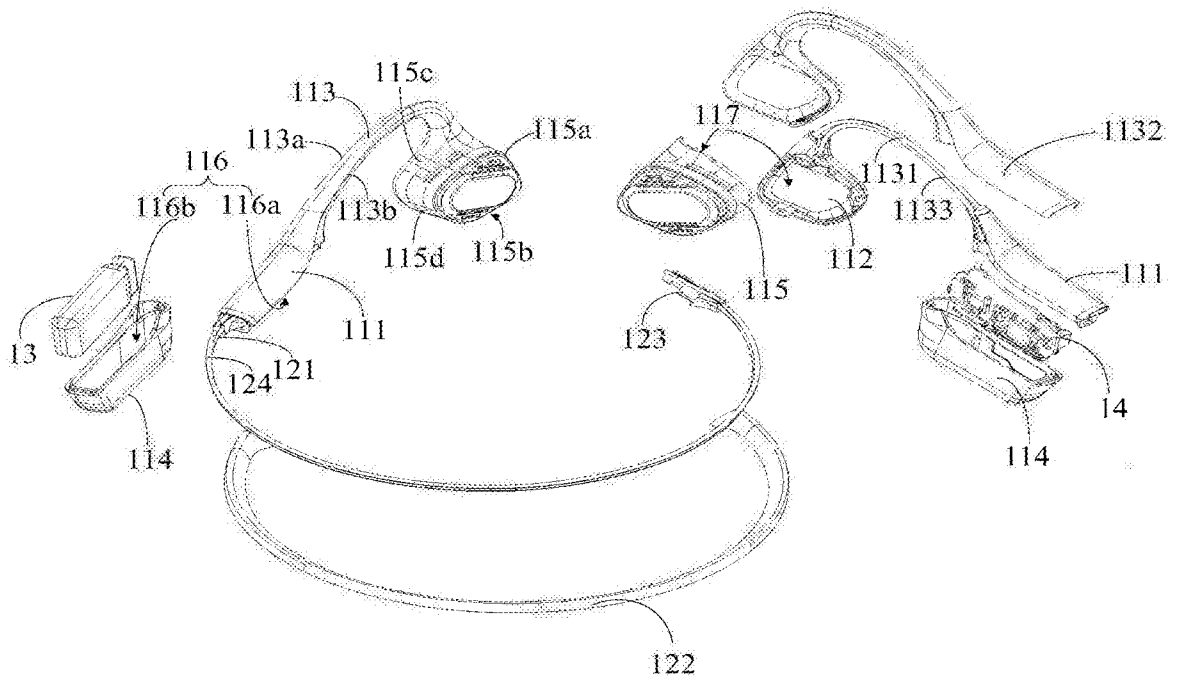


图2

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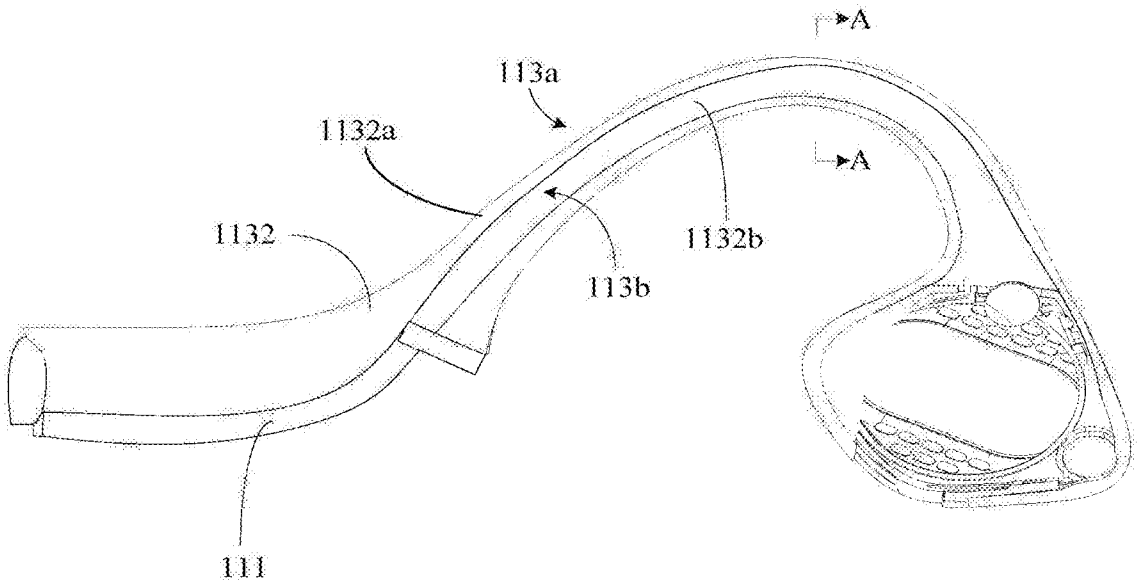


图3

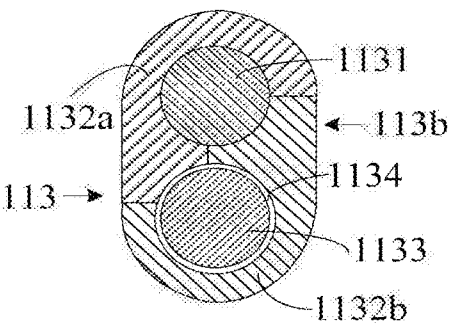


图4

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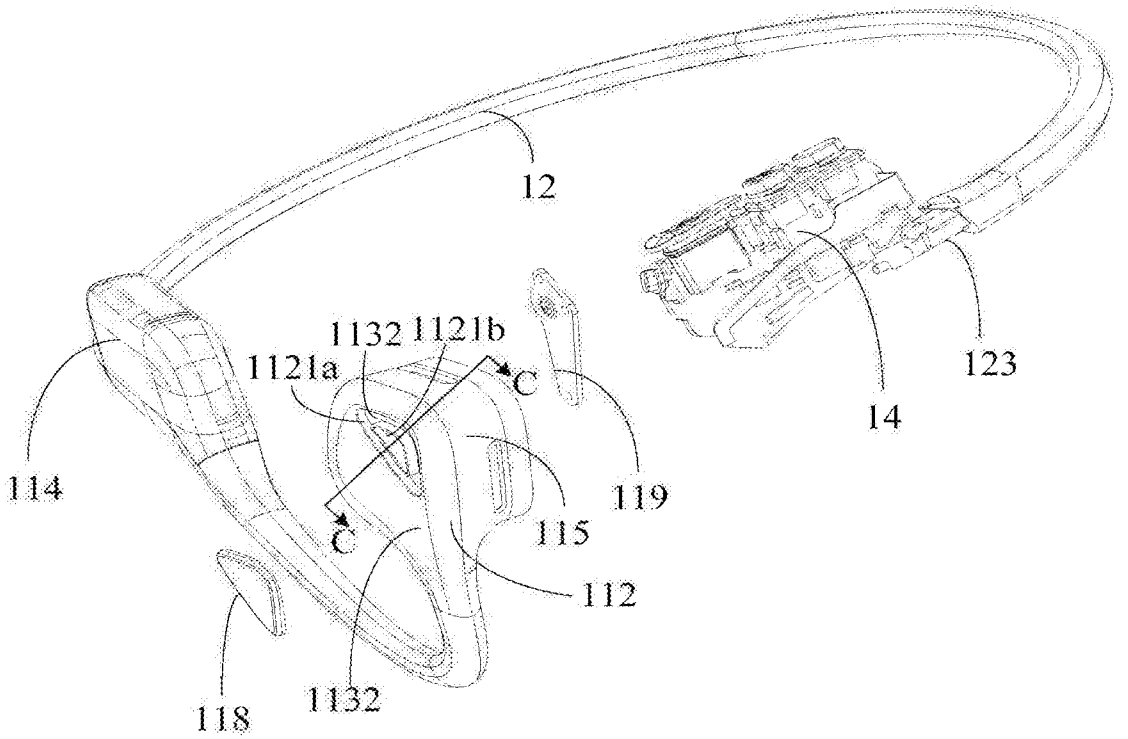


图5

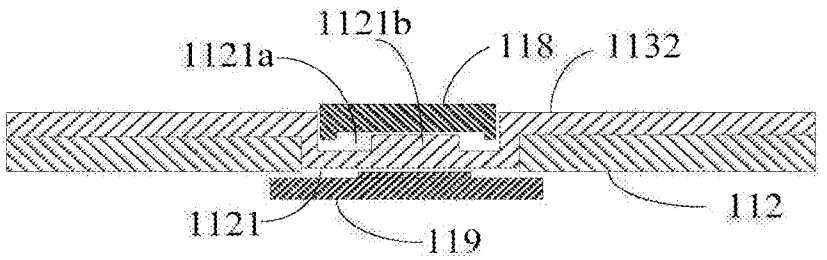


图6

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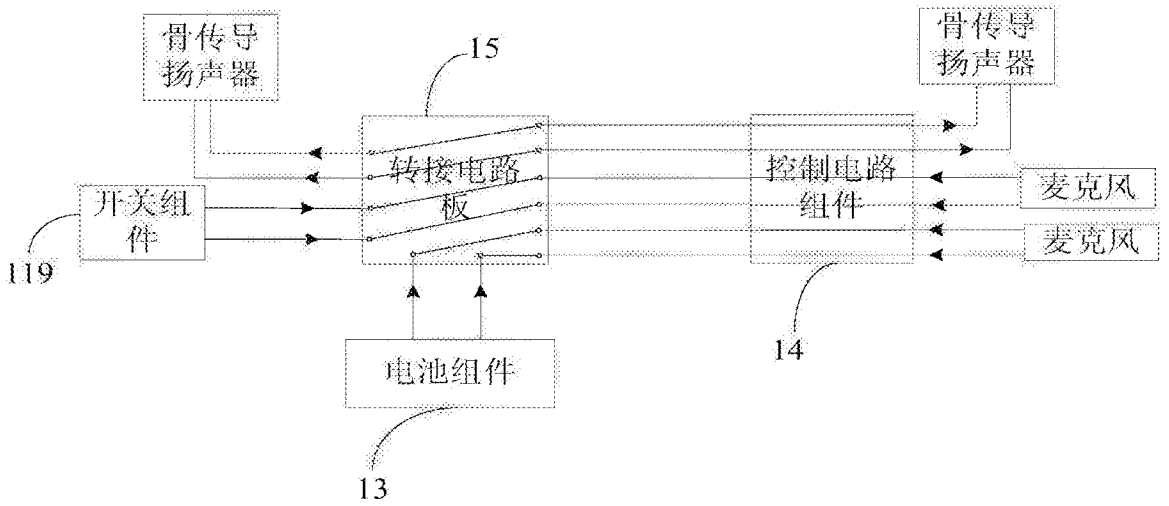


图7

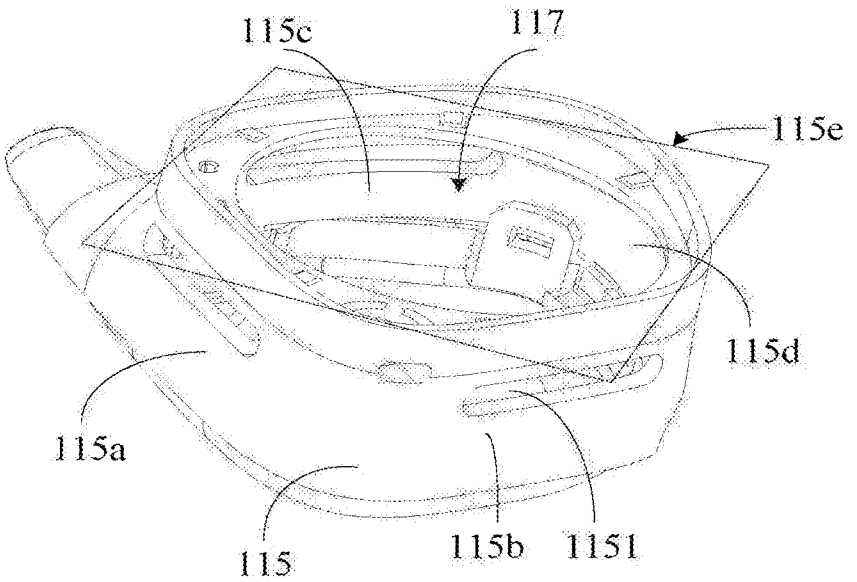


图8

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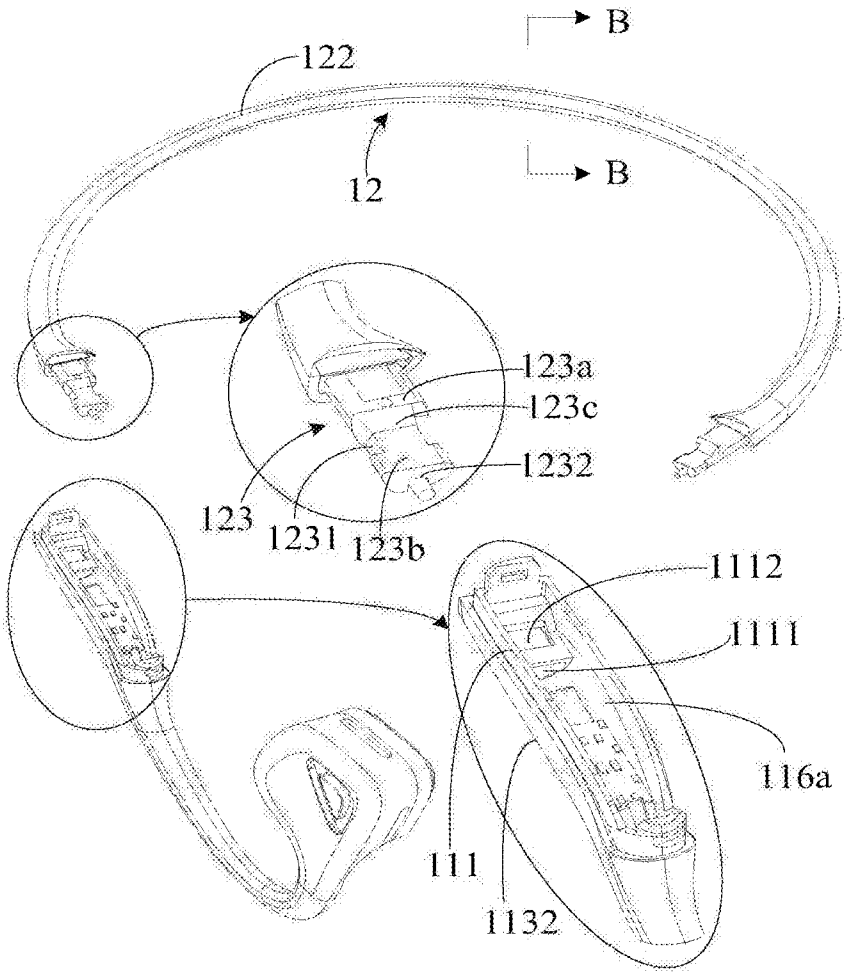


图9

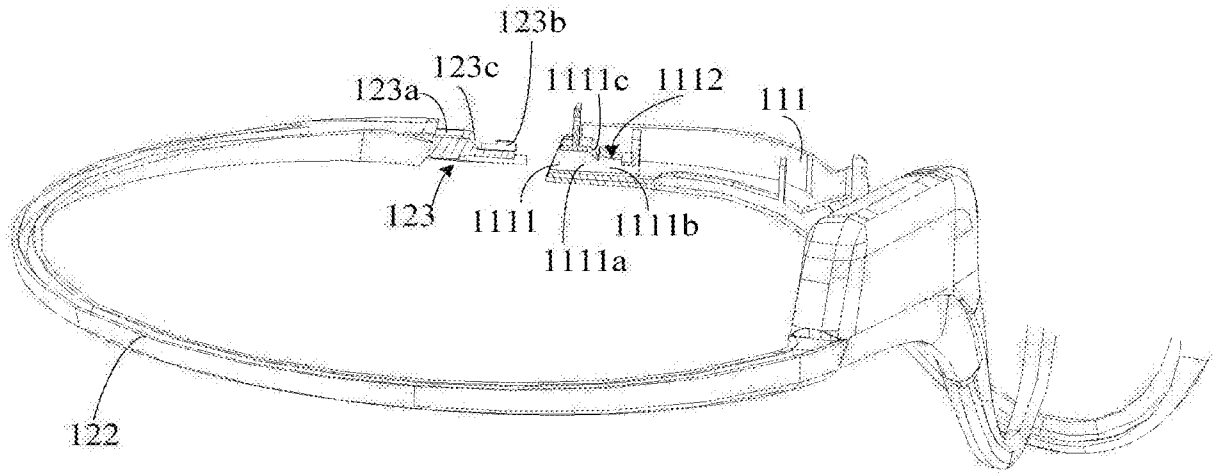


图10

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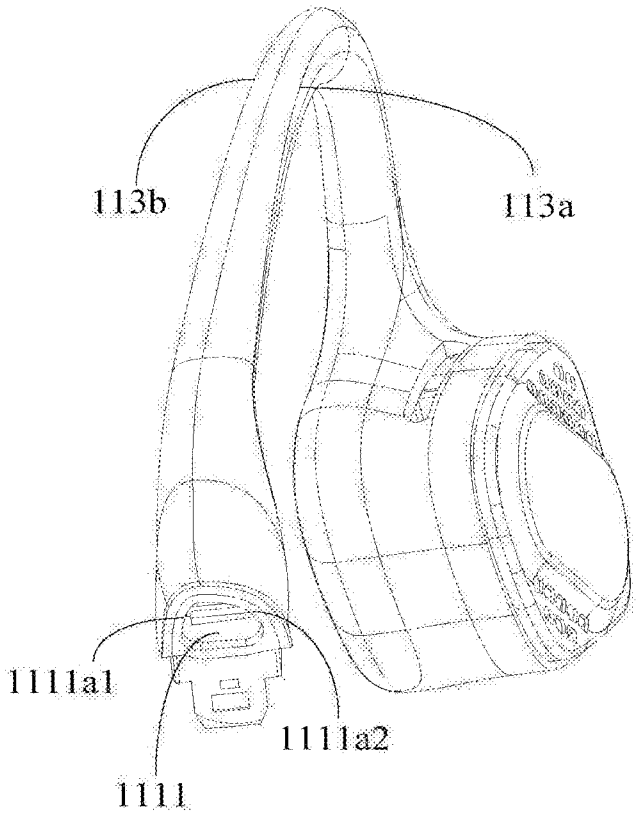


图11

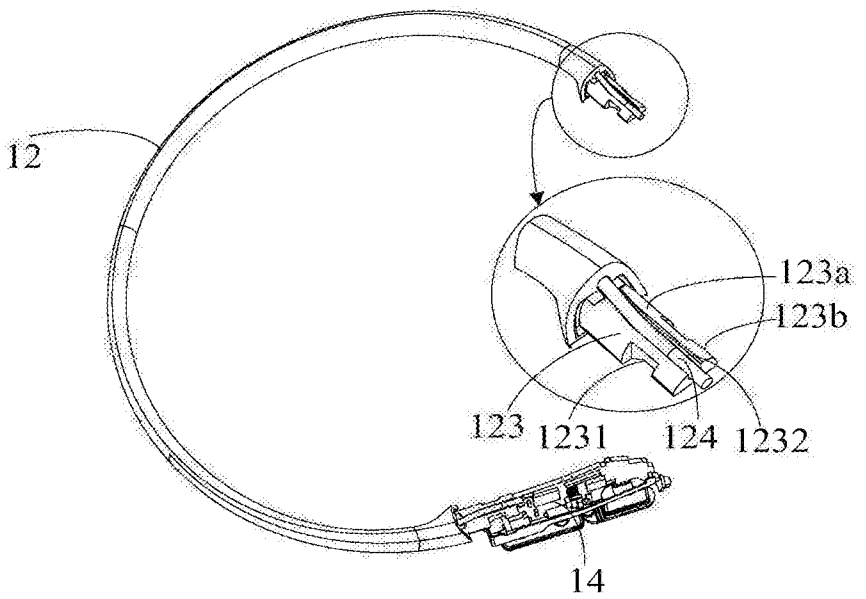


图12

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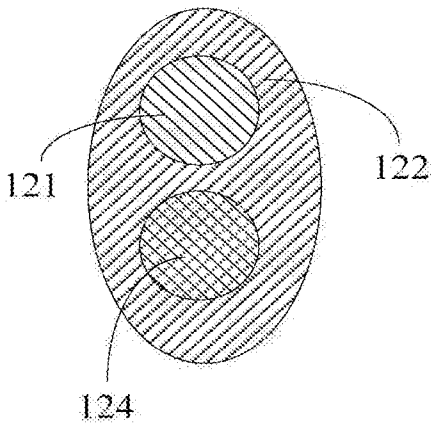


图13

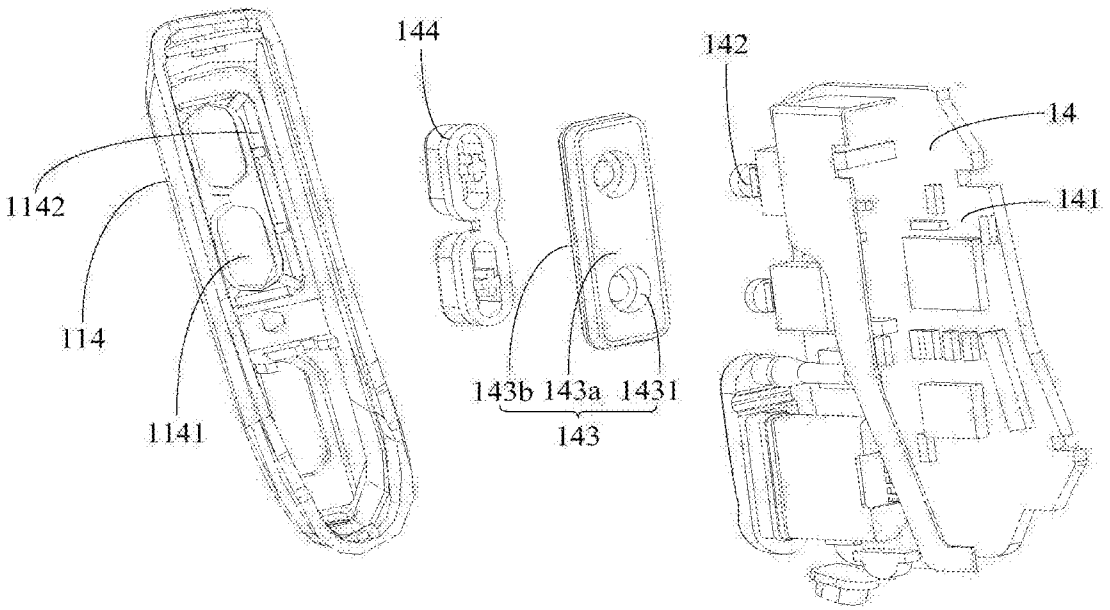


图14

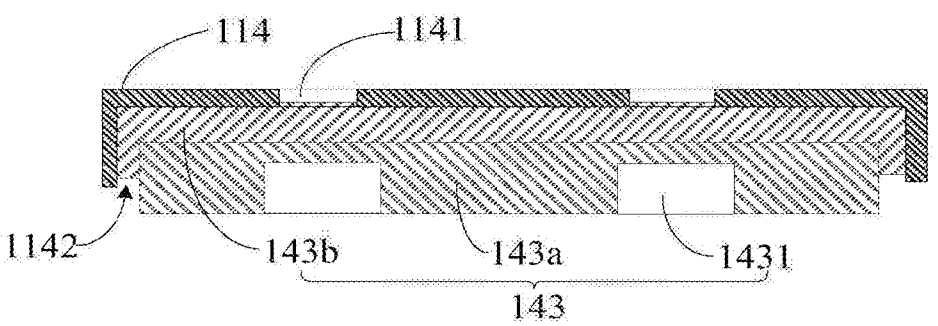


图15

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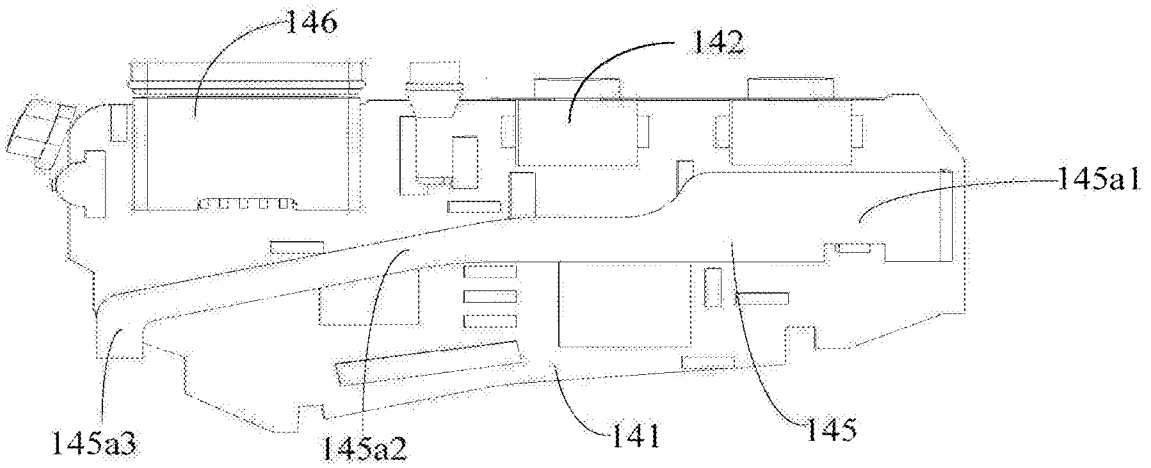


图16

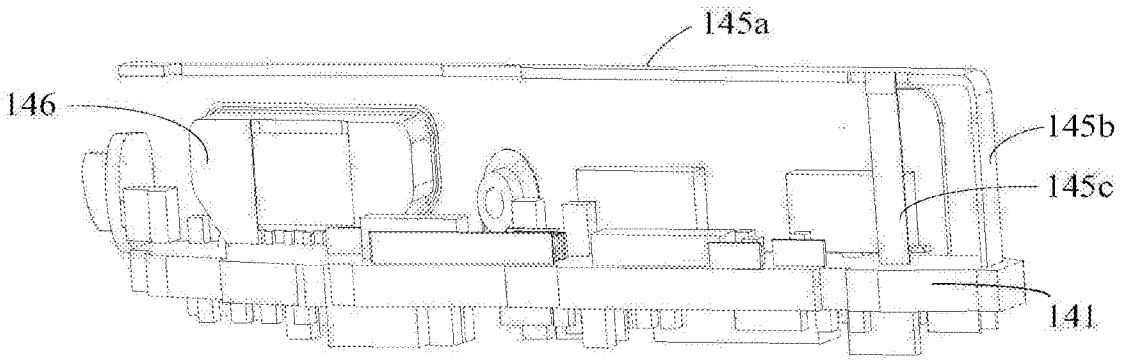


图17

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H04R 1/10(2006.01)

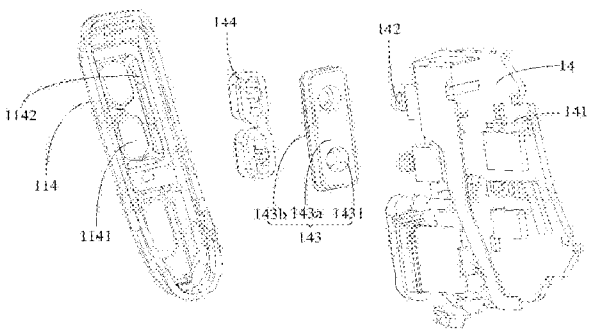
权利要求书2页 说明书11页 附图8页

(54)实用新型名称

一种骨传导耳机

(57)摘要

本实用新型实施例提供一种骨传导耳机包括耳挂组件，该耳挂组件包括第一壳体、第二壳体、第三壳体以及控制电路组件，第三壳体与第一壳体配合，以形成用于收容控制电路组件的第一容置空间，第三壳体上设置有按键开孔和与按键开孔连通的容置槽，控制电路组件包括电路板、固定于电路板上的开关、防水衬板以及按键，其中按键设置于按键开孔内且经按键开孔外露，防水衬板包括衬板主体以及以注塑方式包覆在衬板主体上的第三弹性覆层，防水衬板设置于容置槽内且第三弹性覆层与容置槽的侧壁弹性抵接，按键和开关分别设置于防水衬板的两侧且分别与防水衬板抵接。通过上述方式，本实用新型能够有效提升骨传导耳机的防水性能。



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1.一种骨传导耳机，其特征在于，所述骨传导耳机包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体、连接所述第一壳体和第二壳体的连接部件、第三壳体以及控制电路组件，所述第三壳体与所述第一壳体配合，以形成用于收容所述控制电路组件的第一容置空间，所述第三壳体上设置有按键开孔和与所述按键开孔连通的容置槽，所述控制电路组件包括电路板、固定于所述电路板上的开关、防水衬板以及按键，其中所述按键设置于所述按键开孔内且经所述按键开孔外露，所述防水衬板包括衬板主体以及以注塑方式包覆在所述衬板主体上的第三弹性覆层，所述防水衬板设置于所述容置槽内且所述第三弹性覆层与所述容置槽的侧壁弹性抵接，所述按键和所述开关分别设置于所述防水衬板的两侧且分别与所述防水衬板抵接。

2.根据权利要求1所述的骨传导耳机，其特征在于，所述耳挂组件进一步包括第四壳体，所述第四壳体与所述第二壳体配合，以形成用于收容骨传导扬声器的第二容置空间，所述第四壳体呈棱柱状设置，其中在所述第四壳体的至少一侧面上设置有条形引音孔，其中所述条形引音孔的长度方向与所述第四壳体的底面平行设置，且所述条形引音孔的长度不小于其所在的所述侧面的宽度的三分之二。

3.根据权利要求1所述的骨传导耳机，其特征在于，所述连接部件包括两端分别连接所述第一壳体与所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层。

4.根据权利要求3所述的骨传导耳机，其特征在于，所述第一弹性覆层的内部进一步设置有用于连通所述第一壳体和所述第二壳体的引线通道，所述耳挂组件进一步包括从所述第一壳体经所述引线通道延伸至所述第二壳体的第一导线组，所述引线通道的径向尺寸设置成允许所述第一导线组沿所述引线通道移动；和/或，所述第一壳体内设置有第一子容置空间，所述第三壳体内设置有第二子容置空间，并在所述第三壳体与所述第一壳体配合时与所述第一子容置空间共同形成所述第一容置空间，其中所述第二子容置空间的体积大于所述第一子容置空间。

5.根据权利要求3所述的骨传导耳机，其特征在于，所述第一壳体和第二壳体分别以注塑方式与所述第一弹性金属丝的两端固定连接，所述第一弹性覆层以注塑方式固定包覆于所述第一弹性金属丝上以及所述第一壳体和所述第二壳体的至少部分外表面上。

6.根据权利要求5所述的骨传导耳机，其特征在于，所述第二壳体上形成有通孔，所述第一弹性覆层覆盖所述通孔，并进一步在所述通孔上方且远离所述第二壳体的一侧形成有按键容置部，所述耳挂组件进一步包括按键和开关组件，其中所述按键设置于所述按键容置部内，所述开关组件设置于所述第二壳体的远离所述第一弹性覆层的一侧，并与所述按键下方的所述第一弹性覆层抵接。

7.根据权利要求1所述的骨传导耳机，所述耳挂组件的数量为两个，所述骨传导耳机进一步包括后挂组件，所述后挂组件包括第二弹性金属丝、包覆在所述第二弹性金属丝上的第二弹性覆层以及设置于所述第二弹性金属丝两端的接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

8.根据权利要求7所述的骨传导耳机，其特征在于，所述第一壳体的端部设置有用于允许所述接插部插入的接插孔以及在所述接插部的插入方向的垂直方向连通所述接插孔与外部的开孔，以允许从外部经所述开孔向所述接插孔内施加胶水或安装卡止件，以使得所

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述接插部在所述胶水或卡止件的作用下固定在所述接插孔内。

9.根据权利要求8所述的骨传导耳机，其特征在于，所述接插部的侧壁上设置有开槽，所述开槽经所述开孔外露，并用于接收所述胶水或卡止件。

10.根据权利要求9所述的骨传导耳机，其特征在于，所述接插部包括与所述第二弹性金属丝连接的第一接插段以及与所述第一接插段连接且远离所述第二弹性金属丝设置的第二接插段，所述接插孔沿所述接插部的插入方向划分为用于接收所述第一接插段的第一孔段和用于接收所述第二接插段的第二孔段，其中所述第一孔段的尺寸设置成允许所述第二接插段沿所述插入方向在所述第一孔段内自由移动，且使得所述第一接插段与所述第一孔段之间紧配合。

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一种骨传导耳机

技术领域

[0001] 本实用新型涉及耳机领域，特别是涉及一种骨传导耳机。

背景技术

[0002] 骨传导是一种声音传导方式，即将声音转化为不同频率的机械振动，通过人的颅骨、骨迷路、内耳淋巴液传递、螺旋器、听神经、听觉中枢来传递声波。骨传导耳机利用骨传导技术受话，紧贴骨头，声波直接通过骨头传至听神经。因此可以开放双耳，不伤害鼓膜，也因此受到广大消费者的喜爱。骨传导耳机一般均需要具备一定的防水性能，尤其是在电路板的按键区域更需要具备良好的防水性能，现有的骨传导耳机在电路板的按键区域防水性能较差，不利于电路板以及骨传导耳机的保护。

实用新型内容

[0003] 本实用新型主要解决的技术问题是提供一种骨传导耳机，能够有效提高骨传导耳机的防水性能。

[0004] 为解决上述技术问题，本实用新型实施例提供一种骨传导耳机包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体、连接所述第一壳体和第二壳体的连接部件、第三壳体以及控制电路组件，所述第三壳体与所述第一壳体配合，以形成用于收容所述控制电路组件的第一容置空间，所述第三壳体上设置有按键开孔和与所述按键开孔连通的容置槽，所述控制电路组件包括电路板、固定于所述电路板上的开关、防水衬板以及按键，其中所述按键设置于所述按键开孔内且经所述按键开孔外露，所述防水衬板包括衬板主体以及以注塑方式包覆在所述衬板主体上的第三弹性覆层，所述防水衬板设置于所述容置槽内且所述第三弹性覆层与所述容置槽的侧壁弹性抵接，所述按键和所述开关分别设置于所述防水衬板的两侧且分别与所述防水衬板抵接。

[0005] 与现有技术相比，本实用新型的有益效果是：本实用新型实施例的防水衬板主体上以注塑方式包覆有第三弹性覆层，以使第三弹性覆层不容易从防水衬板主体上脱落，能够使第三弹性覆层与防水衬板主体之间的致密性更好，改善了现有的骨传导耳机防水性能，保证防水的有效性。

附图说明

[0006] 图1是本实用新型骨传导耳机实施例中耳挂组件的结构示意图；

[0007] 图2是本实用新型骨传导耳机实施例中骨传导耳机整体结构拆解示意图；

[0008] 图3是本实用新型骨传导耳机实施例中耳挂组件的另一结构示意图；

[0009] 图4是图3中A-A的截面结构示意图；

[0010] 图5是本实用新型骨传导耳机实施例中骨传导耳机部分结构拆解示意图；

[0011] 图6是图5中C-C的截面结构示意图；

[0012] 图7是本实用新型骨传导耳机实施例中电路示意图；

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[0013] 图8是本实用新型骨传导耳机实施例中第四壳体的结构示意图；

[0014] 图9是本实用新型骨传导耳机实施例中骨传导耳机接插部与接插孔结构放大示意图；

[0015] 图10是本实用新型骨传导耳机实施例中接插部与接插孔截面结构示意图；

[0016] 图11是本实用新型骨传导耳机实施例中接插孔结构示意图；

[0017] 图12是本实用新型骨传导耳机实施例中接插部结构示意图；

[0018] 图13是图9的B-B的截面结构示意图；

[0019] 图14是本实用新型骨传导耳机实施例中骨传导耳机另一部分结构拆解示意图；

[0020] 图15是图14的部分结构截面示意图；

[0021] 图16是本实用新型骨传导耳机实施例中控制电路组件结构示意图；

[0022] 图17是本实用新型骨传导耳机实施例中控制电路组件另一结构示意图。

具体实施方式

[0023] 参阅图1和图2，本实用新型骨传导耳机实施例包括耳挂组件11，耳挂组件11包括第一壳体111、第二壳体112以及连接第一壳体111和第二壳体112的连接部件113，其中连接部件113包括两端分别连接第一壳体111和第二壳体112的第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132。

[0024] 一般，骨传导耳机还包括骨传导扬声器、电池、控制电路等元件，例如骨传导扬声器用于以骨传导的方式通过振动向用户输出声音。电池用于给骨传导耳机各元件供电。控制电路用于控制骨传导耳机例如实现调节音量、开关机、播放音频以及蓝牙通讯等功能。

[0025] 耳挂组件11一般用于用户在佩戴骨传导耳机时挂于其耳部，如此可以使骨传导耳机较稳固地佩戴于用户的耳部。耳挂组件11需要具备良好的抗压以及抗变形能力，以便在用户在使用时不容易将骨传导耳机损坏或者致其变形。

[0026] 在本实施例中，连接部件113可直接接触耳部并通过人耳根部支承骨传导耳机，连接部件113包括第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132，通过第一弹性金属丝1131连接第一壳体111与第二壳体112，能够有效增强骨传导耳机的弯折性能以及结构稳定性，使耳挂组件11在受到弯折时能够有效地进行弹性回复而恢复原状，不易变形。此外采用第一弹性金属丝1131能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。可选的是，连接部件113可以包括多根第一弹性金属丝1131，例如可以设置多根细小的第一弹性金属丝1131能够进一步提高耳挂组件11的弯折可靠性，例如设置3根第一弹性金属丝1131，每根第一弹性金属丝1131的直径0.3mm，此时3根第一弹性金属丝的材料可以相同也可以部分相同，或者全部不同，当然每根第一弹性金属丝1131的直径也可以相同、部分相同或者全部不同。

[0027] 在本实施例中，可选的是，第一弹性金属丝1131可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。可选的是，第一弹性金属丝1131为钛合金丝，或者至少由钛合金材料制成，例如直径为0.8-1.5mm的钛合金丝，可选为1.0-1.25mm。

[0028] 在本实施例中，第一弹性金属丝1131外包覆第一弹性覆层1132，第一弹性覆层

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1132直接与耳部接触，由于第一弹性覆层1132的弹性作用能够使得用户可以舒适地佩戴骨传导耳机。此外，第一弹性覆层1132由于其弹性作用的存在能够更有力地包覆第一弹性金属丝1131，即使在经过多次弯折后仍能有效包覆第一弹性金属丝1131，保证骨传导耳机结构的有效性。可选的是，第一弹性覆层1132为硅胶层，当然在其他实施例中，第一弹性覆层1132还可以是乳胶层或者橡胶层，或者其他有弹性的塑料层，或者为包含硅胶的复合材料层。

[0029] 可选的是，第一壳体111和第二壳体112分别以注塑方式与第一弹性金属丝1131的两端固定连接，第一弹性覆层1132以注塑方式固定包覆于第一弹性金属丝1131上。可选的是，第一壳体111以及第二壳体112为塑料壳体，以注塑成型的方式固定在第一弹性金属丝1131的两端，以及第一弹性覆层1132是一体成型包覆第一弹性金属丝1131上，如此使得第一壳体111、第二壳体112与第一弹性金属丝1131之间的连接更稳固，且使得骨传导耳机的一体感与质感更强，使骨传导耳机的结构更紧凑更轻便。在本实施例中，注塑方式可以是注塑成型、热塑成型、压塑成型等中的一种，但不限于此。

[0030] 参阅图3和图4，可选的是，第一弹性覆层1132由不同颜色的两个子弹性覆层1132a、1132b拼合而成，其中两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的相对设置的两个侧面113a、113b上，其中拼合缝在同一侧面上例如在外侧面113a上的投影彼此错开。例如在进行注塑成型时，采用至少两套模具对第一弹性覆层1132的两个子弹性覆层1132a、1132b分别进行成型，由此可形成不同配比的两种颜色例如为淡灰色与深灰色或者其他颜色的组合，且拼合缝位于连接部件113相对设置的两侧面113a、113b上，且在同一侧面上投影彼此错开，使得骨传导耳机的视觉效果更佳，进一步由于错开包覆第一弹性金属丝1131使得包覆效果更好。当然第一弹性覆层1132也可以由同颜色的两个子弹性覆层拼合而成。通过两次注塑成型分别在连接部件113的两侧面113a、113b上形成两个子弹性覆层1132a、1132b，能够改善一次注塑成型或者上下分开注塑成型时由于注塑压力的存在容易导致第一弹性覆层1132内的元件例如第一弹性金属丝1131产生移位降低连接部件113的成型质量。当然，在其他实施例中，第一弹性覆层1132可以直接形成一个覆层，或者形成数量多于两个的子弹性覆层。

[0031] 在本实施例中，连接部件113的两侧面包括相对设置内侧面113b与外侧面113a，是指在佩戴时耳挂组件11挂于人耳，连接部件113朝向人头部的一侧为内侧面113b，朝向人耳的一侧为外侧面113a。

[0032] 继续参阅图3和图4，可选的是，两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的内侧面113b和外侧面113a上，且位于连接部件113的外侧面113a上的拼合缝的投影相较于位于连接部件113的内侧面113b上的拼合缝的投影更靠近连接部件113与人耳的接触位置。由此可知道，一条拼合缝位于外侧面113a的靠近接触人耳的位置，而另一条拼合缝位于内侧面113b以使得外侧面113a上几乎显示同一种颜色的子弹性覆层1132a或者1132b，例如外侧面113a几乎显示淡灰色，使得骨传导耳机一体感更强，更加美观。

[0033] 可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b在同一侧面例如113a或者113b上的面积彼此不同。在其他实施例中，拼合缝可以设置成使得两个子弹性覆层1132a、1132b在同一侧面上的面积相同或者大体相同。

[0034] 参阅图2至图4，可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b的颜色

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相对较浅的子弹性覆层1132a在外侧面113a上占据面积相对较大。也即，浅颜色的子弹性覆层1132a更多地位于外侧面113a，深颜色的子弹性覆层1132b更多地位于内侧面113b，如此使得连接件113的表面更具协调性，在保证结构性能的同时增强骨传导耳机的美学性能。

[0035] 继续参阅图1，可选的是，第一弹性金属丝1131的两端呈扁平状设置并分别嵌入第一壳体111和第二壳体112。也即在第一壳体111与第二壳体112以注塑的方式形成且固定于第一弹性金属丝1131呈扁平状设置的两端，如此可以增大第一弹性金属丝1131与第一壳体111、第二壳体112的接触面积，使得第一弹性金属丝1131与第一壳体111、第二壳体112更稳定地相互固定。可选的是，第一弹性金属丝1131呈扁平设置的两端的宽度大于连接该呈扁平设置的两端的连接部分的宽度，如此在成型后起到一个限位的作用，防止将第一弹性金属丝1131从第一壳体111、第二壳体112中拉出或者脱落。可选的是，第一弹性金属丝1131的两端呈螺纹状设置。在成型时，部分壳体可以成型于螺纹中，以起到固定的作用。当然，第一弹性金属丝1131的两端可以分别呈扁平状以及螺纹状设置。在其他实施例中，第一弹性金属丝1131两端还可以内凹以形成凹陷部，第一壳体111与第二壳体112在成型时，部分位于凹陷部内，以起到固定作用。

[0036] 参阅图1和图2，可选的是，第一弹性覆层1132进一步包覆第一壳体111和第二壳体112的至少部分外表面，例如全部外表面。即第一弹性覆层1132以注塑成型的方式包覆第一弹性金属丝1131、第一壳体111的至少部分外表面、第二壳体112的至少部分外表面，如此使得骨传导耳机的质感以及一体感更强，而且第一弹性覆层1132的存在，可以进一步保护壳体以及壳体内部的元件，使得骨传导耳机更耐磨损。

[0037] 参阅图5和图6，可选的是，第二壳体112上形成有通孔1121。即通孔1121贯穿第二壳体112的内侧面与外侧面。第一弹性覆层1132覆盖通孔1121并进一步在通孔1121上方且远离第二壳体112(即远离第二壳体112的内侧面)的一侧形成有按键容置部1121a。按键容置部1121a是由第一弹性覆层1132在注塑过程中覆盖通孔1121而形成，按键容置部1121a内由于第一弹性覆层1132的存在是可以隔绝水份、尘土等进入第二壳体内112。耳挂组件11进一步包括按键118和开关组件119，其中按键118设置于按键容置部1121a内。开关组件119设置于第二壳体112的远离第一弹性覆层1132的一侧，即第二壳体112的内侧面，并与按键118下方的第一弹性覆层1132抵接。可选的是，按键容置部1121a内设置有一凸台1121b，按键118以例如黏贴的方式固定在凸台1121b上。在本实施例中，由于第一弹性覆层1132以注塑方式固定包覆在第二壳体112上，且覆盖通孔1121，具有更好防水效果。可选的是，凸台1121b是在第一弹性覆层1132覆盖通孔1121时由第一弹性覆层1132一体成型而形成的。

[0038] 在本实施例中，第二壳体112上的开关组件119主要是用于控制骨传导耳机的功能开关，例如音乐的播放与暂停、语音的接听与挂断、连通无线信号以连接移动设备例如蓝牙通讯，或者骨传导耳机工作模式的选择等，不限于此。

[0039] 参阅图1、图2、图4和图7，可选的是，第一弹性覆层1132的内部进一步设置有用于连通第一壳体111和第二壳体112的引线通道1134，耳挂组件11进一步包括从第一壳体111经引线通道1134延伸至第二壳体112的第一导线组1133，引线通道1134的径向尺寸设置成允许第一导线组1133沿引线通道1134移动。

[0040] 通过设置引线通道1134，例如在后期组装时可以先将第一导线组1133一端连接(例如以板载的方式)第二壳体112内的元件例如骨传导扬声器，再将第一导线组1133另一

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端穿过引线通道1134以连接第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15等，如此可以减少组装工艺，而且能够改善现有骨传导耳机在第一弹性覆层1132在注塑成型时埋入第一导线组1133所带来的接线困难且不利于后期维修等问题。当然，在后期组装时也可以先将第一导线组1133一端连接（例如以板载的方式）第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15，再将第一导线组1133另一端穿过引线通道1134以连接第二壳体112内的元件例如骨传导扬声器等。

[0041] 在本实施例中，引线通道1134具体的成型方式例如包括首先提供一个第一弹性金属丝1131连接的第一壳体111与第二壳体112的组件，进一步在第二壳体112与第一壳体111之间以可拆卸的方式设置附加金属丝（图未示），再进一步在第一弹性金属丝1131、附加金属丝以及第一壳体111和第二壳体112的部分外表面以注塑方式形成第一弹性覆层1132，成型后抽取附加金属丝以形成引线通道1134。在其他实施例中，例如第一弹性覆层1132注塑成型时，埋入易融性材料，在第一弹性覆层1132注塑成型时，该易融性材料融化而流出，形成引线通道1134。又例如引线通道1134可以在第一弹性覆层1132成型后，通过穿针的方式形成通道，再通过热熔的方式扩大通道形成引线通道1134。

[0042] 继续参阅图1和图4，在本实施例中，可选的是，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置。在本实施例中，第一引线通道1134与第一弹性金属丝1131间隔独立设置。在其他实施例中，第一引线通道1134可以与第一弹性金属丝1131合并设置，即第一导线组1133在第一引线通道1134内可接触第一弹性金属丝1131。在本实施例中，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置，由于引线通道1134的存在，可以使得靠近人耳的第一弹性覆层1132更具弹性更加柔和，佩戴更加舒适。在其他实施例中，当然第一引线通道1134也可以设置在第一弹性金属丝1131的上侧，在使用时第一弹性金属丝1131更靠近人耳。

[0043] 参阅图1、图2和图8，可选的是，耳挂组件11包括第三壳体114和第四壳体115。其中第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116。第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117。可选的是，第四壳体115与第三壳体114为塑料壳体。

[0044] 可选的是，第二壳体112与第四壳体115通过第一卡扣组件（未标注）连接，第一卡合组件包括第一卡合部以及第一扣合部，第一卡合部设置于第四壳体115上，第一扣合部设置于第二壳体112上，第二壳体112与第四壳体115配合时，第四壳体115上的第一卡合部卡入第二壳体112的第一扣合部，以将第二壳体112与第四壳体115固定在一起。可选的是，第二壳体112与第四壳体115通过至少一组第一卡扣组件例如4组第一卡扣组件进行连接。当然第二壳体112与第四壳体115也可以通过胶水粘合，或者通过第一卡合组件与胶水同时作用进行固定，或者通过螺丝等紧固件连接固定。

[0045] 可选的是，第三壳体114与第一壳体111通过第二卡扣组件（未标注）连接，第二卡扣组件包括第二卡合部以及第二扣合部，第二卡合部设置在第三壳体114上，第二扣合部设置在第一壳体111上，在第一壳体111与第三壳体114配合时，第三壳体114的第二卡合部卡入第一壳体111的第二扣合部，以将第一壳体111与第三壳体114固定在一起。

[0046] 在本实施例中，耳挂组件11的第三壳体114与第一壳体111配合，以形成用于收容

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电池组件13或控制电路组件14的第一容置空间116，第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117，第一导线组1133可以移动穿过引线通道1134用于电连接骨传导扬声器与电池组件13或控制电路组件14。在本实施例中，电池组件13例如包括电池以及电池管理电路，电池通过电池管理电路为骨传导耳机其他部件进行供电，例如电池管理电路包括充电电路、过流保护电路、过放保护电路、过压保护电路等。例如电池为可充电电池，例如为锂电池。参阅图7，可选的是，骨传导耳机还进一步包括例如转接电路板15，设置于第一容置空间116内，电池组件14通过转接电路板15分成多个接线焊点，以相对应连接骨传导耳机的两个骨传导扬声器、控制电路组件14、麦克风、以及开关组件119等，上述元件相关导线与上述接线焊点连接并按图7方式导通，便于接线和组装。例如电池组件14通过正负极的两个接线焊点连接转接电路板15，转接电路板15分出10个接线焊点，以连接骨传导耳机的其他部件。

[0047] 参阅图1和图2，可选的是，第一壳体111内设置有第一子容置空间116a，第三壳体114内设置有第二子容置空间116b，并在第三壳体114与第一壳体111配合时与第一子容置空间116a共同形成第一容置空间116，例如通过第一卡扣组件进行固定连接。其中第二子容置空间116b的体积大于第一子容置空间116a。例如第二子容置空间116b的体积是第一子容置空间116a的2-5倍，例如为3-4倍，例如为3.2倍，或例如为2.5倍。

[0048] 在组装电池组件13或者控制电路组件14，例如先将电池组件13或者控制电路组件14放置在第一子容置空间116a内，例如电池通过胶材或者双面胶粘贴于第一子容置空间116a内，或者控制电路组件14通过卡合结构固定于第一子容置空间116a内，使得电池组件13或者控制电路组件14大部分外露，便于组装和接线等工艺，再将第三壳体114通过第二卡扣组件与第一壳体111盖合，第一子容置空间116a与第二子容置空间116b形成第一容置空间116，如此改善了传统骨传导耳机需要将电池或者控制电路板装配并容纳在与耳挂一体成型的壳体内并进一步利用硅胶条贴于电池控制电路板外部部分进行包覆所导致的组装工序复杂的问题，简化结构以及组装工序。

[0049] 参阅图2和图8，可选的是，第四壳体115呈棱柱状设置，其中在第四壳体115的至少一侧面上设置有条形引音孔1151，其中条形引音孔1151的长度方向与第四壳体115的底面平行或者大致平行设置，且条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二。在本实施例中，条形引音孔相对平行的底面115e是指在佩戴时第四壳体115朝向人体脸部的一面的开口边缘所定义的平面。

[0050] 一般，骨传导扬声器在振动的过程中会向周边的环境传递声音，除了佩戴者外，环境中的他人也能够听到扬声器的声音，例如骨传导扬声器的振动引起了第二容置空间117内空气的振动以及引起第四壳体115等的振动，从而出现漏音现象，会影响骨传导耳机的音质。引音孔1151是将第二容置空间117内的声波引导传播至空间外，与漏音声波同在空气中传播发生干涉，从而降低漏音声波的振幅，减小漏音。

[0051] 继续参阅图8，为了进一步改善漏音现象，本实施例通过在第四壳体115的至少一侧面设置条形引音孔1151，并适当设置其尺寸和方向改善了传统骨传导耳机带来的漏音现象仍比较严重的问题。进一步地，条形引音孔1151的长度方向与第四壳体115的底面平行设置，不仅可以保证美观，而且经平行引导的声波强度的均匀性，从而保证干涉效果。在本实施例中，条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二，能够有效引导第

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二容置空间117内的声波。可选为，条形引音孔1151的长度为其所在的侧面的宽度的四分之三。当然，在其他实施例中，其中在第四壳体115的至少一侧面上并列设置有至少两条条形引音孔1151，例如在至少一侧面上设置两条平行的条形引音孔1151，且与第四壳体115的底面115e平行。

[0052] 可选的是，第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上不设置条形引音孔1151。当然，在其他实施例中，也可以在第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上设置引音孔，可以是点式引音孔，或者条形引音孔1151。

[0053] 继续参阅图2和图8，可选的是，第四壳体115呈四棱柱状设置，其中在第四壳体115与连接部件113相邻设置的两个侧面115a、115c上设置有条形引音孔1151，进一步剩余的两个侧面115b、115d中的在骨传导耳机使用时远离人耳的侧面115b同样设置条形引音孔1151，且剩余的两个侧面115b、115d中的在骨传导耳机使用时靠近人耳的侧面115b上不设置条形引音孔1151。也即在三个侧面115a、115b、115c上设置三个条形引音孔1151，在骨传导耳机使用时靠近人耳的侧面115d不设置条形引音孔1151，如此可以进一步减少漏音现象，保证骨传导耳机的音质。

[0054] 在本实施例中，第四壳体115呈四棱柱状设置，例如包括正四棱柱以及类四棱柱状。例如具体地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的任一个侧面的长度均大于剩余的两个侧面115b、115d的任一个侧面的长度，进一步地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的长度不相等或者相等。在其他实施例中，第四壳体115呈四棱柱状设置，其四个侧面的长度均可相等。

[0055] 在本实施例中，可选的是，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c之间的夹角为90°-150°，可选为100°-130°，可选为110°-120°。

[0056] 可选的是，第四壳体115内进一步设置有覆盖条形引音孔1151的防水防尘滤网，例如防水透气膜(图未示)。设置防水防尘滤网，可以防止骨传导耳机外的灰尘以及防水骨传导耳机进水进入损坏骨传导扬声器。

[0057] 在本实施例中，第二壳体112与第四壳体115上分别设置有一麦克风孔(图未示)，具体的，第一麦克风孔设置在第四壳体115不直接与连接部件113连接的剩余两侧面115b、115d的连接处，第二麦克风孔设置在第二壳体112的外侧面且靠近第四壳体115与连接部件113的连接处。通过在两个错开设置的麦克风孔内设置两个麦克风，能够增强语音输入质量，且起到有效的降噪作用，由此提高语音输入的清晰度。

[0058] 参阅图2以及图9，在本实施例中，耳挂组件11的数量为两个，骨传导耳机进一步包括后挂组件12。后挂组件12包括第二弹性金属丝121、包覆在第二弹性金属丝121上的第二弹性覆层122以及设置于第二弹性金属丝121两端的接插部123。接插部123分别与两个耳挂组件11的第一壳体111接插配合，并固定连接。可选的是，接插部123以注塑方式固定于第二弹性金属丝121的两端，如此可以使接插部123更稳固地固定于第二弹性金属丝121的两端。可选的是，第二弹性金属丝121可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。在本实施例中，第二弹性金属丝121为钛合金丝，或者至少由钛合金材料制成。在本实施例中，第二弹性覆层122为硅胶层。在其他实施例方式中，第二弹性覆层122也可以为橡胶层或者乳胶层，或者是包括硅胶的复合材料层。

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[0059] 通过后挂组件12的接插部123与两个耳挂组件11的第一壳体111进行接插配合，改善了现有的骨传导耳机采用螺丝等固定方式带来的耳机尺寸较大等问题，从而简化结构，减轻骨传导耳机的重量，方便后期接线且能降低成本。

[0060] 参阅图9和图10，可选的是，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111以及在接插部123的插入方向的垂直方向连通接插孔1111与外部的开孔1112，以允许从外部经开孔1112向接插孔1111内施加胶水或安装卡止件(图未示)，以使得接插部123在胶水或卡止件的作用下固定在接插孔1111内。在本实施中，开孔1112位于所述第一子容置空间116a内。在其他实施例中，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111，接插部123上具有一凹部，接插孔1111内具有一弹性凸部，接插部123插入接插孔1111时，弹性凸部卡入凹部，以将接插部123与接插孔1111配合固定。例如接插部123插入接插孔1111时，弹性凸部先被挤压，后在弹性恢复力的作用下卡入凹部内。可选的是，接插部123插入接插孔1111的深度为6-11mm，可选为8-10mm。

[0061] 继续参阅图9和图10，可选的是，接插部123的侧壁上设置有开槽1231。开槽1231经开孔1112外露或者部分外露，并用于接收胶水或卡止件。可选的是，接插部123的至少一个侧壁上设置有开槽1231，例如两个侧壁上均设置有开槽1231。在其他实施例中，可以同时使用胶水和卡止件，例如先使用卡止件固定，再施加胶水进一步固定。在本实施例中，卡止件例如是楔子或者销钉、或者具有一定弹性的固定件插入开槽1231进行过盈配合。

[0062] 参阅图2、图9和图10，可选的是，接插部123包括与第二弹性金属丝121连接的第一接插段123a以及与第一接插段123a连接且远离第二弹性金属丝121设置的第二接插段123b。接插孔1111沿接插部123的插入方向划分为用于接收第一接插段123a的第一孔段1111a和用于接收第二接插段123b的第二孔段1111b。其中第一孔段1111a的尺寸设置成允许第二接插段123b沿插入方向在第一孔段1111a内自由移动，且使得第一接插段123a与第一孔段1111a之间紧配合。通过两段接插段与两端孔段的分别配合固定，可以使得接插部123更稳固地固定在第一壳体111内，增强骨传导耳机的结构稳定性。

[0063] 继续参阅图9和图10，可选的是，开槽1231进一步设置在第二接插段123b的侧壁。开孔1112连通接插孔1111的第二孔段1111b。在本实施例中，在接插部123第二接插段123b依次通过第一孔段1111a以及第二孔段1111b，以使第一接插段123a与第一孔段1111a紧配合，第二接插段123b的开槽1231经开孔1112外露，以用于接收胶水或者卡止件。通过第一接插段123a与第一孔段1111a的紧配合以及第二接插孔1111与第二孔段1111b的进一步配合固定，能够有效地将后挂与耳挂固定连接。在其他实施例中，开槽1231可以设置在第一接插段123a的侧壁上。开孔1112连通接插孔1111的第二孔段1111b。

[0064] 可选的是，第二孔段1111b的尺寸设置成使得第二接插段123b与第二孔段1111b之间紧配合。如此通过第一接插段123a与第一孔段1111a的紧配合、第二接插孔1111与第二孔段1111b的紧配合以及施加的胶水或者卡止件进行固定，进一步有效地将后挂与耳挂固定连接，且能够简化结构，使骨传导耳机轻便化。当然，在其他实施例中，第一接插段123a与第一孔段1111a之间紧配合，而第二接插段123b与第二孔段1111b可以是其他类型的固定配合例如卡扣配合。

[0065] 参阅图11，可选的是，第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同。第一接插段123a的两侧形状不同，相对应地第一孔段1111a与第一接插段123a接触的

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两侧面1111a1、1111a2也不同。例如，第一孔段1111a的两侧面均呈弧形设置，内侧面1111a2的曲率半径大于外侧面1111a1的曲率半径，也即内侧面1111a2的弧度变化相对较缓，而外侧面1111a1的弧度变化相对较大，第一接插段123a两侧面相对应设置。当然，在其他实施例中，第一孔段1111a的两侧面均呈弧形设置，内侧面1111a2的曲率半径小于外侧面1111a1的曲率半径，也即内侧面1111a2的弧度变化相对较大，而外侧面1111a1的弧度变化相对较小。第一孔段1111a的两侧面在佩戴时靠近人体头部的为内侧面1111a2，远离人体头部即为外侧面1111a1。第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同，使得第一接插段123a不能反插，且也使得后挂两个接插部123不能混插，起到有效的防呆效果，方便组装。

[0066] 参阅图9和图10，可选的是，第一接插段123a和第二接插段123b的底面呈阶梯状设置且在第一接插段123a和第二接插段123b的连接处设置有第一楔形过渡段123c，并第一孔段1111a和第二孔段1111b的连接处设置有与第一楔形过渡段123c对应的第二楔形过渡段1111c。

[0067] 在本实施例中，第一接插段123a与第二接插段123b的底面是指在佩戴时靠近人耳根部的一面。顶面则为远离人耳根部的一面。

[0068] 在本实施例中，第一接插段123a厚度要大于第二接插段123b的厚度即呈阶梯状设置，两者的连接处存在厚度差，且设置第一楔形过渡段123c，相对应的在第一孔段1111a和第二孔段1111b的连接处设置与第一楔形过渡段123c相适应的第二楔形过渡段1111c，在第一接插段123a与第二接插段123b依次插入第一孔段1111a与第二孔段1111b时，第一楔形过渡段123c与第二楔形过渡段1111c相抵接，能够方便第二接插段123b与第一接插段123a的插入，且起到缓冲过渡、限位以及进一步固定的作用。

[0069] 参阅图9、图12以及图13，可选的是，后挂组件12进一步包括由第二弹性覆层122包覆的第二导线组124，其中第二导线组124的两端从第二弹性覆层122外露，接插部123的顶面设置有用于容纳第二导线组124的外露部分的埋线槽1232。在本实施例中，第二导线组124，用于连接两个耳挂组件11内的元件例如连接电池以及控制电路组件14等。设置埋线槽1232，一方面可以有效布置和固定第二导线组124，另一方面可以减少体积。在其他实施例中，也可以不设置埋线槽1232，而通过其他方式例如胶水或者双面胶等将第二导线组124进行固定，或者在接插部123顶面设置有两排并列设置的凸块(图未示)，两排凸块之间可以容纳第二导线组124。

[0070] 参阅图2，可选的是，骨传导耳机进一步包括电池组件13和控制电路组件14，其中电池组件13设置于两个耳挂组件11中的一者的第一容置空间116，控制电路组件14设置于两个耳挂组件11中的另一者的第一容置空间116内。

[0071] 参阅图14和图15，可选的是，用于容纳控制电路组件14的耳挂组件11的第三壳体114上设置有按键开孔1141和与按键开孔1141连通的容置槽1142，控制电路组件14包括电路板141、固定于电路板141上的开关142、防水衬板143以及按键144，其中按键144设置于按键开孔1141内且经按键开孔1141外露，防水衬板143包括衬板主体143a以及以注塑方式包覆在衬板主体143a上的第三弹性覆层143b，防水衬板143设置于容置槽1142内且第三弹性覆层143b与容置槽1142的侧壁弹性抵接，按键144和开关142分别设置于防水衬板143的两侧且分别与防水衬板143抵接。在本实施中，第三弹性覆层143b包覆衬板主体143a的一侧面

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以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效

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率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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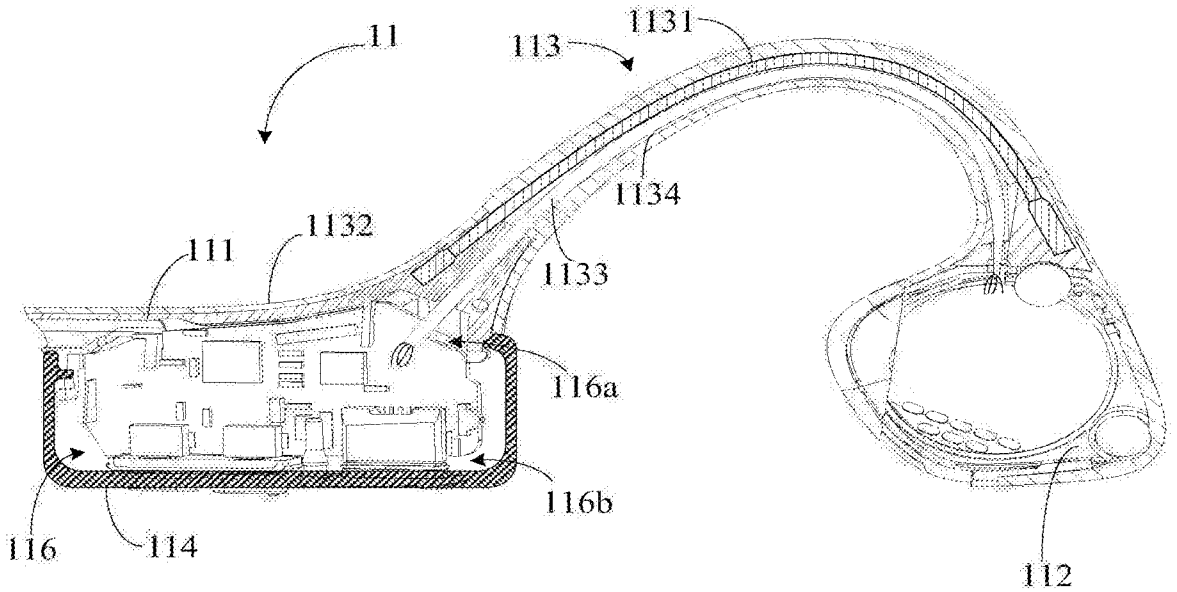


图1

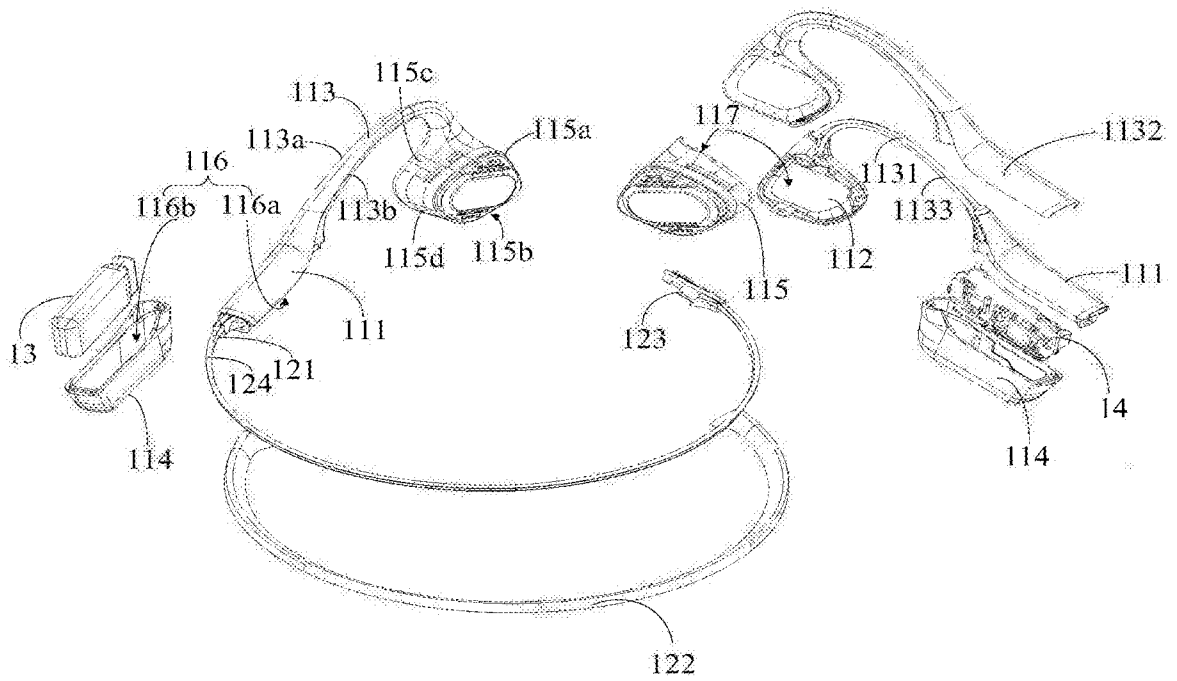


图2

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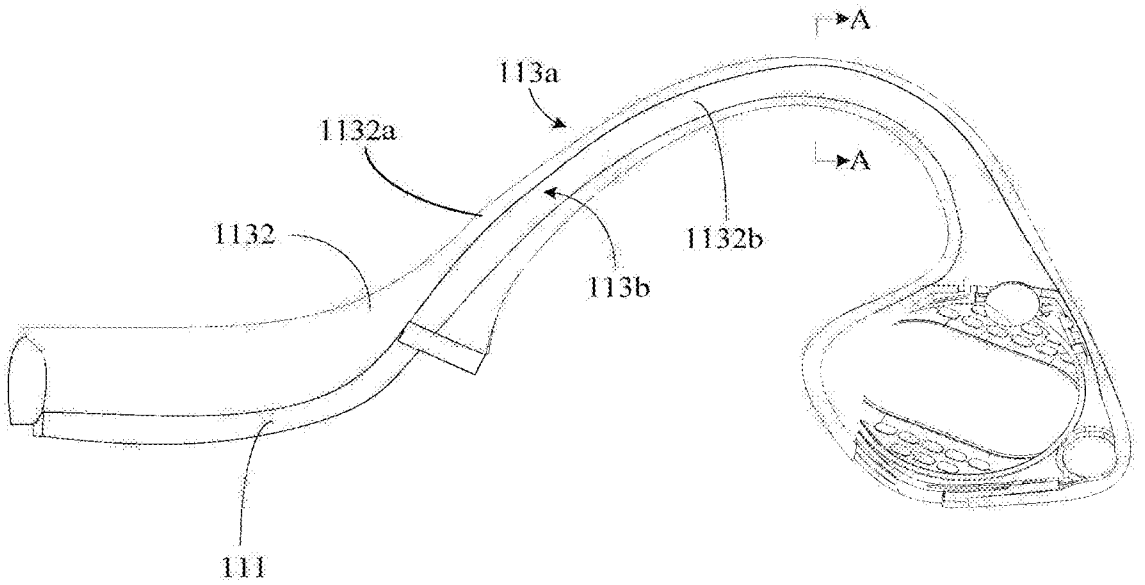


图3

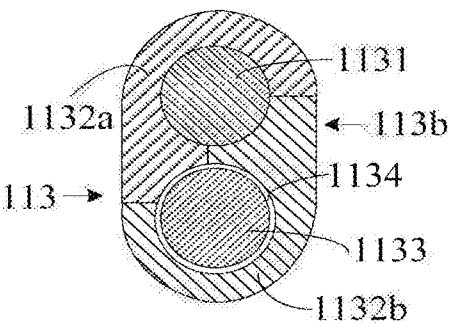


图4

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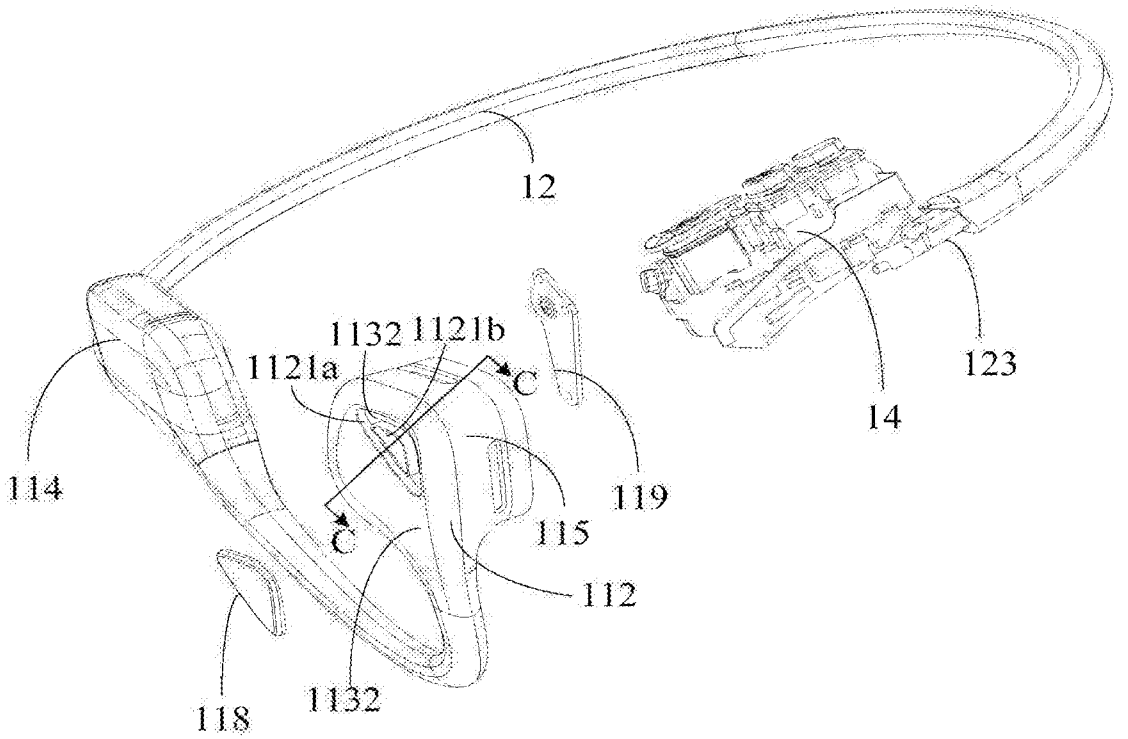


图5

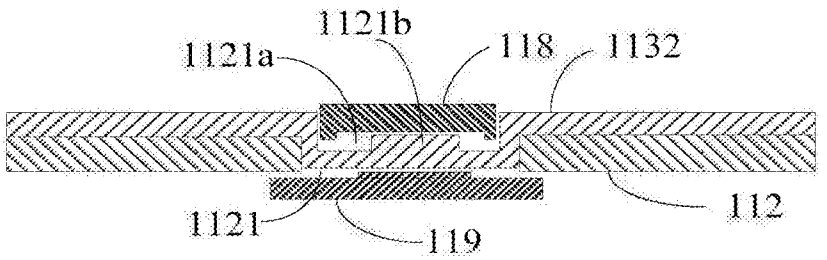


图6

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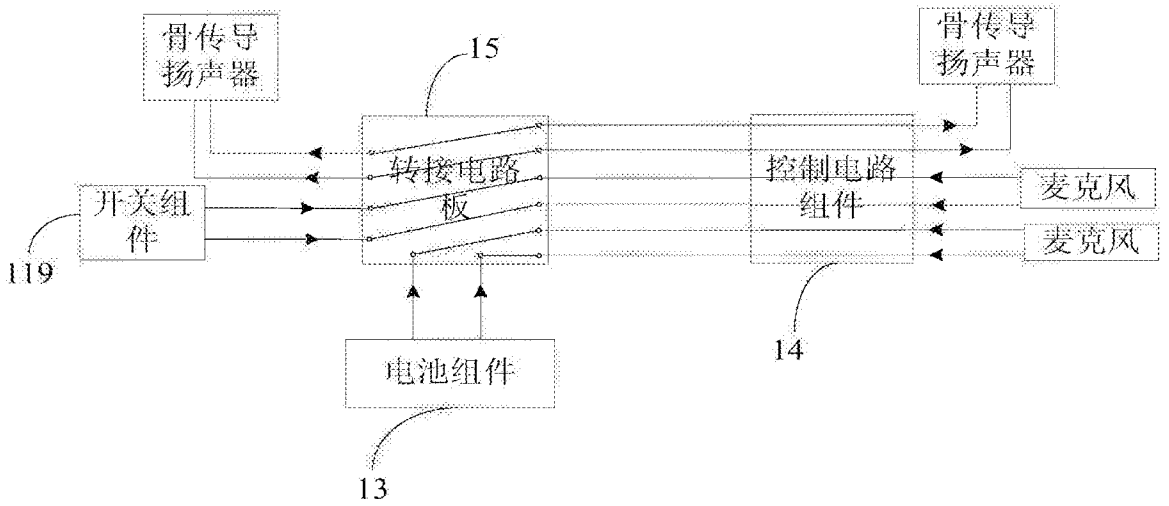


图7

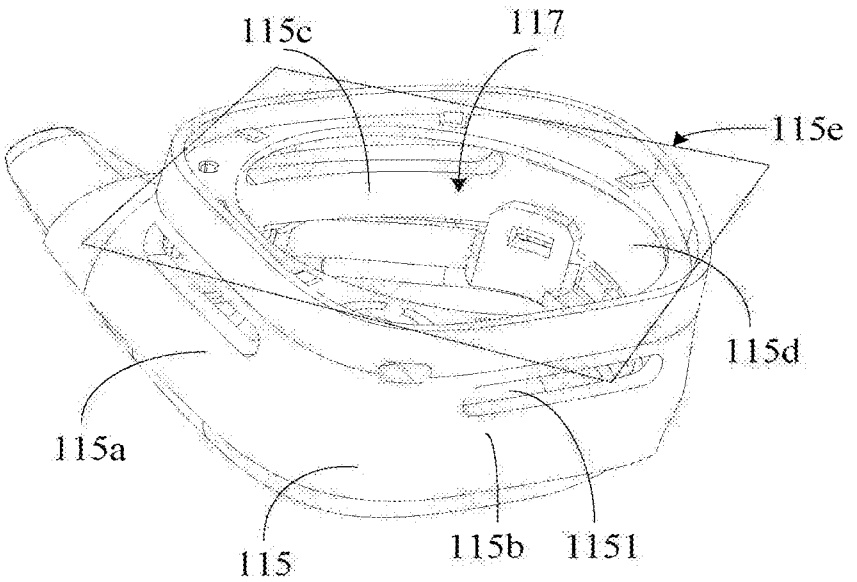


图8

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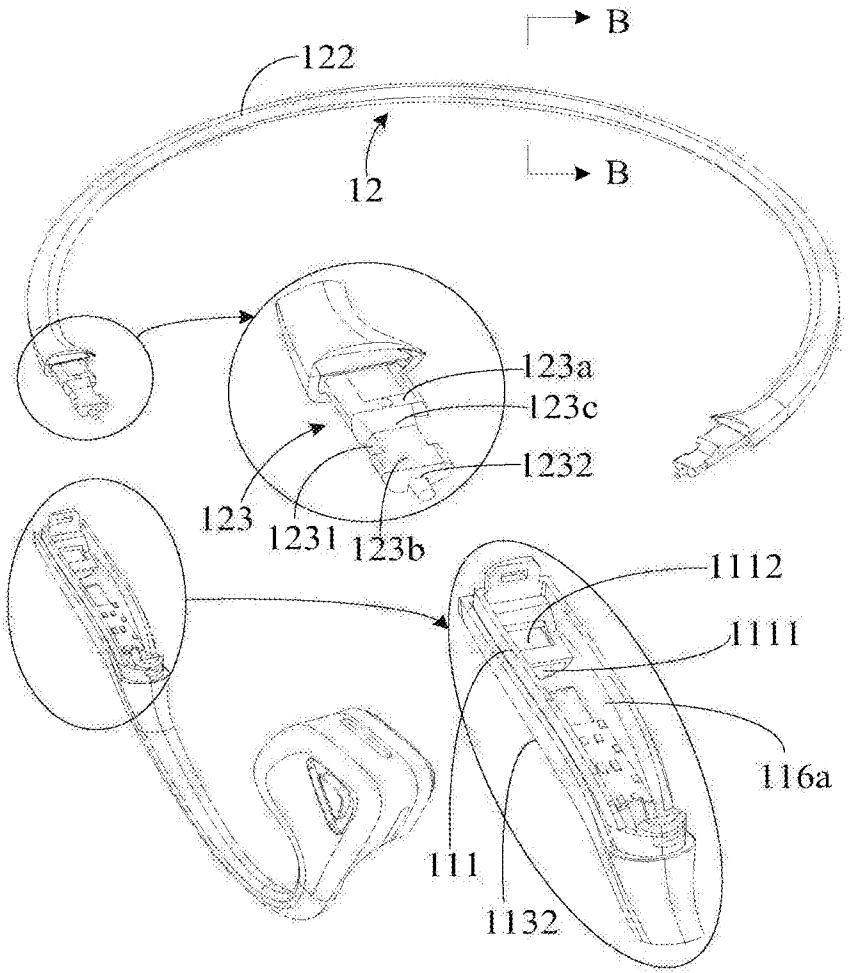


图9

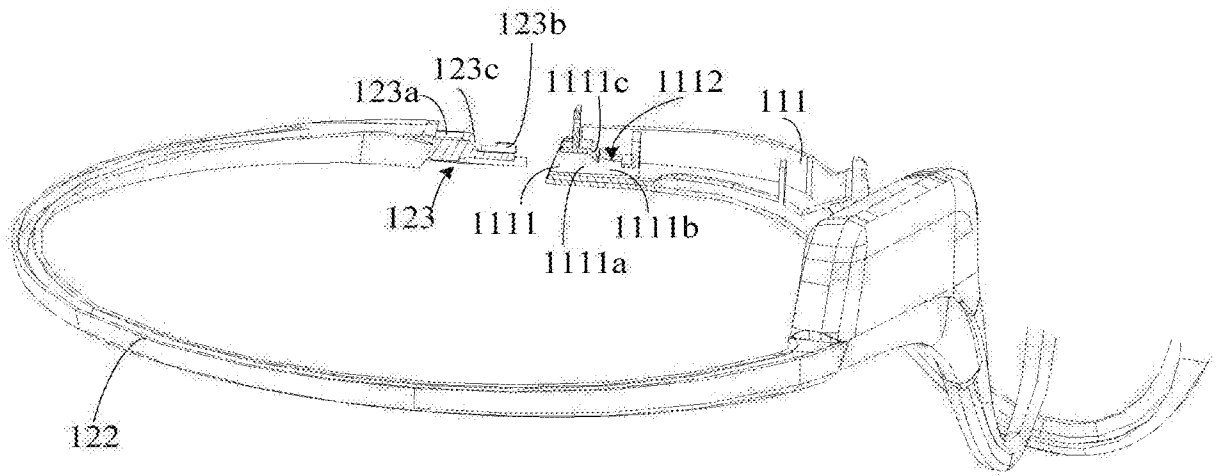


图10

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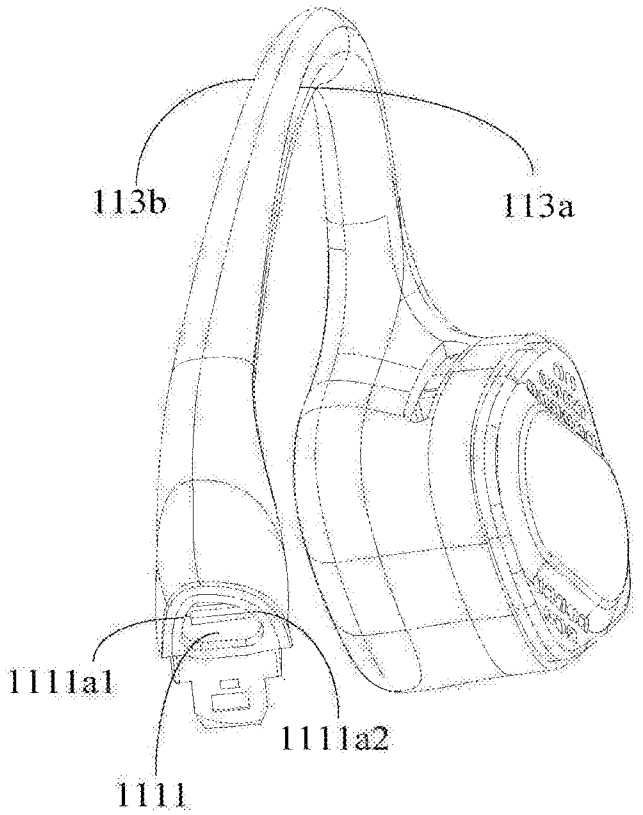


图11

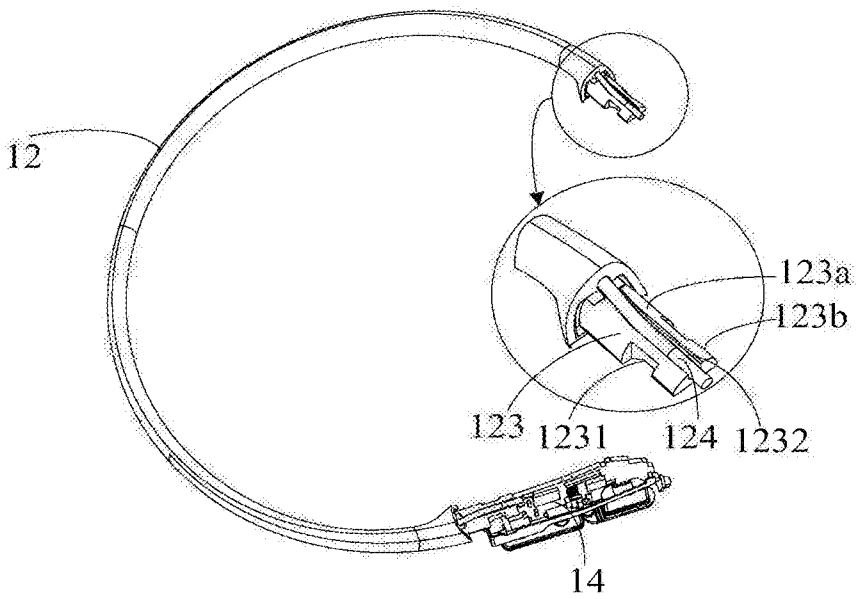


图12

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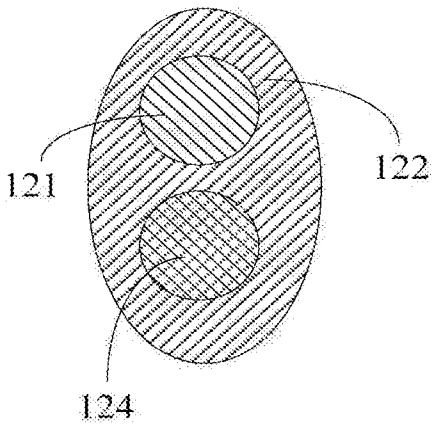


图13

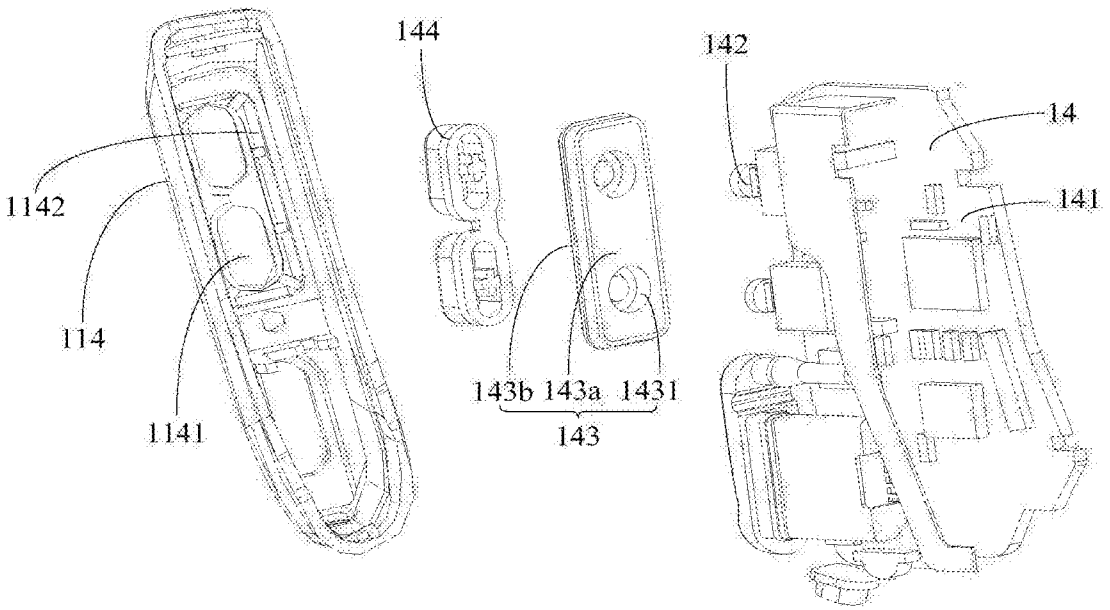


图14

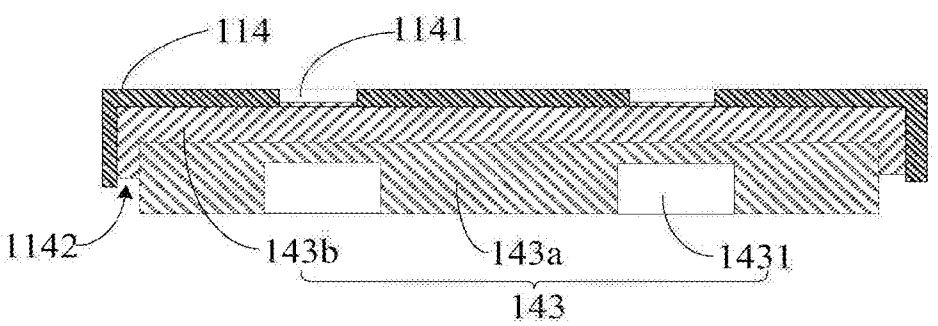


图15

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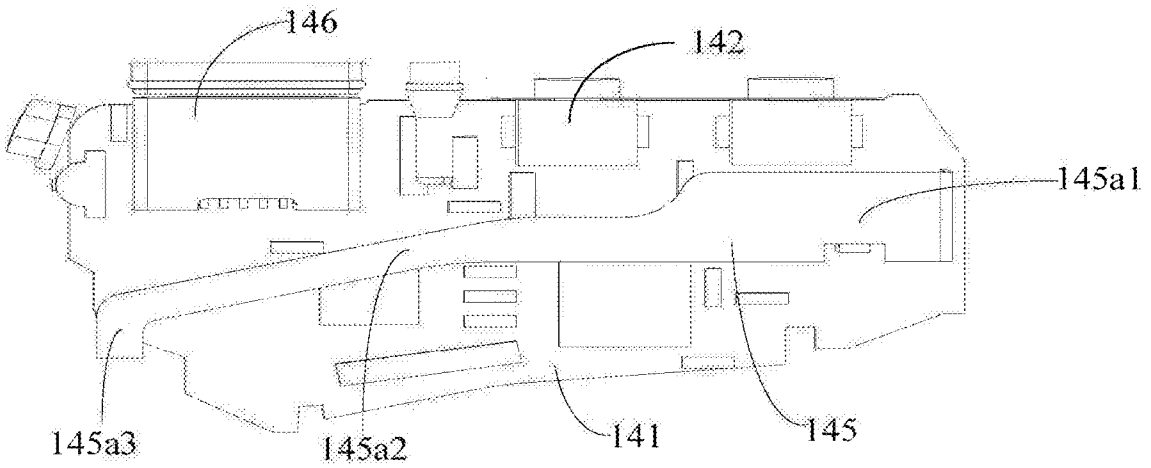


图16

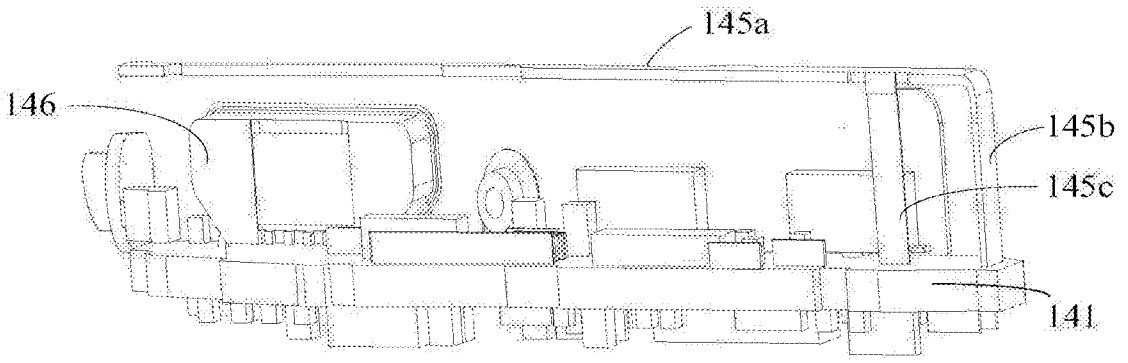


图17

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A kind of bone conduction earphone

Abstract

The utility model embodiment provides a kind of bone conduction earphone, including ear-hang component, the ear-hang component includes the first housing, the second housing and the connection member of connection first housing and the second housing, wherein the connection member connects the first elastic metallic yarn of first housing and second housing and the first resilient coating being coated on first elastic metallic yarn respectively including both ends.By the above-mentioned means, the utility model can effectively strengthen the bending performance of bone conduction earphone.

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Description

A kind of bone conduction earphone

Technical field

Earphone field is the utility model is related to, more particularly to a kind of bone conduction earphone.

Background technology

Osteoacusis is a kind of sound conduction mode, i.e., sound is converted into the mechanical oscillation of different frequency, passes through the cranium of people Bone, osseous labyrinth, inner ear lymph transmission, spiral organ, auditory nerve, auditory center transmit sound wave.Bone conduction earphone is passed using bone Waveguide technology is called, is close to bone, and sound wave directly reaches auditory nerve by bone.Therefore ears can be opened, does not injure eardrum, Therefore liked by consumers in general.But existing bone conduction earphone bending performance is poor, easily damaged in bending It is bad.

Claims (16)

Hide Dependent

1. a kind of bone conduction earphone, it is characterised in that the bone conduction earphone includes ear-hang component, and the ear-hang component includes the One housing, the second housing and the connection member of connection first housing and the second housing, wherein the connection member includes Both ends connect the first elastic metallic yarn of first housing and second housing and are coated on first elasticity respectively The first resilient coating on wire.

2. bone conduction earphone according to claim 1, it is characterised in that first housing and the second housing are respectively with note Modeling mode is fixedly connected with the both ends of first elastic metallic yarn, and first resilient coating is fixed with injection moiding manner and is coated on On first elastic metallic yarn.

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Utility model content

The utility model can improve existing osteoacusis mainly solving the technical problems that provide a kind of bone conduction earphone The problem of earphone bending performance is poor.

In order to solve the above technical problems, the utility model embodiment provides a kind of bone conduction earphone, including ear-hang component, institute Stating ear-hang component includes the first housing, the second housing and the connection member of connection first housing and the second housing, wherein The connection member includes the first elastic metallic yarn and bag that both ends connect first housing and second housing respectively The first resilient coating overlayed on first elastic metallic yarn.

Compared with prior art, the beneficial effects of the utility model are : The utility model embodiment passes through the first elasticity gold Belong to silk and connect the first housing and the second housing, and the first resilient coating the first elastic metallic yarn of cladding, due to elastic metallic yarn with And first resilient coating elastic reaction, can effectively strengthen the bending performance of ear-hang, bullet is effectively carried out when being bent Property reply and restore to the original state, be unlikely to deform, and traditional bone conductors earphone can be improved and use material of the plastics as ear-hang component The problems such as caused fragile.

Brief description of the drawings

Fig. 1 is the structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 2 is that bone conduction earphone overall structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 3 is another structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 4 is the cross section structure schematic diagram of A-A in Fig. 3 ;

Fig. 5 is that bone conduction earphone part-structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 6 is the cross section structure schematic diagram of C-C in Fig. 5 ;

Fig. 7 is circuit diagram in the utility model bone conduction earphone embodiment ;

Fig. 8 is the structural representation of the 4th housing in the utility model bone conduction earphone embodiment ;

3. bone conduction earphone according to claim 1, it is characterised in that first resilient coating is by the two of different colours individual sub-resilient coating is put together, wherein the split seam of described two elastic coating is respectively positioned at the relative of the connection member On two sides set, wherein the projection that the split is sewn on the same side offsets one from another.

4. bone conduction earphone according to claim 2, it is characterised in that the both ends of first elastic metallic yarn are in flat Shape sets and is respectively embedded into first housing and the second housing.

5. bone conduction earphone according to claim 1, it is characterised in that the inside of first resilient coating is further set The lead channels for connecting first housing and second housing are equipped with, the ear-hang component further comprises from described First housing extends to the first wire group of second housing through the lead channels, and the radial dimension of the lead channels is set Being set to allows the first wire group to be moved along the lead channels.

6. bone conduction earphone according to claim 5, it is characterised in that the ear-hang component includes the 3rd housing and the 4th Housing, wherein the 3rd housing coordinates with first housing, it is used to house battery component or control circuit component to be formed The first accommodation space, the 4th housing and second housing coordinate, to form be used to housing bone-conduction speaker the Two accommodation spaces, the first wire group are used to electrically connect the bone-conduction speaker and the battery component or control circuit group Part.

7. bone conduction earphone according to claim 6, it is characterised in that first housing and second housing are modelling Material shell body, and be fixedly connected respectively with injection molding manner with the both ends of first elastic metallic yarn ; And/or first elasticity Wire is at least made up of titanium alloy material ; And/or first resilient coating is layer of silica gel, is fixed and coated with injection molding manner In on first elastic metallic yarn ; And/or the 3rd housing and the 4th housing are plastic casing.

8. bone conduction earphone according to claim 6, it is characterised in that it is accommodating that the first son is provided with the first shell body Space, the second sub- accommodation

Fig. 9 is that bone conduction earphone Plug Division is illustrated with patching pore structure amplification in the utility model bone conduction earphone embodiment Figure ;

Figure 10 is Plug Division and jointing holes cross section structure schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 11 is jointing holes structural representation in the utility model bone conduction earphone embodiment ;

Figure 12 is Plug Division structural representation in the utility model bone conduction earphone embodiment ;

Figure 13 is Fig. 9 B-B cross section structure schematic diagram ;

Figure 14 is that bone conduction earphone another part structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 15 is Figure 14 part-structure schematic cross-section ;

Figure 16 is control circuit component structure diagram in the utility model bone conduction earphone embodiment ;

Figure 17 is another structural representation of control circuit component in the utility model bone conduction earphone embodiment.

Embodiment

Refering to Fig. 1 and Fig. 2, the utility model bone conduction earphone embodiment includes ear-hang componenti 11, and ear-hang component 11 includes First housing 111, the second housing 112 and the connection member 113 of the first housing 111 of connection and the second housing 112, wherein connecting Part 113 connects the first elastic metallic yarn 1131 of the first housing 111 and the second housing 112 including both ends and is coated on respectively The first resilient coating 1132 on first elastic metallic yarn 1131.

Typically, bone conduction earphone also includes the elements such as bone-conduction speaker, battery, control circuit, such as osteoacusis is raised one's voice Device is used to export sound to user by vibration in a manner of osteoacusis.Battery is used to give bone conduction earphone each power elements.Control Circuit processed is used to control bone conduction earphone function such as realizing regulation volume, switching on and shutting down, play audio and bluetooth communication.

Ear-hang component 11 is generally used for user and is hung on its ear when wearing bone conduction earphone, can so make osteoacusis ear Machine is more firmly worn on the ear of user.Ear-hang component 11 needs to have good resistance to compression and non-deformability, so

space is provided with the 3rd housing, and when the 3rd housing and first housing coordinate First accommodation space is collectively forming with the described first sub-accommodation space, wherein the volume of the second sub- accommodation space is more than The first sub- accommodation space.

9. bone conduction earphone according to claim 6, it is characterised in that the 4th housing is set in prism-shaped, wherein Draw sound hole in the bar shaped that is at least provided with one side of the 4th housing, wherein length direction and the institute of sound hole are drawn in the bar shaped The bottom surface for stating the 4th housing be arranged in parallel, and the bar shaped draws the length of sound hole not less than the width of the side where it 2/3rds.

10. bone conduction earphone according to claim 1, it is characterised in that the quantity of the ear-hang component is two, described Bone conduction earphone further comprises rear hanging component, and the rear hanging component includes the second elastic metallic yarn, is coated on second bullet The second resilient coating on property wire and the Plug Division for being arranged at the second elastic metallic yarn both ends, it is described to patch part The first housing not with described two ear-hang components patches cooperation, and is fixedly connected.

11. bone conduction earphone according to claim 10, it is characterised in that the end set of first housing, which has, to be used for The jointing holes of the Plug Division insertion and the vertical direction of the direction of insertion in the Plug Division is allowed to connect the jointing holes With the perforate of outside, glue or installation stopper are applied from the outside through the perforate into the jointing holes with permission, to cause The Plug Division is fixed in the presence of the glue or stopper in the jointing holes.

12. bone conduction earphone according to claim 11, it is characterised in that the Plug Division includes and the described second elasticity The first of wire connection patches section and patches section with described first and be connected and away from second elastic metallic yarn setting Second patches section, and direction of insertion of the jointing holes along the Plug Division is divided into patches the first of section for receiving described first Hole section and for receiving the described second the second hole section for patching section, wherein first hole section is sized to

as to User is not easy to damage or cause its deformation by bone conduction earphone when in use.

In the present embodiment, connection member 113 can directly contact ear and support bone conduction earphone by people's the ear portion, even Relay part 113 includes the first elastic metallic yarn 1131 and the first resilient coating being coated on the first elastic metallic yarn 1131 1132, the first housing 111 and the second housing 112 are connected by the first elastic metallic yarn 1131, can effectively strengthen osteoacusis ear The bending performance and structural stability of machine, ear-hang component 11 is set effectively to carry out elastic recovery when being bent and extensive Shape is restored, is unlikely to deform.In addition traditional bone conductors earphone can be improved using the first elastic metallic yarn 1131 and uses plastics conduct The problems such as fragile caused by the material of ear-hang component.Optionally, connection member 113 can include more first elasticity gold Belong to silk 1131, such as more the first tiny elastic metallic yarns 1131 can be set further to improve the curved of ear-hang component 11 Folding reliability, such as 3 first elastic metallic yarns 1131 of setting, the diameter 0.3mm of every first elastic metallic yarn 1131, now The material of 3 first elastic metallic yarns can with it is identical can also part it is identical or all different, every first elasticity gold certainly Belong to silk 1131 diameter can also identical, part it is identical or all different.

In the present embodiment, optionally, the first elastic metallic yarn 1131 can be metal simple-substance, or including more The alloy material of kind metal material, such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium close Gold, chrome-molybdenum steel etc. or the composite including metal material and nonmetallic materials.Optionally, the first elastic metallic Silk 1131 is titanium alloy wire, or is at least made up of titanium alloy material, such as a diameter of 0.8-1.5mm titanium alloy wire, optional For 1.0-1.25mm.

In the present embodiment, the first resilient coating of outer cladding 1132 of the first elastic metallic yarn 1131, the first resilient coating 1132 directly contact with ear, because the elastic reaction of the first resilient coating 1132 enables to user cosily to wear bone Conduct earphone.In addition, the first resilient coating 1132 can more effectively coat the first elasticity gold due to the presence of its elastic reaction Belong to silk 1131, remain to effectively coat the first elastic metallic yarn 1131 even in after repeatedly bending, ensure bone conduction earphone knot The validity of structure.Optionally, the first resilient coating 1132 is layer of silica gel, certainly in other embodiments, the first resilient coating 1132 can also be emulsion layer either rubber layer or other flexible plastic layers, or be the composite comprising silica gel Layer.

allow for described Two patch section moves freely along the direction of insertion in first hole section, and make it that described first patches section and described first Tight fit between hole section.

13. bone conduction earphone according to claim 12, it is characterised in that described first, which patches section and described second, patches The stepped setting in bottom surface of section and patch section described first and second junction for patching section is provided with the first wedge shape Changeover portion, and the junction of first hole section and second hole section be provided with it is corresponding with the described first wedge-shaped changeover portion Second wedge-shaped changeover portion.

14. bone conduction earphone according to claim 6, it is characterised in that for accommodating the of the control circuit component Button perforate and the storage tank connected with the button perforate are provided with three housings, the control circuit component includes circuit Plate, the switch being fixed on the circuit board, waterproof liner and button, wherein the button is arranged in the button perforate And it is exposed through the button perforate, the waterproof liner includes liner plate main body and is coated on the liner plate main body with injection molding manner On the 3rd resilient coating, the waterproof liner is arranged in the storage tank and the 3rd resilient coating and the storage tank Sidewall elastomer abut, the button and it is described switch be respectively arranged at the waterproof liner both sides and respectively with the waterproof Liner plate abuts.

15. bone conduction earphone according to claim 14, it is characterised in that the control circuit component further comprises setting The antenna being placed on the circuit board, the antenna include antenna body spaced with the circuit board and described in being connected The grounding parts and current feed department of antenna body and the circuit board, wherein when being looked up perpendicular to the side of the circuit board, institute State antenna body and bent from the grounding parts to the side of the circuit board and extended.

16. bone conduction earphone according to claim 1, it is characterised in that first resilient coating further coats institute At least part outer surface of the first housing and the second housing is stated, is covered on second housing

Optionally, the first housing 111 and the second housing 112 are respectively with injection molding manner and the first elastic metallic yarn 1131 Both ends are fixedly connected, and the first resilient coating 1132 is fixed with injection molding manner and is coated on the first elastic metallic yarn 1131.Optionally It is that the first housing 111 and the second housing 112 are plastic casing, and the first elastic metallic yarn is fixed in a manner of injection molding 1131 both ends, and the first resilient coating 1132 are integrally formed on the first elastic metallic yarn 1131 of cladding, so that the Connection between one housing 111, the second housing 112 and the first elastic metallic yarn 1131 is more firm, and causes bone conduction earphone One body-sensing is stronger with texture, makes the more compact structure of bone conduction earphone lighter.In the present embodiment, injection molding manner can be note The one kind being moulded into type, thermoplastic shaping, compression molding etc., but not limited to this.

Refering to Fig. 3 and Fig. 4, optionally, the first resilient coating 1132 by different colours two sub- resilient coatings 1132a, 1132b are put together, and two of which elastic coating 1132a, 1132b split seam are located at connection member 113 respectively Be oppositely arranged two sides 113a, 113b on, wherein split is sewn on the throwing for example on lateral surface 113a on same side Shadow offsets one from another.Such as when carrying out injection molding, two bulleis using at least two molds to the first resilient coating 1132 Property coating 1132a, 1132b are molded respectively, the two kinds of colors that thus can form different ratio be, for example, light gray with it is dark-grey The combination of color or other colors, and split seam is located on two sides 113a, 113b that connection member 113 is oppositely arranged, and Projection offsets one from another on same side so that the visual effect of bone conduction earphone more preferably, further as staggering coats the first bullet Property wire 1131 cause covered effect it is more preferable.Certain first resilient coating 1132 elastic can also be covered by two of same color Layer is put together.By injection molding twice, formation two is elastic on two sides 113a, 113b of connection member 113 respectively Coating 1132a, 1132b, due to the presence of injection pressure when can improve single injection-molded or be injected separately shaping up and down Easily causing element such as the first elastic metallic yarn 1131 in the first resilient coating 1132 to produce displacement reduces connection member 113 Forming Quality.Certainly, in other embodiments, the first resilient coating 1132 can directly form a coating, or be formed The more than two elastic coating of quantity.

In the present embodiment, the two sides of connection member 113 include being oppositely arranged medial surface 113b and lateral surface 113a, are Refer to the ear-hang component 11 when wearing and be hung on human ear, connection member 113 towards the side of head part formed with through hole, first elasticity Layer covers the through hole, and further above the through hole and the side away from second housing houses formed with button Portion, the ear-hang component further comprise button and switch module, wherein the button is arranged in the button holding part, institute State the side that switch module is arranged at remote first resilient coating of second housing, and with the institute below the button State the first resilient coating abutting.

be medial surface 113b, towards human ear Side be lateral surface 113a.

With continued reference to Fig. 3 and Fig. 4, optionally, two sub- resilient coating 1132a, 1132b split seam are respectively positioned at company On the medial surface 113b and lateral surface 113a of relay part 113, and the split seam on the lateral surface 113a of connection member 113 The projection compared to the split seam on the medial surface 113b of connection member 113 is projected closer to connection member 113 and human ear Contact position.It can thus be appreciated that a split seam is located at the position of lateral surface 113a close contact human ear, and another is spelled Elastic coating 1132a that joint close is located at medial surface 113b almost to show same color on lateral surface 113a or 1132b, such as lateral surface 113a almost show light gray so that the body-sensing of bone conduction earphone one is stronger, more attractive in appearance.

Optionally, split seam is arranged so that two sub- resilient coating 1132a, 1132b in same side such as 113a Or the area on 113b is different from each other.In other embodiments, split seam may be arranged so that two sub-resilient coatings The area of 1132a, 1132b on same side is identical or is substantially the same.

Refering to Fig. 2 to Fig. 4, optionally, the color for being arranged so that two sub- resilient coating 1132a, 1132b is stitched in split Relatively shallower elastic coating 1132a footprint areas on lateral surface 113a are relatively large.That is, the elastic of light colour is covered Layer 1132a is more located at lateral surface 113a, and the elastic coating 1132b of dark colour is more located at medial surface 113b, so So that the surface of connector 113 has more harmony, strengthen the aesthetic properties of bone conduction earphone while structural behaviour is ensured.

With continued reference to Fig. 1, optionally, the both ends of the first elastic metallic yarn 1131 set in flat and are respectively embedded into One housing 111 and the second housing 112.Namely formed and be fixed in a manner of injection in the first housing 111 and the second housing 112 First elastic metallic yarn 1131 is in the both ends that flat is set, and can so increase the first elastic metallic yarn 1131 and the first housing 111st, the contact area of the second housing 112 so that the first elastic metallic yarn 1131 and the first housing 111, the second housing 112 are more steady Surely interfix.Optionally, it should be in flat that the first elastic metallic yarn 1131 is more than connection in the width at the both ends of flat setting The width of the coupling part at the flat both ends set, so plays a spacing effect after shaping, prevents the first elasticity gold Category silk 1131 is pulled out or come off from the first housing 111, the second housing 112.Optionally, first elastic metallic yarn 1131 Both ends are set in shape of threads.In shaping, partial shell can be taken shape in screw thread, to play fixed effect.Certainly,

first The both ends of elastic metallic yarn 1131 can be set in flat and shape of threads respectively.In other embodiments, the first elasticity gold Category silk 1131 both ends can partly be located at indent to form depressed part, the first housing 111 and the second housing 112 in shaping In depressed part, to play fixation.

Refering to Fig. 1 and Fig. 2, optionally, the first resilient coating 1132 further coats the first housing 111 and the second housing 112 at least part outer surface, such as whole outer surfaces.I.e. the first resilient coating 1132 coats first in a manner of injection molding Elastic metallic yarn 1131, at least part outer surface of the first housing 111, at least part outer surface of the second housing 112, so make It is stronger to obtain texture and the body-sensing of bone conduction earphone, and the presence of the first resilient coating 1132, can further containment vessel The element of body and enclosure interior so that bone conduction earphone is more resistant to abrasion.

Refering to Fig. 5 and Fig. 6, optionally, formed with through hole 1121 on the second housing 112.I.e. through hole 1121 runs through second The medial surface and lateral surface of housing 112.First resilient coating 1132 cover through hole 1121 and further above through hole 1121 and Side away from the second housing 112 (i.e. the medial surface away from the second housing 112) is formed with button holding part 1121a.Button holds The portion 1121a of putting is to be covered through hole 1121 in injection moulding process by the first resilient coating 1132 and formed, in button holding part 1121a Because the presence of the first resilient coating 1132 is can to completely cut off moisture content, dust etc. to enter 112 in second shell body.Ear-hang component 11 enters One step includes button 118 and switch module 119, and wherein button 118 is arranged in button holding part 1121a.Switch module 119 is set Be placed in the second housing 112 away from the first resilient coating 1132 side, i.e. the second housing 112 medial surface, and with button 118 First resilient coating 1132 of lower section abuts.Optionally, a boss 1121b, button are provided with button holding part 1121a 118 are fixed in a manner of for example pasting on boss 1121b.In the present embodiment, because the first resilient coating 1132 is with injection Mode, which is fixed, to be coated on second shell body 112, and covers through hole 1121, has more preferable waterproof effect.Optionally, boss 1121b is integrally formed when the first resilient coating 1132 covers through hole 1121 and formed by the first resilient coating 1132.

In the present embodiment, the switch module 119 on the second housing 112 is mainly used for controlling the function of bone conduction earphone Switch, such as broadcasting and the pause of music, voice are answered with hanging up, connecting wireless signal to be connected mobile device such as bluetooth Communication, or the selection etc. of bone conduction earphone mode of operation, not limited to this.

Refering to Fig. 1, Fig. 2, Fig. 4 and Fig. 7, optionally, the inside of the first resilient coating 1132 is further provided with being used for The lead channels 1134 of the first housing 111 and the second housing 112 are connected, ear-hang component 11 further comprises from the first housing 111 The first wire group 1133 of the second housing 112 is extended to through lead channels 1134, the radial dimension of lead channels 1134 is arranged to The first wire group 1133 is allowed to be moved along lead channels 1134.

By setting lead channels 1134, such as first the one end of the first wire group 1133 can be connected when assembling in the later stage Element such as bone-conduction speaker in (such as in a manner of onboard) second housing 112, then the first wire group 1133 is another Hold through lead channels 1134 with connect the first housing 111 in element such as battery component 13, control circuit component 14 or Switching circuit board 15 etc., packaging technology can be so reduced, and existing bone conduction earphone can be improved in the first resilient coating 1132 that wiring is embedded to caused by the first wire group 1133 in injection molding is difficult and the problems such as be unfavorable for later period maintenance.When So, the one end of the first wire group 1133 first can also be connected into (such as in a manner of onboard) first housing 111 when assembling in the later stage Interior element such as battery component 13, control circuit component 14 or switching circuit board 15, then the first wire group 1133 is another Hold through lead channels 1134 to connect the element in the second housing 112 such as bone-conduction speaker.

In the present embodiment, 1134 specific molding mode of lead channels for example including providing one first elasticity gold first Belong to the first housing 111 of the connection of silk 1131 and the component of the second housing 112, further in the second housing 112 and the first housing 111 Between additional metal silk (not shown) is removably set, further in the first elastic metallic yarn 1131, additional gold Belong to silk and the partial outer face of the first housing 111 and the second housing 112 and first resilient coating 1132 is formed with injection molding manner, into Additional metal silk is extracted after type to form lead channels 1134.In other embodiments, such as the first resilient coating 1132 is molded During shaping, be embedded to easily melting property material, in the first 1132 injection molding of resilient coating, this easily melting property material melts and flow out, shape Into lead channels 1134.In another example lead channels 1134 can be after the shaping of the first resilient coating 1132, by way of threading a needle Passage is formed, then expands passage by way of hot melt and forms lead channels 1134.

With continued reference to Fig. 1 and Fig. 4, in the present embodiment, optionally, lead channels 1134 are arranged at the first elastic metallic The downside of silk 1131, with when in use compared to contact of first elastic metallic

yarn 1131 closer to connection member 113 with human ear Position.In the present embodiment, the first lead channels 1134 are independently arranged with the first elastic metallic yarn 1131 interval.In other implementations In example, the first lead channels 1134 can merge setting with the first elastic metallic yarn 1131, i.e., the first wire group 1133 is first The first elastic metallic yarn 1131 is can contact in lead channels 1134.In the present embodiment, lead channels 1134 are arranged at the first bullet The downside of property wire 1131, with when in use compared to the first elastic metallic yarn 1131 closer to connection member 113 and human ear Contact position, due to the presence of lead channels 1134, can make it that the first resilient coating 1132 close to human ear is more elastic It is softer, wear more comfortable.In other embodiments, certain first lead channels 1134 can also be arranged on the first elasticity The upside of wire 1131, the first elastic metallic yarn 1131 is closer to human ear when in use.

Refering to Fig. 1, Fig. 2 and Fig. 8, optionally, ear-hang component 11 includes the 3rd housing 114 and the 4th housing 115.Wherein 3rd housing 114 coordinates with the first housing 111, to form the first appearance for being used for housing battery component 13 or control circuit component 14 116 between being empty.4th housing 115 coordinates with the second housing 112, is used for the second accommodating sky for housing bone-conduction speaker to be formed Between 117.Optionally, the 4th housing 115 and the 3rd housing 114 are plastic casing.

Optionally, the second housing 112 is connected with the 4th housing 115 by the first snap component (not marking), the first card Seaming element includes the first holding section and the first buckling parts, and the first holding section is arranged on the 4th housing 115, and the first buckling parts is set It is placed on the second housing 112, when the second housing 112 and the 4th housing 115 coordinate, the first holding section card on the 4th housing 115 Enter the first buckling parts of the second housing 112, the second housing 112 is fixed together with the 4th housing 115.Optionally, Two housings 112 are attached with the 4th housing 115 by least one set of first snap component such as 4 group of first snap component When Right second housing 112 can also be bonded with the 4th housing 115 by glue, or be made simultaneously with glue by the first engaging component It is connected with being fixed, or by fasteners such as screws.

Optionally, the 3rd housing 114 is connected with the first housing 111 by the second snap component (not marking), the second card Buckle assembly includes the second holding section and the second buckling parts, and the second holding section is arranged on the 3rd housing 114, and the second buckling parts is set Put on the first housing 111, when the first housing 111 and the 3rd housing 114 coordinate, the second holding section card of the 3rd housing 114 Enter the second buckling parts of the

first housing 111, the first housing 111 is fixed together with the 3rd housing 114.

In the present embodiment, the 3rd housing 114 of ear-hang component 11 coordinates with the first housing 111, is used to house to be formed First accommodation space 116 of battery component 13 or control circuit component 14, the 4th housing 115 coordinates with the second housing 112, with shape Into the second accommodation space 117 for housing bone-conduction speaker, the first wire group 1133 can move through lead channels 1134 are used to electrically connect bone-conduction speaker and battery component 13 or control circuit component 14.In the present embodiment, battery component 13 for example including battery and battery management circuit, and battery is that bone conduction earphone miscellaneous part is supplied by battery management circuit Electricity, such as battery management circuit include charging circuit, current foldback circuit, over-discharge protection circuit, overvoltage crowbar etc..Such as Battery is rechargeable battery, for example, lithium battery.Refering to Fig. 7, optionally, bone conduction earphone, which still further comprises, for example transfers Circuit board 15, it is arranged in the first accommodation space 116, battery component 14 is divided into multiple wiring solder joints by switching circuit board 15, With two bone-conduction speakers, control circuit component 14, microphone and the switch module of corresponding connection bone conduction earphone 119 etc., said elements associated tracks are connected with above-mentioned wiring solder joint and turned on by Fig. 7 modes, are easy to wiring and assembling.Such as electricity Pond component 14 connects switching circuit board 15 by two wiring solder joints of both positive and negative polarity, and switching circuit board 15 separates 10 wiring welderings Point, to connect the miscellaneous part of bone conduction earphone.

Refering to Fig. 1 and Fig. 2, optionally, the first sub-accommodation space 116a, the 3rd housing are provided with the first housing 111 The second sub-accommodation space 116b is provided with 114, and it is accommodating with the first son when the 3rd housing 114 and the first housing 111 coordinate Space 116a is collectively forming the first accommodation space 116, such as is fixedly connected by the first snap component.Wherein second son holds The volume for being empty a 116b is more than the first sub-accommodation space 116a.Such as second sub-accommodation space 116b volume be first son hold it is empty 2-5 times of a 116a, for example, 3-4 times, for example, 3.2 times, or for example, 2.5 times.

In assembled battery component 13 or control circuit component 14, such as first by battery component 13 or control circuit component 14 are placed in the first sub-accommodation space 116a, for example, battery by glue material or sticking double faced adhesive tape in the first sub- accommodation space in 116a, or control circuit

component 14 is fixed in the first sub- accommodation space 116a by snap-in structure so that battery component 13 or control circuit component 14 it is most of exposed, be easy to the techniques such as assembling and wiring, then the 3rd housing 114 is passed through into the second card Buckle assembly covers with the first housing 111, and the first sub- sub- accommodation space 116b of accommodation space 116a and second form the first accommodating sky Between 116, so improving traditional bone conductors earphone needs to assemble battery or control board and be contained in and ear-hang one In the housing of shaping and further battery control circuit plate exterior section is affixed on using silica gel strip to carry out coating caused assembling The problem of complex procedures, simplify structure and assembling procedure.

Refering to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in prism-shaped, wherein in the 4th housing 115 at least Bar shaped is provided with one side and draws sound hole 1151, the length direction of sound hole 1151 and the bottom surface of the 4th housing 115 are drawn in wherein bar shaped It is parallel or be arranged substantially in parallel, and bar shaped draw sound hole 1151 length be not less than side where it width three/ Two.In the present embodiment, bar shaped draws the relatively parallel bottom surface 115e of sound hole and refers to that the 4th housing 115 is towards human body face when wearing Plane defined in the edge of opening of the one side in portion.

Typically, bone-conduction speaker peritropous environment of meeting during vibration transmits sound, in addition to wearer, ring Other people in border can also hear that the sound of loudspeaker, such as the vibration of bone-conduction speaker cause the second accommodation space 117 The vibration of interior air and the vibration for causing the grade of the 4th housing 115, so as to occur leaking sound phenomenon, the sound of bone conduction earphone can be influenceed Matter.It is to propagate to the sound wave guiding in the second accommodation space 117 outside space to draw sound hole 1151, with leakage speech ripple with atmosphere Propagation interferes, and so as to reduce the amplitude of Lou speech ripple, reduces leakage sound.

With continued reference to Fig. 8, in order to further improve leakage sound phenomenon, the present embodiment passes through at least the one of the 4th housing 115 Side sets bar shaped to draw sound hole 1151, and is appropriately arranged with its size and direction improves the leakage sound that traditional bone conductors earphone belt comes and showed As still than it is more serious the problem of.Further, bar shaped is drawn the length direction of sound hole 1151 and parallel with the bottom surface of the 4th housing 115 set Put, can not only ensure attractive in appearance, and the uniformity of the intensity of acoustic wave through directed parallel, so as to ensure interference effect.In this reality Apply in example, bar shaped draw sound hole 1151 length be not

less than side where it width 2/3rds, can effectively guide the Sound wave in two accommodation spaces 117.Be chosen as, bar shaped draw sound hole 1151 length be its where side width four/ Three.Certainly, in other embodiments, wherein being at least set side by side with least two articles of bar shapeds on one side in the 4th housing 115 Draw sound hole 1151, such as setting two parallel bar shapeds to draw sound hole 1151 at least on one side, and with the bottom of the 4th housing 115 Face 115e is parallel.

Optionally, the 4th housing 115 bone conduction earphone using when side 115d close to human ear on be not provided with bar shaped Draw sound hole 1151.Certainly, in other embodiments, can also the 4th housing 115 when bone conduction earphone uses close to human ear Side 115d on set draw sound hole, can be that point type draws sound hole, or sound hole 1151 is drawn in bar shaped.

With continued reference to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in quadrangular shape, wherein in the 4th housing 115 Bar shaped, which is provided with, on two sides 115a, 115c being disposed adjacent with connection member 113 draws sound hole 1151, further remaining two In individual side 115b, 115d bone conduction earphone using when the side 115b away from human ear equally set bar shaped to draw sound hole 1151, and in remaining two sides 115b, 115d bone conduction earphone using when side 115b close to human ear on do not set Put bar shaped and draw sound hole 1151.Namely set three bar shapeds to draw sound hole 1151 on three sides 115a, 115b, 115c, passed in bone Guide lug machine using when be not provided with bar shaped close to the side 115d of human ear and draw sound hole 1151, so can further reduce Lou sound and show As ensureing the tonequality of bone conduction earphone.

In the present embodiment, the 4th housing 115 is set in quadrangular shape, such as including four-prism and class quadrangular Shape.Such as specifically, two sides 115a, 115c being disposed adjacent with connection member 113 of the 4th housing 115 any one side The length in face is all higher than the length of remaining two sides 115b, 115d any one side, further, the 4th housing 115 It is unequal or equal with two sides 115a, 115c that connection member 113 is disposed adjacent length.In other embodiment In, the 4th housing 115 is set in quadrangular shape, and the length of its four sides can be equal.

In the present embodiment, optionally, two sides being disposed adjacent with connection member 113 of the 4th housing 115 Angle between 115a, 115c is 90 ° -150 °, is chosen as 100 ° -130 °, is chosen as 110 ° -120 °.

Optionally, it is further provided with covering the water proof and dust proof filter screen that sound hole 1151 is drawn in bar shaped, example in the 4th housing 115 Such as waterproof ventilated membrane (not shown).Water proof and dust proof filter screen is set, can prevent the

dust outside bone conduction earphone and waterproof bone from passing The water inlet of guide lug machine enters damage bone-conduction speaker.

In the present embodiment, a microphone aperture (not shown) is respectively arranged with the second housing 112 and the 4th housing 115, Specifically, the first microphone aperture be arranged on the not direct remaining two sides 115b being connected with connection member 113 of the 4th housing 115, 115d junction, second microphone hole are arranged on the lateral surface of the second housing 112 and close to the 4th housing 115 and connection members 113 junction.By setting two microphones in the microphone aperture of two stagger settings, phonetic entry matter can be strengthened Amount, and effective Noise Reduction is played, thus improve the definition of phonetic entry.

Refering to Fig. 2 and Fig. 9, in the present embodiment, the quantity of ear-hang component 11 is two, and bone conduction earphone further wraps include rear hanging component 12.Hanging component 12 includes the second elastic metallic yarn 121, second be coated on the second elastic metallic yarn 121 afterwards Resilient coating 122 and the Plug Division 123 for being arranged at the both ends of the second elastic metallic yarn 121.Plug Division 123 respectively with two ear-hangs First housing 111 of component 11 patches cooperation, and is fixedly connected.Optionally, Plug Division 123 is fixed on second with injection molding manner The both ends of elastic metallic yarn 121, Plug Division 123 can be so set more securely to be fixed on the both ends of the second elastic metallic yarn 121. Optionally, the second elastic metallic yarn 121 can be metal simple-substance, or include the alloy material of various metals material, Such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium alloy, chrome-molybdenum steel etc. or bag Include metal material and the composite of nonmetallic materials.In the present embodiment, the second elastic metallic yarn 121 is titanium alloy wire, or Person is at least made up of titanium alloy material.In the present embodiment, the second resilient coating 122 is layer of silica gel.In other embodiment mode In, the second resilient coating 122 can also be rubber layer or emulsion layer, or the composite layer including silica gel.

Carry out patching cooperation by the Plug Division 123 of rear hanging component 12 and the first housing 111 of two ear-hang components 11, change It has been apt to the problems such as earphone size that existing bone conduction earphone is brought using the fixed form such as screw is larger, so as to simplify structure, Mitigate the weight of bone conduction earphone, facilitate later stage wiring and cost can be reduced.

Refering to Fig. 9 and Figure 10, optionally, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111 and the vertical direction

connection jointing holes 1111 of direction of insertion in Plug Division 123 and the perforate 1112 of outside, To allow into jointing holes 1111 to apply from the outside through perforate 1112 glue or installation stopper (not shown), to cause Plug Division 123 are fixed in the presence of glue or stopper in jointing holes 1111.In this embodiment, perforate 1112 is positioned at the described first son In accommodation space 116a.In other embodiments, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111, there is a recess on Plug Division 123, there is a resilient projection in jointing holes 1111, Plug Division 123 is inserted and patched During hole 1111, resilient projection is caught in recess, and Plug Division 123 and jointing holes 1111 are coordinated into fixation.Such as Plug Division 123 is inserted During jointing holes 1111, resilient projection is first extruded, after be caught in the presence of elastic restoring force in recess.Optionally, patch The depth that portion 123 inserts jointing holes 1111 is 6-11mm, is chosen as 8-10mm.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is provided with the side wall of Plug Division 123.The warp of fluting 1231 Perforate 1112 is exposed or part is exposed, and for receiving glue or stopper.Optionally, Plug Division 123 is at least one It is provided with side wall on fluting 1231, such as two side walls and is provided with fluting 1231.In other embodiments, can make simultaneously With glue and stopper, such as first fixed using stopper, then apply glue and further fix.In the present embodiment, stopper E.g. chock or pin or the fixture insertion fluting 1231 with certain elasticity is interference fitted.

Refering to Fig. 2, Fig. 9 and Figure 10, optionally, Plug Division 123 includes first be connected with the second elastic metallic yarn 121 Patch section 123a and patch section 123a with first and be connected and second patch section away from what the second elastic metallic yarn 121 was set 123b.Direction of insertion of the jointing holes 1111 along Plug Division 123 is divided into for receiving the first the first hole section for patching section 123a 1111a and the second hole section 1111b that section 123b is patched for reception second.Wherein the first hole section 1111a is sized to permit Perhaps second patch section 123b and moved freely along direction of insertion in the first hole section 1111a, and cause first to patch section 123a and the Tight fit between one hole section 1111a.Section and both ends hole section are patched by two sections to be respectively cooperating with fixing, and can cause Plug Division 123 are more securely fixed in the first housing 111, strengthen the structural stability of bone conduction earphone.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is further disposed at the second side wall for patching section 123b. Perforate 1112 connects the second hole section 1111b of jointing holes 1111.In the present embodiment, a section 123b is patched in Plug

Division 123 second The first hole section 1111a and the second hole section 1111b is passed sequentially through, so that first patches section 123a and the first hole section 1111a close-fittings Close, second patch section 123b fluting 1231 it is exposed through perforate 1112, for receiving glue or stopper.Connect by first Insert section 123a and the first hole section 1111a tight fit and the second jointing holes 1111 and the second hole section 1111b further cooperation It is fixed, effectively rear extension can be fixedly connected with ear-hang.In other embodiments, fluting 1231 can be arranged on first and patch In section 123a side wall.Perforate 1112 connects the second hole section 1111b of jointing holes 1111.

Optionally, the second hole section 1111b be dimensioned so that second patch section 123b and the second hole section 1111b it Between tight fit.Thus by the first tight fit, the second jointing holes 1111 and the second hole for patching section 123a and the first hole section 1111a Section 1111b tight fit and the glue of application or stopper are fixed, and effectively further hang by after and are fixed with ear-hang Connection, and structure can be simplified, make bone conduction earphone lighting.Certainly, in other embodiments, first section 123a and are patched Tight fit between one hole section 1111a, and second to patch section 123b and the second hole section 1111b can be other kinds of secure fit Such as it is clasped.

Refering to Figure 11, optionally, first patches the shape of section 123a both sides and the first hole section 1111a contact surfaces contacted It is different.First patches section 123a both sides shape difference, and accordingly the first hole section 1111a patches what section 123a was contacted with first 1111a1,1111a2 are also different for two sides.For example, the curved setting in the first hole section 1111a two sides, medial surface 1111a2 Radius of curvature be more than lateral surface 1111a1 radius of curvature, namely medial surface 1111a2 radian change is relatively slow, and outer Side 1111a1 radian change is relatively large, and first patches section corresponding setting in 123a two sides.Certainly, in other embodiment In, the first hole section 1111a curved setting in two sides, medial surface 1111a2 radius of curvature is less than lateral surface 1111a1's Radius of curvature, namely medial surface 1111a2 radian change are relatively large, and the change of lateral surface 1111a1 radian is relatively small. First hole section 1111a two sides are medial surface 1111a2 close to human body head when wearing, and are outer away from human body head Side 1111a1.First patches the shape difference of section 123a both sides and the first hole section 1111a contact surfaces contacted so that first connects Insert section 123a and be unable to anti-plug, and two Plug Divisions 123 are hung from mixed insertion after also causing, play effective fool proof effect, facilitate group Dress.

Refering to Fig. 9 and Figure 10, optionally, first, which patches section 123a and second, patches section 123b

bottom surface and stepped sets Put and patch section 123a first and the second junction for patching section 123b is provided with the first wedge-shaped changeover portion 123c, and the first hole Section 1111a and the second hole section 1111b junction is provided with the second wedge-shaped changeover portion corresponding with the first wedge-shaped changeover portion 123c 1111c。

In the present embodiment, first section 123a is patched and the second bottom surface for patching section 123b refers to when wearing close to human ear The one side of root.Top surface is then the one side away from people's the ear portion.

In the present embodiment, first patch section 123a thickness and be greater than the second thickness for patching section 123b and i.e. stepped set Put, there is thickness difference in both junctions, and set the first wedge-shaped changeover portion 123c, it is corresponding in the first hole section 1111a and Second hole section 1111b junction sets the second wedge-shaped changeover portion 1111c being adapted with the first wedge-shaped changeover portion 123c, the One patches section 123a and second when patching a section 123b and being sequentially inserted into the first hole section 1111a and the second hole section 1111b, the first wedge-shaped mistake Cross section 123c and the second wedge-shaped changeover portion 1111c to abut against, second can be facilitated to patch section 123b and first and patch section 123a's Insertion, and play a part of buffering transition, spacing and further fixation.

Refering to Fig. 9, Figure 12 and Figure 13, optionally, rear hanging component 12 further comprises being wrapped by the second resilient coating 122 The the second wire group 124 covered, wherein the both ends of the second wire group 124 are exposed from the second resilient coating 122, the top of Plug Division 123 Face is provided with the groove 1232 of sunkening cord of the exposed parts for accommodating the second wire group 124.In the present embodiment, the second wire group 124, for connecting the element in two ear-hang components 11 such as connecting battery and control circuit component 14.Setting is sunken cord groove 1232, the second wire group 124 on the one hand effectively can be arranged and fixed, on the other hand can reduce volume.In other embodiment In, groove 1232 of sunkening cord can also be not provided with, and by other means enter the second wire group 124 such as glue or double faced adhesive tape Row is fixed, or the top surface of Plug Division 123 is provided with the projection (not shown) that two rows are set up in parallel, and can be held between two row's projections Receive the second wire group 124.

Refering to Fig. 2, optionally, bone conduction earphone further comprises battery component 13 and control circuit component 14, wherein Battery component 13 is arranged at the first accommodation space 116 of one of two ear-

hang components 11, and control circuit component 14 is arranged at in first accommodation space 116 of the other of two ear-hang components 11.

Refering to Figure 14 and Figure 15, optionally, the 3rd housing of the ear-hang component 11 for accommodating control circuit component 14 Button perforate 1141 and the storage tank 1142 connected with button perforate 1141 are provided with 114, control circuit component 14 includes electricity Road plate 141, the switch 142 being fixed on circuit board 141, waterproof liner 143 and button 144, wherein button 144 be arranged at by in key perforate 1141 and exposed through button perforate 1141, waterproof liner 143 includes liner plate main body 143a and with injection molding manner bag The 3rd resilient coating 143b overlayed on liner plate main body 143a, waterproof liner 143 is arranged in storage tank 1142 and the 3rd elasticity Coating 143b abuts with the sidewall elastomer of storage tank 1142, and button 144 and switch 142 are respectively arranged at the two of waterproof liner 143 Side and abutted respectively with waterproof liner 143.In this embodiment, the 3rd resilient coating 143b coats liner plate main body 143a one side And liner plate main body 143a edge, at least covered section edge, can also coat whole edges certainly.In other embodiment In, the 3rd resilient coating 143b can coat liner plate main body 143a completely, that is, coat liner plate main body 143a two sides.

In the present embodiment, the switch 142 on circuit board 141 be mainly used for switching on and shutting down, volume adjusting or other cut Change function etc..

With continued reference to Figure 14 and Figure 15, the 3rd resilient coating 143b is coated with injection molding manner in the main body of waterproof liner 143, So that the 3rd resilient coating 143b is not easy to come off from the main body of waterproof liner 143, and the 3rd resilient coating 143b and proof liner Compactness between plate main body 143a is more preferable, improves existing bone conduction earphone water resistance, ensures the validity of waterproof.At this In embodiment, liner plate main body 143a can be plastics, and the 3rd resilient coating 143b can be silica gel, latex, rubber or be conjunction into thing.

Optionally, waterproof liner 143 is provided with the locating slot for accommodating switch 142 close to the side of switch 142 1431。

In the present embodiment, the method for assembly control circuit component 14 for example first by button 144, waterproof liner 143 according to It is secondary to be placed on the 3rd housing 114, and button 144 set it is exposed through button perforate 1141, then circuit board 141 pass through switch 142 And the locating slot 1431 of waterproof liner 143 abuts with waterproof liner 143.By setting locating slot 1431, the essence of switch 142 can be made Location fit accurately is carried out with button 144, so as to pass through effectively Operation switch 142 of button 144.

Refering to Figure 16 and Figure 17, optionally, control circuit component 14 further comprises the day being arranged on circuit board 141 Line 145, antenna 145 include antenna body 145a spaced with circuit board 141 and are connected antenna body 145a and circuit The grounding parts 145b and current feed department 145c of plate 141, wherein when being looked up perpendicular to the side of circuit board 141, antenna body 145a is bent from grounding parts 145b to the side of circuit board 141 to be extended.In the present embodiment, antenna body 145a is to circuit board 141 side bending, the length of antenna 145, Enhanced Radiation Reduced Blast efficiency can be increased in the confined space.In the present embodiment, day Line 145 is generally used for what is communicated wirelessly, such as bluetooth communication.In other embodiments, WiFi communication, honeybee be can also be Nest data communication, NFC etc..

Optionally, antenna body 145a includes parallel portion 145a1 and kink 145a2, perpendicular to circuit board 141 Side looks up, and parallel portion 145a1 width is more than kink 145a2 width, parallel portion 145a1 one end connection grounding parts 145b and current feed department 145c, it is in rank that the other end, which connects kink 145a2, parallel portion 145a1 and kink 145a2 in junction, Scalariform is set, and kink 145a2 is bent from junction to the side of circuit board 141.

Optionally, control circuit component 14 further comprises the grounded parts 146 being arranged on circuit board 141, wherein Antenna body 145a bends extension to the side of the remote grounded parts 146 of circuit board 141.In the present embodiment, grounded parts 146 be the switch 142 on USB interface and/or circuit, or other grounded parts 146.Typically, such as USB of grounded parts 146 Interface, certain interference can be all caused to antenna 145, in the present embodiment, antenna body 145a connects to the remote of circuit board 141 The side bending extension of ground part 146, can improve interference of the grounded parts 146 to the signal of antenna 145 in the confined space, protect Demonstrate,prove signal quality.In the present embodiment, USB interface can be used in bone conduction earphone and external device such as mobile terminal transmission number According to, it can also be used to charged for battery component 13.

Optionally, bearing of trend of the antenna body 145a width along antenna body 145a tapers into.It is such as specific Ground, the parallel portion 145a1 width width that passes through is constant, kink 145a2 width gradually along bearing of trend by Gradual change is small.Certainly in other embodiments, parallel portion 145a1 width passes through and can tapered into, but parallel Width of the width of portions 145a1 other ends still greater than kink 145a2.

Optionally, bearing of trend of the antenna body 145a bending angle along antenna body 145a becomes larger.Such as Bending angle becomes larger, usually in order to which remote grounded parts 146 is such as USB, so as to ensure that the radiation of antenna 145 is imitated Rate.Optionally, there is bending pin 145a3, bending angle herein in the one end of kink 145a2 away from parallel portion 145a1 Maximum, on the other hand it is to lift radiation efficiency on the one hand in order to meet the needs of the size of antenna 145.

Embodiment of the present utility model is the foregoing is only, not thereby limits the scope of the claims of the present utility model, it is all It is the equivalent structure or equivalent flow conversion made using the utility model specification and accompanying drawing content, or directly or indirectly uses In other related technical areas, similarly it is included in scope of patent protection of the present utility model.

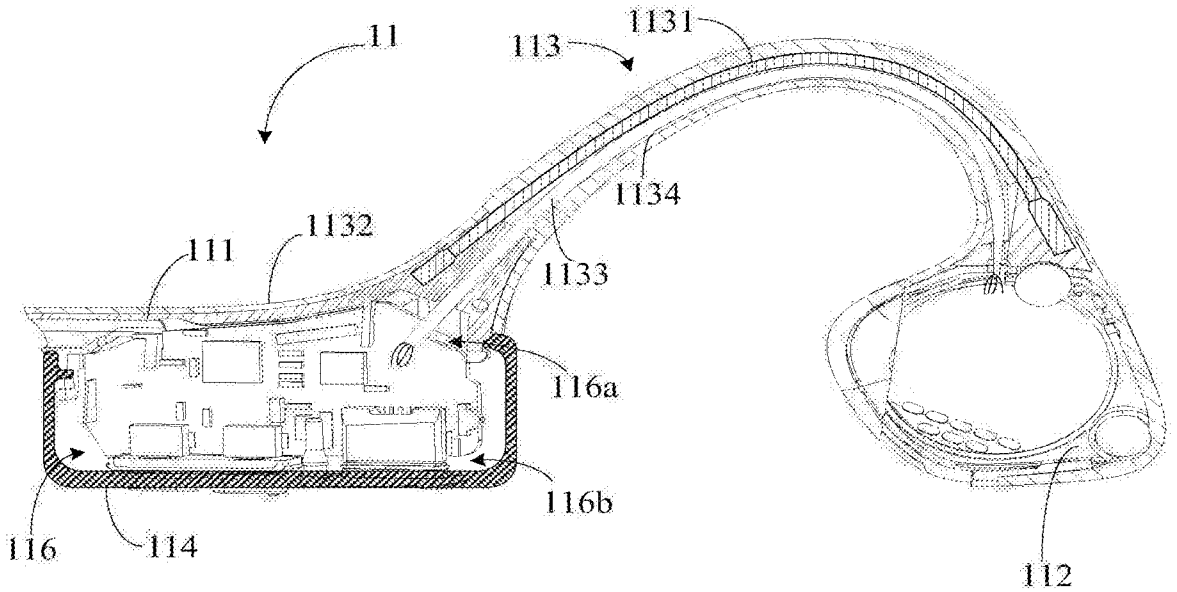


图1

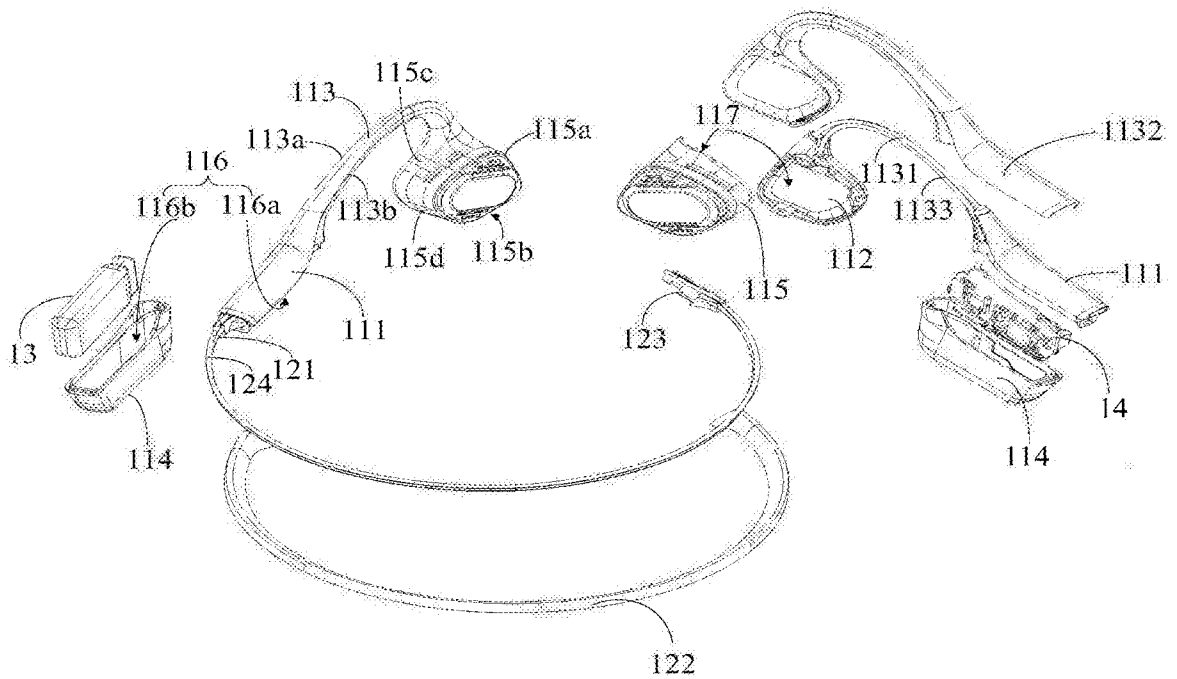


图2

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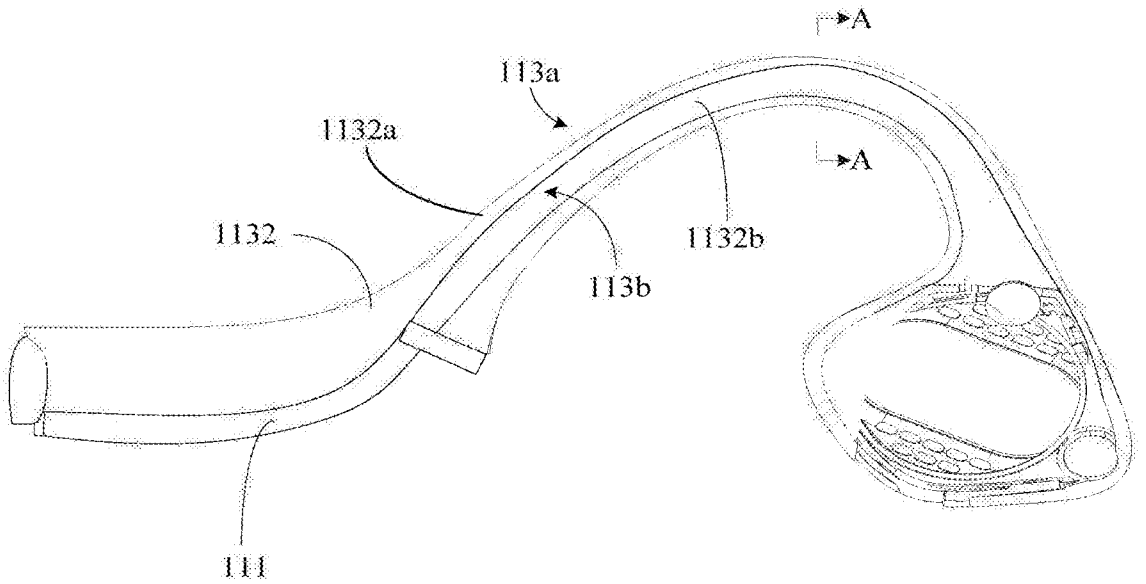


图3

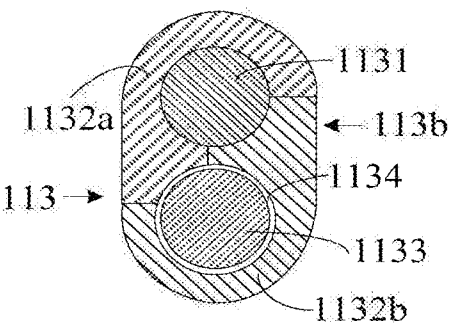


图4

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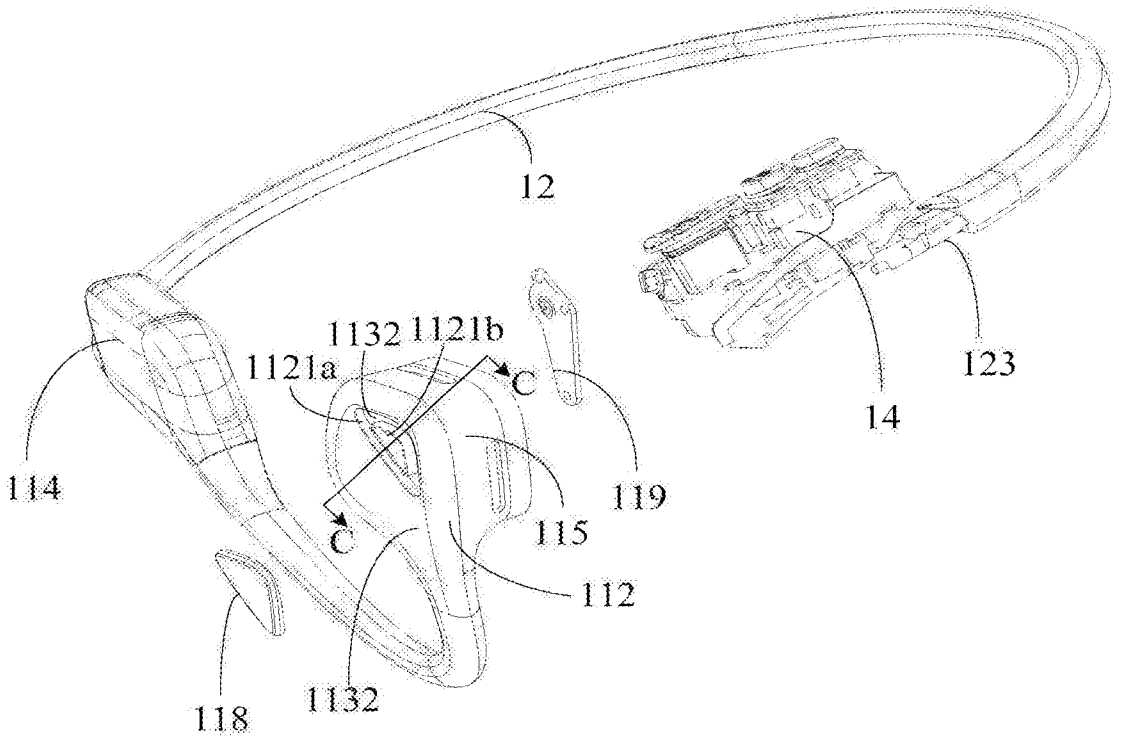


图5

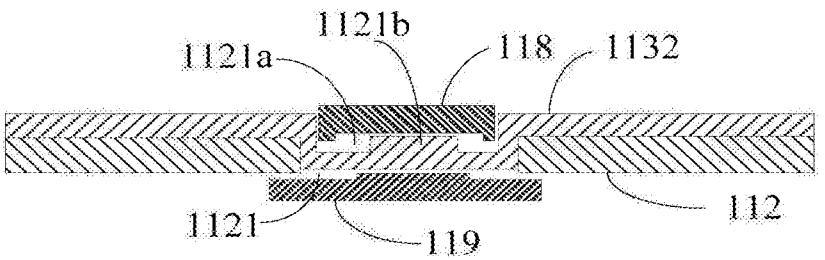


图6

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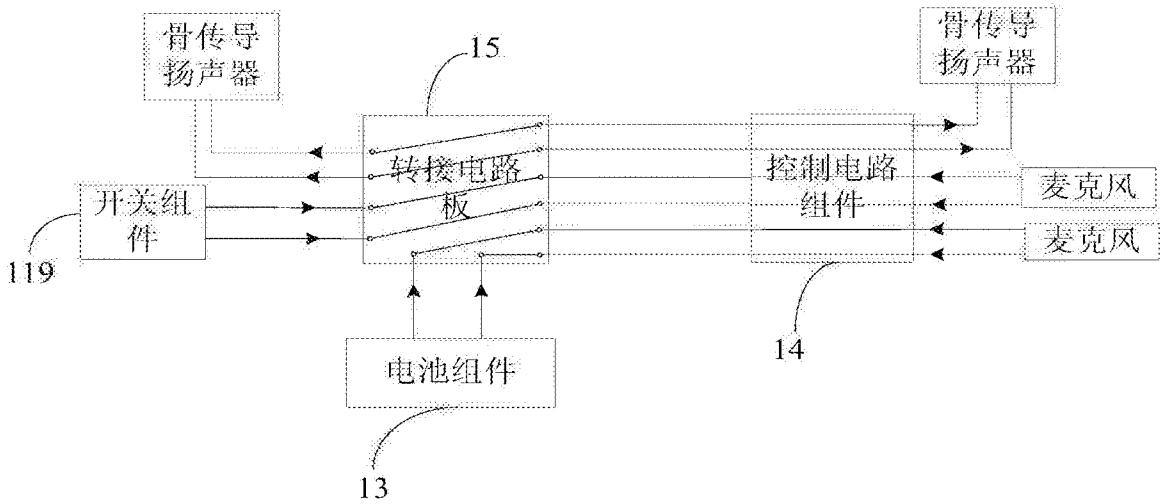


图7

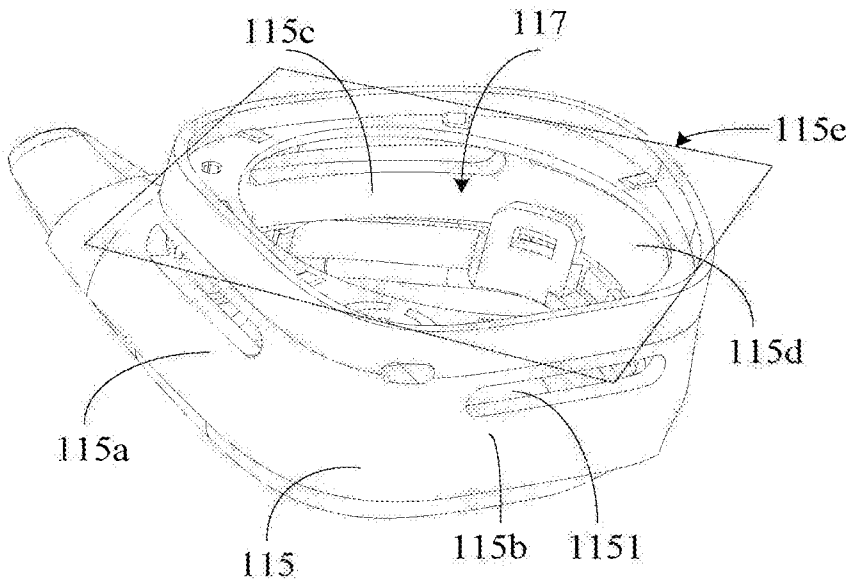


图8

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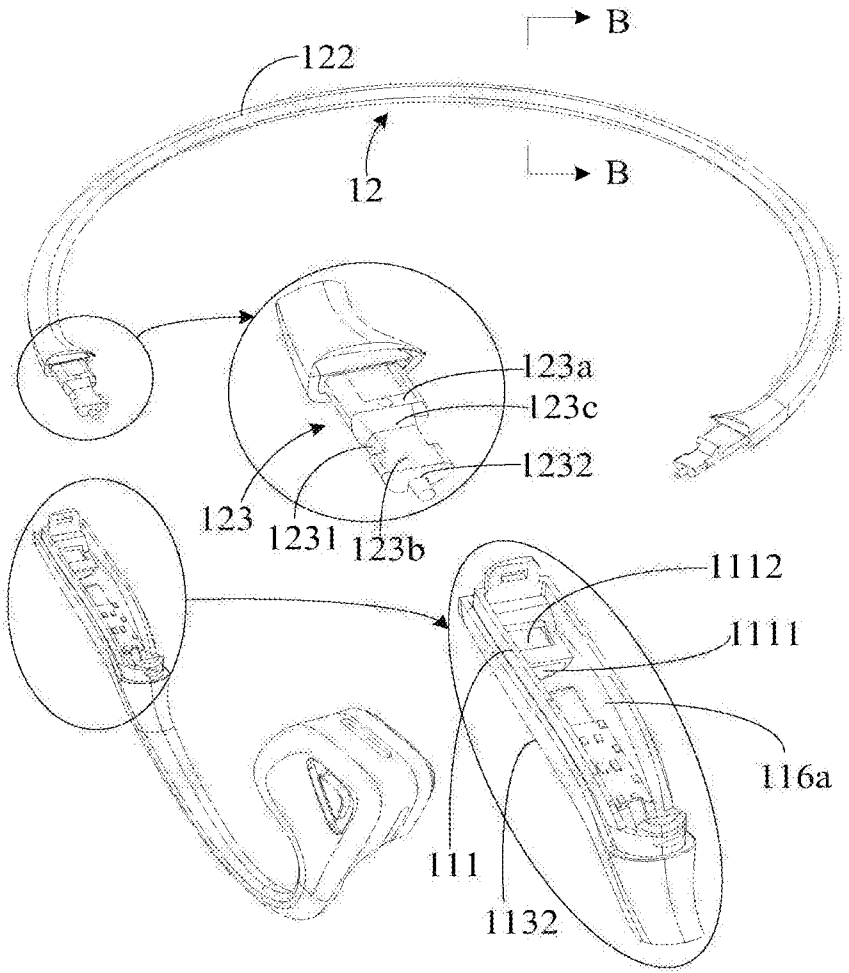


图9

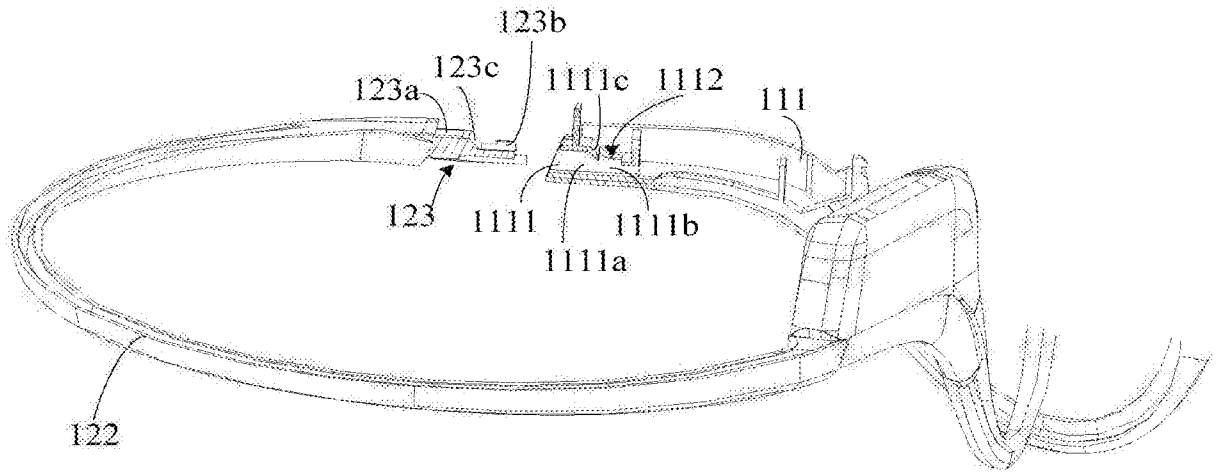


图10

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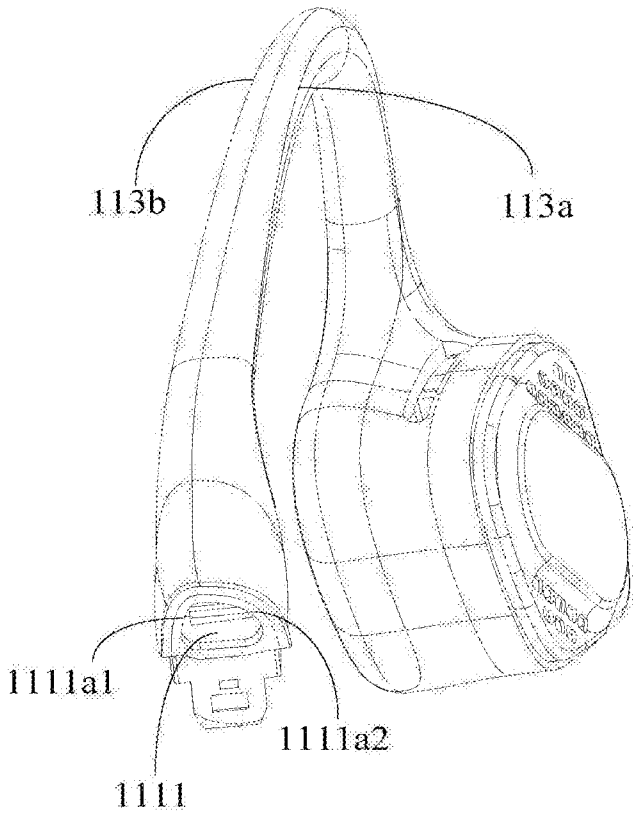


图11

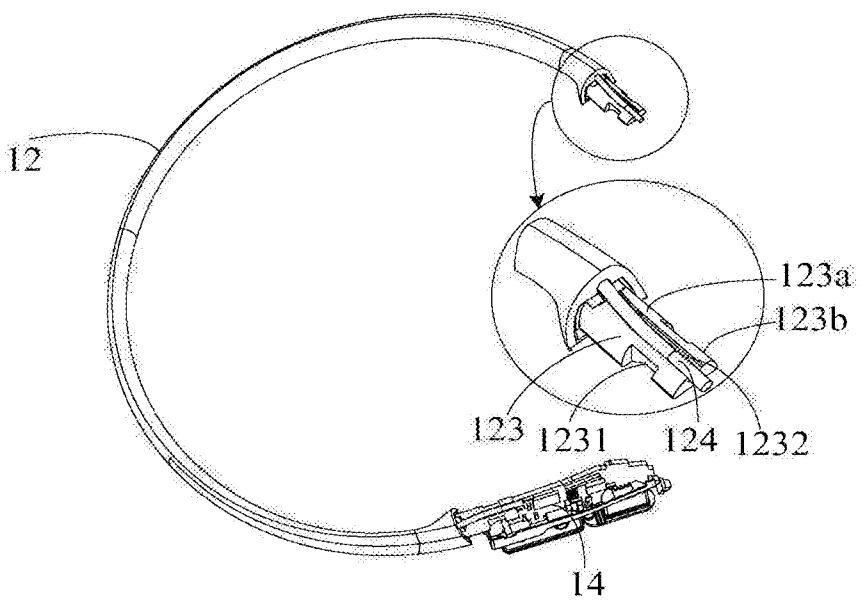


图12

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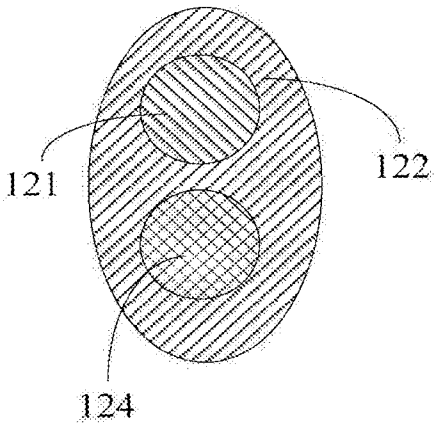


图13

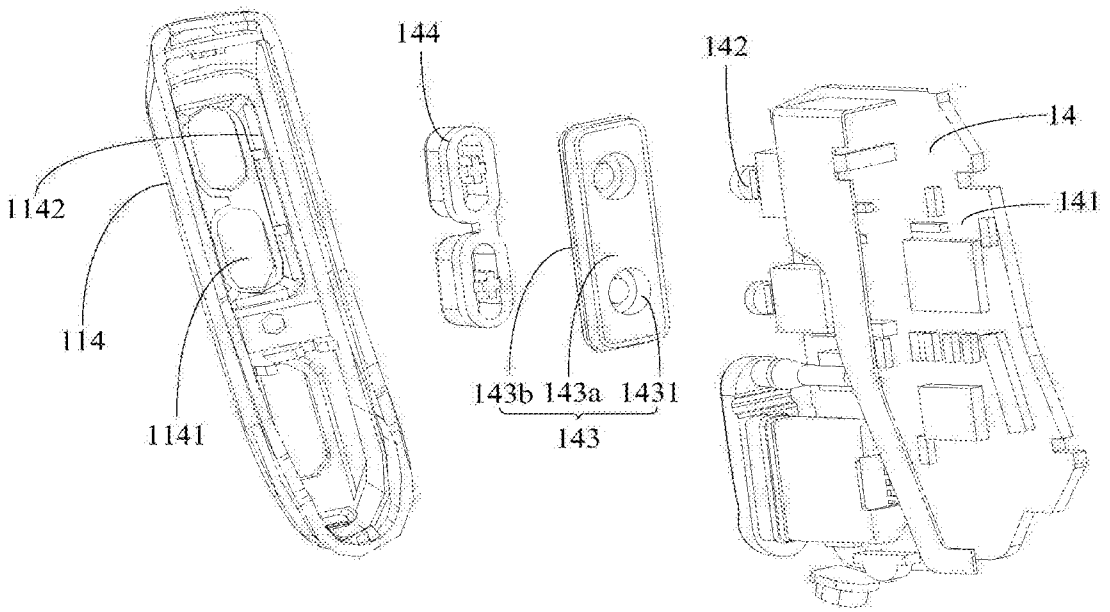


图14

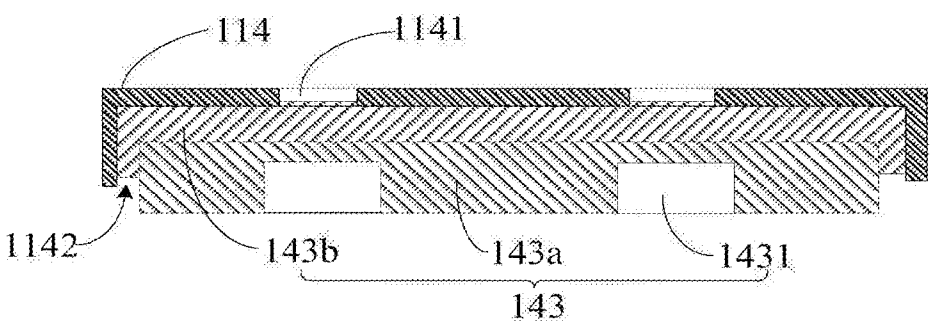


图15

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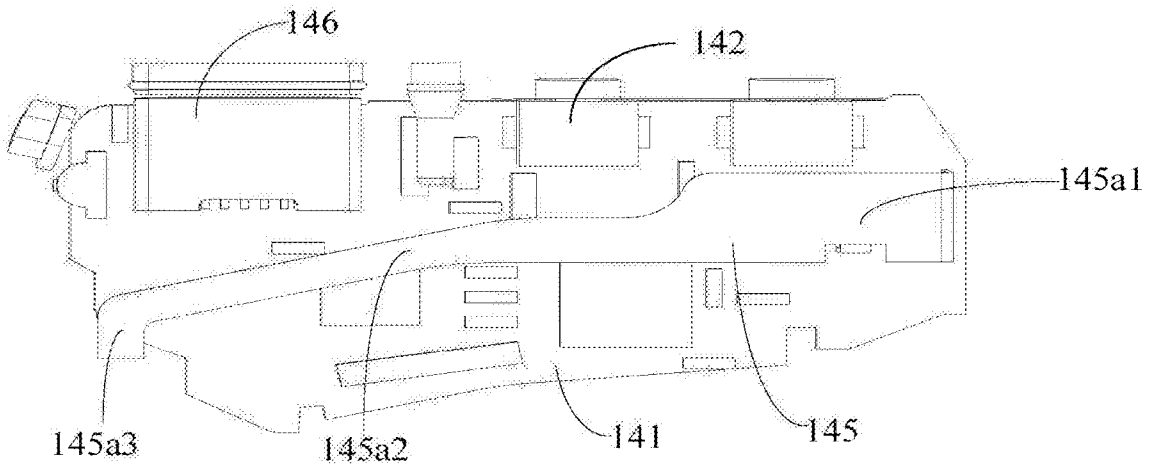


图16

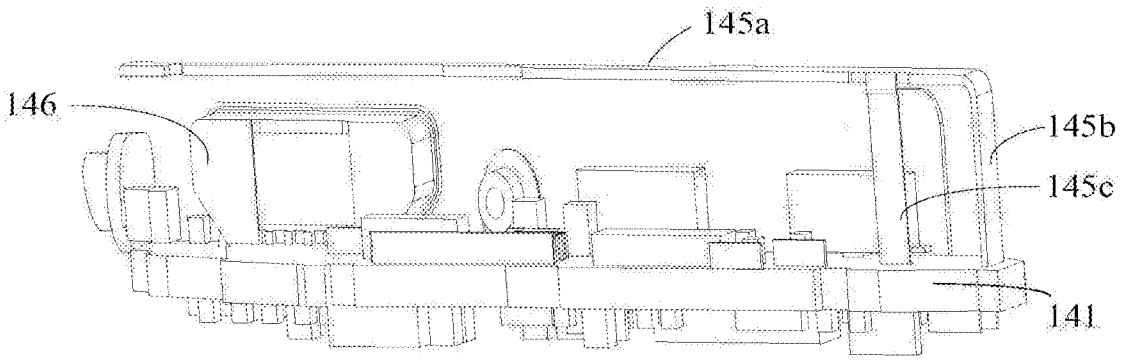


图17

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(ESM)同样的发明创造已同日申请发明专利

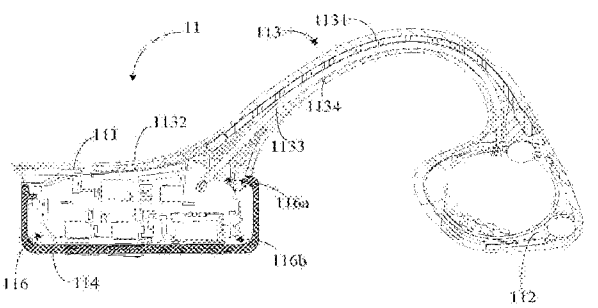
权利要求书2页 说明书10页 附图8页

(54)实用新型名称

一种骨传导耳机

(57)摘要

本实用新型实施例提供一种骨传导耳机，包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层。通过上述方式，本实用新型能够有效增强骨传导耳机的弯折性能。



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1.一种骨传导耳机，其特征在于，所述骨传导耳机包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层。

2.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体和第二壳体分别以注塑方式与所述第一弹性金属丝的两端固定连接，所述第一弹性覆层以注塑方式固定包覆于所述第一弹性金属丝上。

3.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层由不同颜色的两个子弹性覆层拼合而成，其中所述两个子弹性覆层的拼合缝分别位于所述连接部件的相对设置的两个侧面上，其中所述拼合缝在同一所述侧面上的投影彼此错开。

4.根据权利要求2所述的骨传导耳机，其特征在于，所述第一弹性金属丝的两端呈扁平状设置并分别嵌入所述第一壳体和第二壳体。

5.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层的内部进一步设置有用于连通所述第一壳体和所述第二壳体的引线通道，所述耳挂组件进一步包括从所述第一壳体经所述引线通道延伸至所述第二壳体的第一导线组，所述引线通道的径向尺寸设置成允许所述第一导线组沿所述引线通道移动。

6.根据权利要求5所述的骨传导耳机，其特征在于，所述耳挂组件包括第三壳体和第四壳体，其中所述第三壳体与所述第一壳体配合，以形成用于收容电池组件或控制电路组件的第一容置空间，所述第四壳体与所述第二壳体配合，以形成用于收容骨传导扬声器的第二容置空间，所述第一导线组用于电连接所述骨传导扬声器与所述电池组件或控制电路组件。

7.根据权利要求6所述的骨传导耳机，其特征在于，所述第一壳体和所述第二壳体为塑料壳体，且分别以注塑方式与所述第一弹性金属丝的两端固定连接；和/或，所述第一弹性金属丝至少由钛合金材料制成；和/或，所述第一弹性覆层为硅胶层，以注塑方式固定包覆于所述第一弹性金属丝上；和/或，所述第三壳体和所述第四壳体为塑料壳体。

8.根据权利要求6所述的骨传导耳机，其特征在于，所述第一壳体内设置有第一子容置空间，所述第三壳体内设置有第二子容置空间，并在所述第三壳体与所述第一壳体配合时与所述第一子容置空间共同形成所述第一容置空间，其中所述第二子容置空间的体积大于所述第一子容置空间。

9.根据权利要求6所述的骨传导耳机，其特征在于，所述第四壳体呈棱柱状设置，其中在所述第四壳体的至少一侧面上设置有条形引音孔，其中所述条形引音孔的长度方向与所述第四壳体的底面平行设置，且所述条形引音孔的长度不小于其所在的所述侧面的宽度的三分之二。

10.根据权利要求1所述的骨传导耳机，其特征在于，所述耳挂组件的数量为两个，所述骨传导耳机进一步包括后挂组件，所述后挂组件包括第二弹性金属丝、包覆在所述第二弹性金属丝上的第二弹性覆层以及设置于所述第二弹性金属丝两端的接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

11.根据权利要求10所述的骨传导耳机，其特征在于，所述第一壳体的端部设置有用于允许所述接插部插入的接插孔以及在所述接插部的插入方向的垂直方向连通所述接插孔

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与外部的开孔，以允许从外部经所述开孔向所述接插孔内施加胶水或安装卡止件，以使得所述接插部在所述胶水或卡止件的作用下固定在所述接插孔内。

12.根据权利要求11所述的骨传导耳机，其特征在于，所述接插部包括与所述第二弹性金属丝连接的第一接插段以及与所述第一接插段连接且远离所述第二弹性金属丝设置的第二接插段，所述接插孔沿所述接插部的插入方向划分为用于接收所述第一接插段的第一孔段和用于接收所述第二接插段的第二孔段，其中所述第一孔段的尺寸设置成允许所述第二接插段沿所述插入方向在所述第一孔段内自由移动，且使得所述第一接插段与所述第一孔段之间紧配合。

13.根据权利要求12所述的骨传导耳机，其特征在于，所述第一接插段和所述第二接插段的底面呈阶梯状设置且在所述第一接插段和所述第二接插段的连接处设置有第一楔形过渡段，并且所述第一孔段和所述第二孔段的连接处设置有与所述第一楔形过渡段对应的第二楔形过渡段。

14.根据权利要求6所述的骨传导耳机，其特征在于，用于容纳所述控制电路组件的第三壳体上设置有按键开孔和与所述按键开孔连通的容置槽，所述控制电路组件包括电路板、固定于所述电路板上的开关、防水衬板以及按键，其中所述按键设置于所述按键开孔内且经所述按键开孔外露，所述防水衬板包括衬板主体以及以注塑方式包覆在所述衬板主体上的第三弹性覆层，所述防水衬板设置于所述容置槽内且所述第三弹性覆层与所述容置槽的侧壁弹性抵接，所述按键和所述开关分别设置于所述防水衬板的两侧且分别与所述防水衬板抵接。

15.根据权利要求14所述的骨传导耳机，其特征在于，所述控制电路组件进一步包括设置于所述电路板上的天线，所述天线包括与所述电路板间隔设置的天线主体以及连接所述天线主体与所述电路板的接地部和馈电部，其中在垂直于所述电路板的方向上观察时，所述天线主体从所述接地部向所述电路板的一侧弯折延伸。

16.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层进一步包覆所述第一壳体和第二壳体的至少部分外表面，所述第二壳体上形成有通孔，所述第一弹性覆层覆盖所述通孔，并进一步在所述通孔上方且远离所述第二壳体的一侧形成有按键容置部，所述耳挂组件进一步包括按键和开关组件，其中所述按键设置于所述按键容置部内，所述开关组件设置于所述第二壳体的远离所述第一弹性覆层的一侧，并与所述按键下方的所述第一弹性覆层抵接。

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技术领域

[0001] 本实用新型涉及耳机领域，特别是涉及一种骨传导耳机。

背景技术

[0002] 骨传导是一种声音传导方式，即将声音转化为不同频率的机械振动，通过人的颅骨、骨迷路、内耳淋巴液传递、螺旋器、听神经、听觉中枢来传递声波。骨传导耳机利用骨传导技术受话，紧贴骨头，声波直接通过骨头传至听神经。因此可以开放双耳，不伤害鼓膜，也因此受到广大消费者的喜爱。但是现有的骨传导耳机弯折性能较差，容易在弯折时受到损坏。

实用新型内容

[0003] 本实用新型主要解决的技术问题是提供一种骨传导耳机，能够改善现有的骨传导耳机弯折性能较差的问题。

[0004] 为解决上述技术问题，本实用新型实施例提供一种骨传导耳机，包括耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层。

[0005] 与现有技术相比，本实用新型的有益效果是：本实用新型实施例通过第一弹性金属丝连接第一壳体与第二壳体，且第一弹性覆层包覆第一弹性金属丝，由于弹性金属丝以及第一弹性覆层的弹性作用，能够有效增强耳挂的弯折性能，在受到弯折时有效地进行弹性回复而恢复原状，不易变形，且能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。

附图说明

[0006] 图1是本实用新型骨传导耳机实施例中耳挂组件的结构示意图；

[0007] 图2是本实用新型骨传导耳机实施例中骨传导耳机整体结构拆解示意图；

[0008] 图3是本实用新型骨传导耳机实施例中耳挂组件的另一结构示意图；

[0009] 图4是图3中A-A的截面结构示意图；

[0010] 图5是本实用新型骨传导耳机实施例中骨传导耳机部分结构拆解示意图；

[0011] 图6是图5中C-C的截面结构示意图；

[0012] 图7是本实用新型骨传导耳机实施例中电路示意图；

[0013] 图8是本实用新型骨传导耳机实施例中第四壳体的结构示意图；

[0014] 图9是本实用新型骨传导耳机实施例中骨传导耳机接插部与接插孔结构放大示意图；

[0015] 图10是本实用新型骨传导耳机实施例中接插部与接插孔截面结构示意图；

[0016] 图11是本实用新型骨传导耳机实施例中接插孔结构示意图；

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[0017] 图12是本实用新型骨传导耳机实施例中接插部结构示意图；

[0018] 图13是图9的B-B的截面结构示意图；

[0019] 图14是本实用新型骨传导耳机实施例中骨传导耳机另一部分结构拆解示意图；

[0020] 图15是图14的部分结构截面示意图；

[0021] 图16是本实用新型骨传导耳机实施例中控制电路组件结构示意图；

[0022] 图17是本实用新型骨传导耳机实施例中控制电路组件另一结构示意图。

具体实施方式

[0023] 参阅图1和图2，本实用新型骨传导耳机实施例包括耳挂组件11，耳挂组件11包括第一壳体111、第二壳体112以及连接第一壳体111和第二壳体112的连接部件113，其中连接部件113包括两端分别连接第一壳体111和第二壳体112的第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132。

[0024] 一般，骨传导耳机还包括骨传导扬声器、电池、控制电路等元件，例如骨传导扬声器用于以骨传导的方式通过振动向用户输出声音。电池用于给骨传导耳机各元件供电。控制电路用于控制骨传导耳机例如实现调节音量、开关机、播放音频以及蓝牙通讯等功能。

[0025] 耳挂组件11一般用于用户在佩戴骨传导耳机时挂于其耳部，如此可以使骨传导耳机较稳固地佩戴于用户的耳部。耳挂组件11需要具备良好的抗压以及抗变形能力，以便在用户在使用时不容易将骨传导耳机损坏或者致其变形。

[0026] 在本实施例中，连接部件113可直接接触耳部并通过人耳根部支承骨传导耳机，连接部件113包括第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132，通过第一弹性金属丝1131连接第一壳体111与第二壳体112，能够有效增强骨传导耳机的弯折性能以及结构稳定性，使耳挂组件11在受到弯折时能够有效地进行弹性回复而恢复原状，不易变形。此外采用第一弹性金属丝1131能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。可选的是，连接部件113可以包括多根第一弹性金属丝1131，例如可以设置多根细小的第一弹性金属丝1131能够进一步提高耳挂组件11的弯折可靠性，例如设置3根第一弹性金属丝1131，每根第一弹性金属丝1131的直径0.3mm，此时3根第一弹性金属丝的材料可以相同也可以部分相同，或者全部不同，当然每根第一弹性金属丝1131的直径也可以相同、部分相同或者全部不同。

[0027] 在本实施例中，可选的是，第一弹性金属丝1131可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。可选的是，第一弹性金属丝1131为钛合金丝，或者至少由钛合金材料制成，例如直径为0.8-1.5mm的钛合金丝，可选为1.0-1.25mm。

[0028] 在本实施例中，第一弹性金属丝1131外包覆第一弹性覆层1132，第一弹性覆层1132直接与耳部接触，由于第一弹性覆层1132的弹性作用能够使得用户可以舒适地佩戴骨传导耳机。此外，第一弹性覆层1132由于其弹性作用的存在能够更有力地包覆第一弹性金属丝1131，即使在经过多次弯折后仍能有效包覆第一弹性金属丝1131，保证骨传导耳机结构的有效性。可选的是，第一弹性覆层1132为硅胶层，当然在其他实施例中，第一弹性覆层1132还可以是乳胶层或者橡胶层，或者其他有弹性的塑料层，或者为包含硅胶的复合材料

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层。

[0029] 可选的是，第一壳体111和第二壳体112分别以注塑方式与第一弹性金属丝1131的两端固定连接，第一弹性覆层1132以注塑方式固定包覆于第一弹性金属丝1131上。可选的是，第一壳体111以及第二壳体112为塑料壳体，以注塑成型的方式固定在第一弹性金属丝1131的两端，以及第一弹性覆层1132是一体成型包覆第一弹性金属丝1131上，如此使得第一壳体111、第二壳体112与第一弹性金属丝1131之间的连接更稳固，且使得骨传导耳机的一体感与质感更强，使骨传导耳机的结构更紧凑更轻便。在本实施例中，注塑方式可以是注塑成型、热塑成型、压塑成型等中的一种，但不限于此。

[0030] 参阅图3和图4，可选的是，第一弹性覆层1132由不同颜色的两个子弹性覆层1132a、1132b拼合而成，其中两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的相对设置的两个侧面113a、113b上，其中拼合缝在同一侧面上例如在外侧面113a上的投影彼此错开。例如在进行注塑成型时，采用至少两套模具对第一弹性覆层1132的两个子弹性覆层1132a、1132b分别进行成型，由此可形成不同配比的两种颜色例如为淡灰色与深灰色或者其他颜色的组合，且拼合缝位于连接部件113相对设置的两侧面113a、113b上，且在同一侧面上投影彼此错开，使得骨传导耳机的视觉效果更佳，进一步由于错开包覆第一弹性金属丝1131使得包覆效果更好。当然第一弹性覆层1132也可以由同颜色的两个子弹性覆层拼合而成。通过两次注塑成型分别在连接部件113的两侧面113a、113b上形成两个子弹性覆层1132a、1132b，能够改善一次注塑成型或者上下分开注塑成型时由于注塑压力的存在容易导致第一弹性覆层1132内的元件例如第一弹性金属丝1131产生移位降低连接部件113的成型质量。当然，在其他实施例中，第一弹性覆层1132可以直接形成一个覆层，或者形成数量多于两个的子弹性覆层。

[0031] 在本实施例中，连接部件113的两侧面包括相对设置内侧面113b与外侧面113a，是指在佩戴时耳挂组件11挂于人耳，连接部件113朝向人头部的一侧为内侧面113b，朝向人耳的一侧为外侧面113a。

[0032] 继续参阅图3和图4，可选的是，两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的内侧面113b和外侧面113a上，且位于连接部件113的外侧面113a上的拼合缝的投影相较于位于连接部件113的内侧面113b上的拼合缝的投影更靠近连接部件113与人耳的接触位置。由此可知道，一条拼合缝位于外侧面113a的靠近接触人耳的位置，而另一条拼合缝位于内侧面113b以使得外侧面113a上几乎显示同一种颜色的子弹性覆层1132a或者1132b，例如外侧面113a几乎显示淡灰色，使得骨传导耳机一体感更强，更加美观。

[0033] 可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b在同一侧面例如113a或者113b上的面积彼此不同。在其他实施例中，拼合缝可以设置成使得两个子弹性覆层1132a、1132b在同一侧面上的面积相同或者大体相同。

[0034] 参阅图2至图4，可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b的颜色相对较浅的子弹性覆层1132a在外侧面113a上占据面积相对较大。也即，浅颜色的子弹性覆层1132a更多地位于外侧面113a，深颜色的子弹性覆层1132b更多地位于内侧面113b，如此使得连接件113的表面更具协调性，在保证结构性能的同时增强骨传导耳机的美学性能。

[0035] 继续参阅图1，可选的是，第一弹性金属丝1131的两端呈扁平状设置并分别嵌入第一壳体111和第二壳体112。也即在第一壳体111与第二壳体112以注塑的方式形成且固定于

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第一弹性金属丝1131呈扁平状设置的两端，如此可以增大第一弹性金属丝1131与第一壳体111、第二壳体112的接触面积，使得第一弹性金属丝1131与第一壳体111、第二壳体112更稳定地相互固定。可选的是，第一弹性金属丝1131呈扁平设置的两端的宽度大于连接该呈扁平设置的两端的连接部分的宽度，如此在成型后起到一个限位的作用，防止将第一弹性金属丝1131从第一壳体111、第二壳体112中拉出或者脱落。可选的是，第一弹性金属丝1131的两端呈螺纹状设置。在成型时，部分壳体可以成型于螺纹中，以起到固定的作用。当然，第一弹性金属丝1131的两端可以分别呈扁平状以及螺纹状设置。在其他实施例中，第一弹性金属丝1131两端还可以内凹以形成凹陷部，第一壳体111与第二壳体112在成型时，部分位于凹陷部内，以起到固定作用。

[0036] 参阅图1和图2，可选的是，第一弹性覆层1132进一步包覆第一壳体111和第二壳体112的至少部分外表面，例如全部外表面。即第一弹性覆层1132以注塑成型的方式包覆第一弹性金属丝1131、第一壳体111的至少部分外表面、第二壳体112的至少部分外表面，如此使得骨传导耳机的质感以及一体感更强，而且第一弹性覆层1132的存在，可以进一步保护壳体以及壳体内部的元件，使得骨传导耳机更耐磨损。

[0037] 参阅图5和图6，可选的是，第二壳体112上形成有通孔1121。即通孔1121贯穿第二壳体112的内侧面与外侧面。第一弹性覆层1132覆盖通孔1121并进一步在通孔1121上方且远离第二壳体112(即远离第二壳体112的内侧面)的一侧形成有按键容置部1121a。按键容置部1121a是由第一弹性覆层1132在注塑过程中覆盖通孔1121而形成，按键容置部1121a内由于第一弹性覆层1132的存在是可以隔绝水份、尘土等进入第二壳体内112。耳挂组件11进一步包括按键118和开关组件119，其中按键118设置于按键容置部1121a内。开关组件119设置于第二壳体112的远离第一弹性覆层1132的一侧，即第二壳体112的内侧面，并与按键118下方的第一弹性覆层1132抵接。可选的是，按键容置部1121a内设置有一凸台1121b，按键118以例如黏贴的方式固定在凸台1121b上。在本实施例中，由于第一弹性覆层1132以注塑方式固定包覆在第二壳体112上，且覆盖通孔1121，具有更好防水效果。可选的是，凸台1121b是在第一弹性覆层1132覆盖通孔1121时由第一弹性覆层1132一体成型而形成的。

[0038] 在本实施例中，第二壳体112上的开关组件119主要是用于控制骨传导耳机的功能开关，例如音乐的播放与暂停、语音的接听与挂断、连通无线信号以连接移动设备例如蓝牙通讯，或者骨传导耳机工作模式的选择等，不限于此。

[0039] 参阅图1、图2、图4和图7，可选的是，第一弹性覆层1132的内部进一步设置有用于连通第一壳体111和第二壳体112的引线通道1134，耳挂组件11进一步包括从第一壳体111经引线通道1134延伸至第二壳体112的第一导线组1133，引线通道1134的径向尺寸设置成允许第一导线组1133沿引线通道1134移动。

[0040] 通过设置引线通道1134，例如在后期组装时可以先将第一导线组1133一端连接(例如以板载的方式)第二壳体112内的元件例如骨传导扬声器，再将第一导线组1133另一端穿过引线通道1134以连接第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15等，如此可以减少组装工艺，而且能够改善现有骨传导耳机在第一弹性覆层1132在注塑成型时埋入第一导线组1133所带来的接线困难且不利于后期维修等问题。当然，在后期组装时也可以先将第一导线组1133一端连接(例如以板载的方式)第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15，再将第一导线组1133另一

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端穿过引线通道1134以连接第二壳体112内的元件例如骨传导扬声器等。

[0041] 在本实施例中，引线通道1134具体的成型方式例如包括首先提供一个第一弹性金属丝1131连接的第一壳体111与第二壳体112的组件，进一步在第二壳体112与第一壳体111之间以可拆卸的方式设置附加金属丝(图未示)，再进一步在第一弹性金属丝1131、附加金属丝以及第一壳体111和第二壳体112的部分外表面以注塑方式形成第一弹性覆层1132，成型后抽取附加金属丝以形成引线通道1134。在其他实施例中，例如第一弹性覆层1132注塑成型时，埋入易融性材料，在第一弹性覆层1132注塑成型时，该易融性材料融化而流出，形成引线通道1134。又例如引线通道1134可以在第一弹性覆层1132成型后，通过穿针的方式形成通道，再通过热熔的方式扩大通道形成引线通道1134。

[0042] 继续参阅图1和图4，在本实施例中，可选的是，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置。在本实施例中，第一引线通道1134与第一弹性金属丝1131间隔独立设置。在其他实施例中，第一引线通道1134可以与第一弹性金属丝1131合并设置，即第一导线组1133在第一引线通道1134内可接触第一弹性金属丝1131。在本实施例中，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置，由于引线通道1134的存在，可以使得靠近人耳的第一弹性覆层1132更具弹性更加柔和，佩戴更加舒适。在其他实施例中，当然第一引线通道1134也可以设置在第一弹性金属丝1131的上侧，在使用时第一弹性金属丝1131更靠近人耳。

[0043] 参阅图1、图2和图8，可选的是，耳挂组件11包括第三壳体114和第四壳体115。其中第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116。第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117。可选的是，第四壳体115与第三壳体114为塑料壳体。

[0044] 可选的是，第二壳体112与第四壳体115通过第一卡扣组件(未标注)连接，第一卡合组件包括第一卡合部以及第一扣合部，第一卡合部设置于第四壳体115上，第一扣合部设置于第二壳体112上，第二壳体112与第四壳体115配合时，第四壳体115上的第一卡合部卡入第二壳体112的第一扣合部，以将第二壳体112与第四壳体115固定在一起。可选的是，第二壳体112与第四壳体115通过至少一组第一卡扣组件例如4组第一卡扣组件进行连接。当然第二壳体112与第四壳体115也可以通过胶水粘合，或者通过第一卡合组件与胶水同时作用进行固定，或者通过螺丝等紧固件连接固定。

[0045] 可选的是，第三壳体114与第一壳体111通过第二卡扣组件(未标注)连接，第二卡扣组件包括第二卡合部以及第二扣合部，第二卡合部设置在第三壳体114上，第二扣合部设置在第一壳体111上，在第一壳体111与第三壳体114配合时，第三壳体114的第二卡合部卡入第一壳体111的第二扣合部，以将第一壳体111与第三壳体114固定在一起。

[0046] 在本实施例中，耳挂组件11的第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116，第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117，第一导线组1133可以移动穿过引线通道1134用于电连接骨传导扬声器与电池组件13或控制电路组件14。在本实施例中，电池组件13例如包括电池以及电池管理电路，电池通过电池管理电路为骨传导耳机其他部件进行供电，例如电池管理电路包括充电电路，过流保护电路、过放保护电路、过压保护电路等。例如

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电池为可充电电池，例如为锂电池。参阅图7，可选的是，骨传导耳机还进一步包括例如转接电路板15，设置于第一容置空间116内，电池组件14通过转接电路板15分成多个接线焊点，以相对应连接骨传导耳机的两个骨传导扬声器、控制电路组件14、麦克风、以及开关组件119等，上述元件相关导线与上述接线焊点连接并按图7方式导通，便于接线和组装。例如电池组件14通过正负极的两个接线焊点连接转接电路板15，转接电路板15分出10个接线焊点，以连接骨传导耳机的其他部件。

[0047] 参阅图1和图2，可选的是，第一壳体111内设置有第一子容置空间116a，第三壳体114内设置有第二子容置空间116b，并在第三壳体114与第一壳体111配合时与第一子容置空间116a共同形成第一容置空间116，例如通过第一卡扣组件进行固定连接。其中第二子容置空间116b的体积大于第一子容置空间116a。例如第二子容置空间116b的体积是第一子容置空间116a的2-5倍，例如为3-4倍，例如为3.2倍，或例如为2.5倍。

[0048] 在组装电池组件13或者控制电路组件14，例如先将电池组件13或者控制电路组件14放置在第一子容置空间116a内，例如电池通过胶材或者双面胶粘贴于第一子容置空间116a内，或者控制电路组件14通过卡合结构固定于第一子容置空间116a内，使得电池组件13或者控制电路组件14大部分外露，便于组装和接线等工艺，再将第三壳体114通过第二卡扣组件与第一壳体111盖合，第一子容置空间116a与第二子容置空间116b形成第一容置空间116，如此改善了传统骨传导耳机需要将电池或者控制电路板装配并容纳在与耳挂一体成型的壳体内并进一步利用硅胶条贴于电池控制电路板外部部分进行包覆所导致的组装工序复杂的问题，简化结构以及组装工序。

[0049] 参阅图2和图8，可选的是，第四壳体115呈棱柱状设置，其中在第四壳体115的至少一侧面上设置有条形引音孔1151，其中条形引音孔1151的长度方向与第四壳体115的底面平行或者大致平行设置，且条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二。在本实施例中，条形引音孔相对平行的底面115e是指在佩戴时第四壳体115朝向人体脸部的一面的开口边缘所定义的平面。

[0050] 一般，骨传导扬声器在振动的过程中会向周边的环境传递声音，除了佩戴者外，环境中的他人也能够听到扬声器的声音，例如骨传导扬声器的振动引起了第二容置空间117内空气的振动以及引起第四壳体115等的振动，从而出现漏音现象，会影响骨传导耳机的音质。引音孔1151是将第二容置空间117内的声波引导传播至空间外，与漏音声波同在空气中传播发生干涉，从而降低漏音声波的振幅，减小漏音。

[0051] 继续参阅图8，为了进一步改善漏音现象，本实施例通过在第四壳体115的至少一侧面设置条形引音孔1151，并适当设置其尺寸和方向改善了传统骨传导耳机带来的漏音现象仍比较严重的问题。进一步地，条形引音孔1151的长度方向与第四壳体115的底面平行设置，不仅可以保证美观，而且经平行引导的声波强度的均匀性，从而保证干涉效果。在本实施例中，条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二，能够有效引导第二容置空间117内的声波。可选为，条形引音孔1151的长度为其所在的侧面的宽度的四分之三。当然，在其他实施例中，其中在第四壳体115的至少一侧面上并列设置有至少两条条形引音孔1151，例如在至少一侧面上设置两条平行的条形引音孔1151，且与第四壳体115的底面115e平行。

[0052] 可选的是，第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上不设置条形

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引音孔1151。当然，在其他实施例中，也可以在第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上设置引音孔，可以是点式引音孔，或者条形引音孔1151。

[0053] 继续参阅图2和图8，可选的是，第四壳体115呈四棱柱状设置，其中在第四壳体115与连接部件113相邻设置的两个侧面115a、115c上设置有条形引音孔1151，进一步剩余的两个侧面115b、115d中的在骨传导耳机使用时远离人耳的侧面115b同样设置条形引音孔1151，且剩余的两个侧面115b、115d中的在骨传导耳机使用时靠近人耳的侧面115b上不设置条形引音孔1151。也即在三个侧面115a、115b、115c上设置三个条形引音孔1151，在骨传导耳机使用时靠近人耳的侧面115d不设置条形引音孔1151，如此可以进一步减少漏音现象，保证骨传导耳机的音质。

[0054] 在本实施例中，第四壳体115呈四棱柱状设置，例如包括正四棱柱以及类四棱柱状。例如具体地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的任一个侧面的长度均大于剩余的两个侧面115b、115d的任一个侧面的长度，进一步地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的长度不相等或者相等。在其他实施例中，第四壳体115呈四棱柱状设置，其四个侧面的长度均可相等。

[0055] 在本实施例中，可选的是，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c之间的夹角为90°-150°，可选为100°-130°，可选为110°-120°。

[0056] 可选的是，第四壳体115内进一步设置有覆盖条形引音孔1151的防水防尘滤网，例如防水透气膜(图未示)。设置防水防尘滤网，可以防止骨传导耳机外的灰尘以及防水骨传导耳机进水进入损坏骨传导扬声器。

[0057] 在本实施例中，第二壳体112与第四壳体115上分别设置有一麦克风孔(图未示)，具体的，第一麦克风孔设置在第四壳体115不直接与连接部件113连接的剩余两侧面115b、115d的连接处，第二麦克风孔设置在第二壳体112的外侧面且靠近第四壳体115与连接部件113的连接处。通过在两个错开设置的麦克风孔内设置两个麦克风，能够增强语音输入质量，且起到有效的降噪作用，由此提高语音输入的清晰度。

[0058] 参阅图2以及图9，在本实施例中，耳挂组件11的数量为两个，骨传导耳机进一步包括后挂组件12。后挂组件12包括第二弹性金属丝121、包覆在第二弹性金属丝121上的第二弹性覆层122以及设置于第二弹性金属丝121两端的接插部123。接插部123分别与两个耳挂组件11的第一壳体111接插配合，并固定连接。可选的是，接插部123以注塑方式固定于第二弹性金属丝121的两端，如此可以使接插部123更稳固地固定于第二弹性金属丝121的两端。可选的是，第二弹性金属丝121可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。在本实施例中，第二弹性金属丝121为钛合金丝，或者至少由钛合金材料制成。在本实施例中，第二弹性覆层122为硅胶层。在其他实施例方式中，第二弹性覆层122也可以为橡胶层或者乳胶层，或者是包括硅胶的复合材料层。

[0059] 通过后挂组件12的接插部123与两个耳挂组件11的第一壳体111进行接插配合，改善了现有的骨传导耳机采用螺丝等固定方式带来的耳机尺寸较大等问题，从而简化结构，减轻骨传导耳机的重量，方便后期接线且能降低成本。

[0060] 参阅图9和图10，可选的是，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111以及在接插部123的插入方向的垂直方向连通接插孔1111与外部的开孔1112，

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以允许从外部经开孔1112向接插孔1111内施加胶水或安装卡止件(图未示),以使得接插部123在胶水或卡止件的作用下固定在接插孔1111内。在本实施中,开孔1112位于所述第一子容置空间116a内。在其他实施例中,第一壳体111的端部设置有用于允许接插部123插入的接插孔1111,接插部123上具有一凹部,接插孔1111内具有一弹性凸部,接插部123插入接插孔1111时,弹性凸部卡入凹部,以将接插部123与接插孔1111配合固定。例如接插部123插入接插孔1111时,弹性凸部先被挤压,后在弹性恢复力的作用下卡入凹部内。可选的是,接插部123插入接插孔1111的深度为6-11mm,可选为8-10mm。

[0061] 继续参阅图9和图10,可选的是,接插部123的侧壁上设置有开槽1231。开槽1231经开孔1112外露或者部分外露,并用于接收胶水或卡止件。可选的是,接插部123的至少一个侧壁上设置有开槽1231,例如两个侧壁上均设置有开槽1231。在其他实施例中,可以同时使用胶水和卡止件,例如先使用卡止件固定,再施加胶水进一步固定。在本实施例中,卡止件例如是楔子或者销钉、或者具有一定弹性的固定件插入开槽1231进行过盈配合。

[0062] 参阅图2、图9和图10,可选的是,接插部123包括与第二弹性金属丝121连接的第一接插段123a以及与第一接插段123a连接且远离第二弹性金属丝121设置的第二接插段123b。接插孔1111沿接插部123的插入方向划分为用于接收第一接插段123a的第一孔段1111a和用于接收第二接插段123b的第二孔段1111b。其中第一孔段1111a的尺寸设置成允许第二接插段123b沿插入方向在第一孔段1111a内自由移动,且使得第一接插段123a与第一孔段1111a之间紧配合。通过两段接插段与两端孔段的分别配合固定,可以使得接插部123更稳固地固定在第一壳体111内,增强骨传导耳机的结构稳定性。

[0063] 继续参阅图9和图10,可选的是,开槽1231进一步设置在第二接插段123b的侧壁。开孔1112连通接插孔1111的第二孔段1111b。在本实施例中,在接插部123第二接插段123b依次通过第一孔段1111a以及第二孔段1111b,以使第一接插段123a与第一孔段1111a紧配合,第二接插段123b的开槽1231经开孔1112外露,以用于接收胶水或者卡止件。通过第一接插段123a与第一孔段1111a的紧配合以及第二接插孔1111与第二孔段1111b的进一步配合固定,能够有效地将后挂与耳挂固定连接。在其他实施例中,开槽1231可以设置在第一接插段123a的侧壁上。开孔1112连通接插孔1111的第二孔段1111b。

[0064] 可选的是,第二孔段1111b的尺寸设置成使得第二接插段123b与第二孔段1111b之间紧配合。如此通过第一接插段123a与第一孔段1111a的紧配合、第二接插孔1111与第二孔段1111b的紧配合以及施加的胶水或者卡止件进行固定,进一步有效地将后挂与耳挂固定连接,且能够简化结构,使骨传导耳机轻便化。当然,在其他实施例中,第一接插段123a与第一孔段1111a之间紧配合,而第二接插段123b与第二孔段1111b可以是其他类型的固定配合例如卡扣配合。

[0065] 参阅图11,可选的是,第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同。第一接插段123a的两侧形状不同,相对应地第一孔段1111a与第一接插段123a接触的两侧面1111a1、1111a2也不同。例如,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径大于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较缓,而外侧面1111a1的弧度变化相对较大,第一接插段123a两侧面相对应设置。当然,在其他实施例中,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径小于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较大,而外侧面1111a1的弧度变化相对较小。

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第一孔段1111a的两侧面在佩戴时靠近人体头部的为内侧面1111a2，远离人体头部即为外侧面1111a1。第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同，使得第一接插段123a不能反插，且也使得后挂两个接插部123不能混插，起到有效的防呆效果，方便组装。

[0066] 参阅图9和图10，可选的是，第一接插段123a和第二接插段123b的底面呈阶梯状设置且在第一接插段123a和第二接插段123b的连接处设置有第一楔形过渡段123c，并第一孔段1111a和第二孔段1111b的连接处设置有与第一楔形过渡段123c对应的第二楔形过渡段1111c。

[0067] 在本实施例中，第一接插段123a与第二接插段123b的底面是指在佩戴时靠近人耳根部的一面。顶面则为远离人耳根部的一面。

[0068] 在本实施例中，第一接插段123a厚度要大于第二接插段123b的厚度即呈阶梯状设置，两者的连接处存在厚度差，且设置第一楔形过渡段123c，相对应的在第一孔段1111a和第二孔段1111b的连接处设置与第一楔形过渡段123c相适应的第二楔形过渡段1111c，在第一接插段123a与第二接插段123b依次插入第一孔段1111a与第二孔段1111b时，第一楔形过渡段123c与第二楔形过渡段1111c相抵接，能够方便第二接插段123b与第一接插段123a的插入，且起到缓冲过渡、限位以及进一步固定的作用。

[0069] 参阅图9、图12以及图13，可选的是，后挂组件12进一步包括由第二弹性覆层122包覆的第二导线组124，其中第二导线组124的两端从第二弹性覆层122外露，接插部123的顶面设置有用于容纳第二导线组124的外露部分的埋线槽1232。在本实施例中，第二导线组124，用于连接两个耳挂组件11内的元件例如连接电池以及控制电路组件14等。设置埋线槽1232，一方面可以有效布置和固定第二导线组124，另一方面可以减少体积。在其他实施例中，也可以不设置埋线槽1232，而通过其他方式例如胶水或者双面胶等将第二导线组124进行固定，或者在接插部123顶面设置有两排并列设置的凸块(图未示)，两排凸块之间可以容纳第二导线组124。

[0070] 参阅图2，可选的是，骨传导耳机进一步包括电池组件13和控制电路组件14，其中电池组件13设置于两个耳挂组件11中的一者的第一容置空间116，控制电路组件14设置于两个耳挂组件11中的另一者的第一容置空间116内。

[0071] 参阅图14和图15，可选的是，用于容纳控制电路组件14的耳挂组件11的第三壳体114上设置有按键开孔1141和与按键开孔1141连通的容置槽1142，控制电路组件14包括电路板141、固定于电路板141上的开关142、防水衬板143以及按键144，其中按键144设置于按键开孔1141内且经按键开孔1141外露，防水衬板143包括衬板主体143a以及以注塑方式包覆在衬板主体143a上的第三弹性覆层143b，防水衬板143设置于容置槽1142内且第三弹性覆层143b与容置槽1142的侧壁弹性抵接，按键144和开关142分别设置于防水衬板143的两侧且分别与防水衬板143抵接。在本实施中，第三弹性覆层143b包覆衬板主体143a的一侧面以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，

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以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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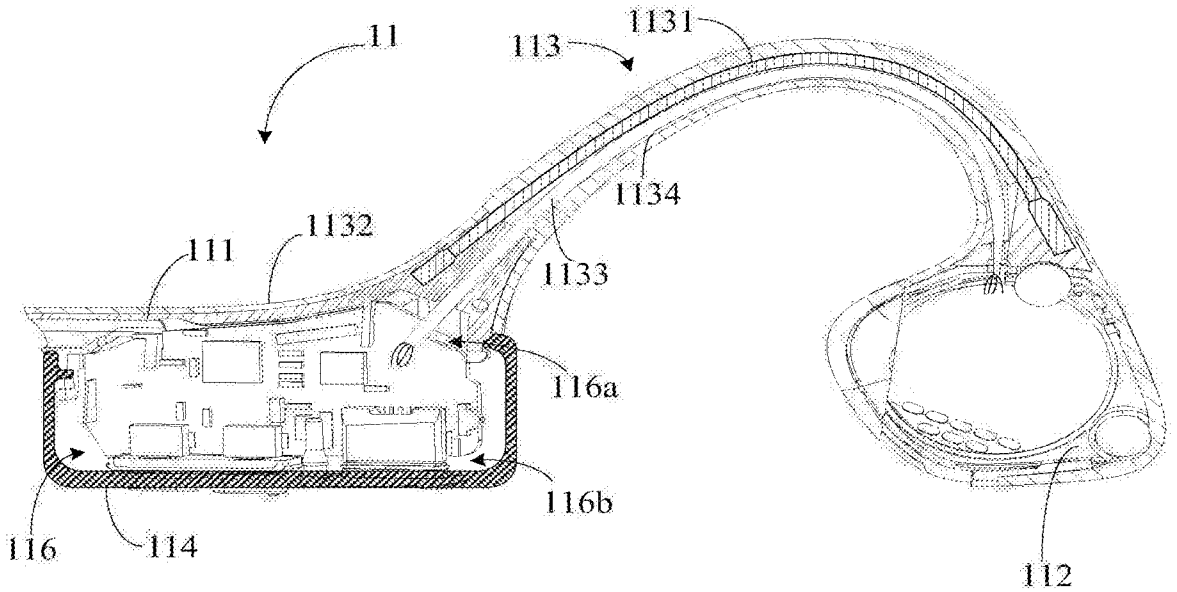


图1

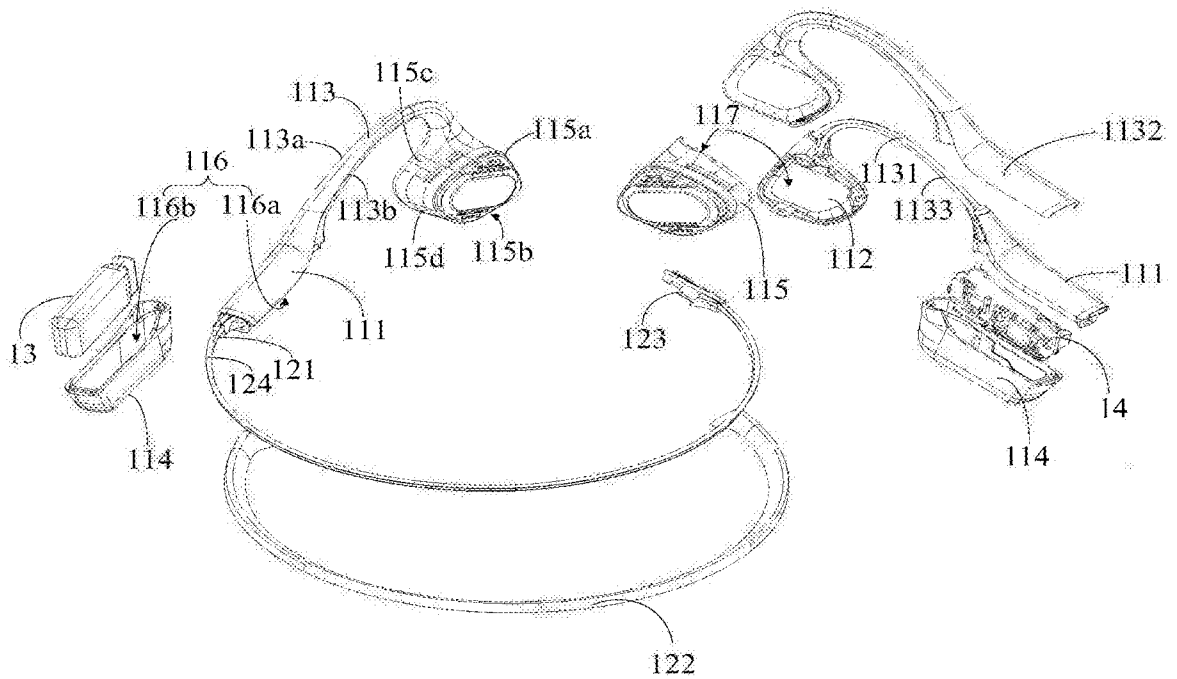


图2

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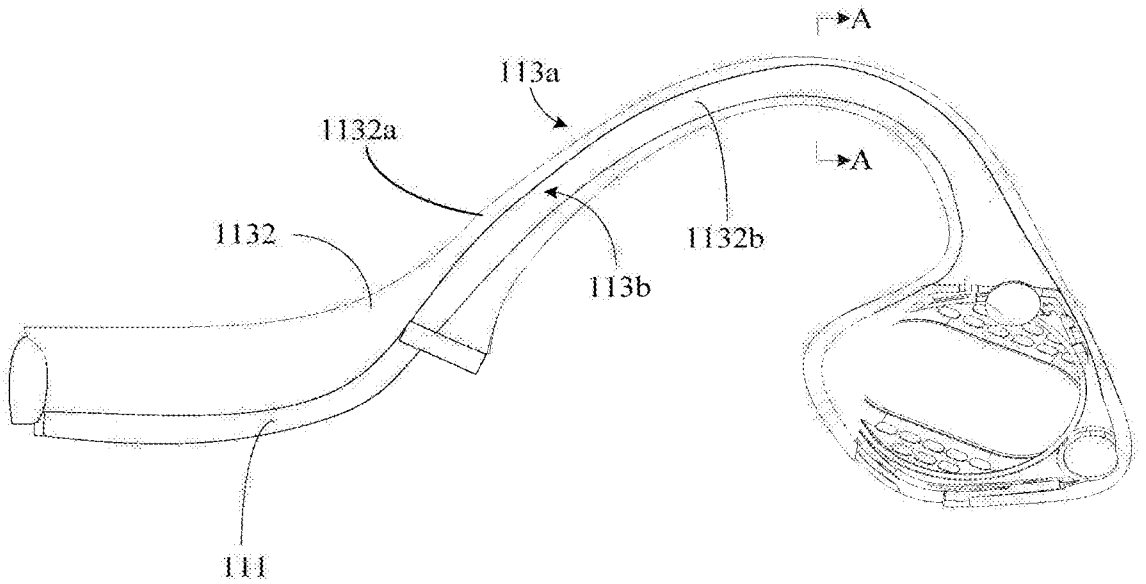


图3

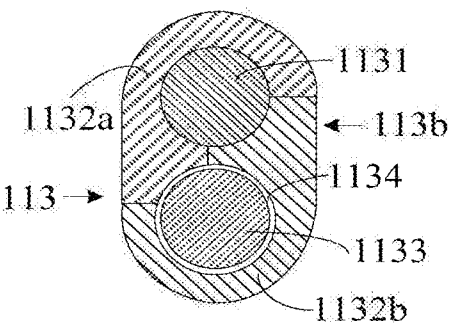


图4

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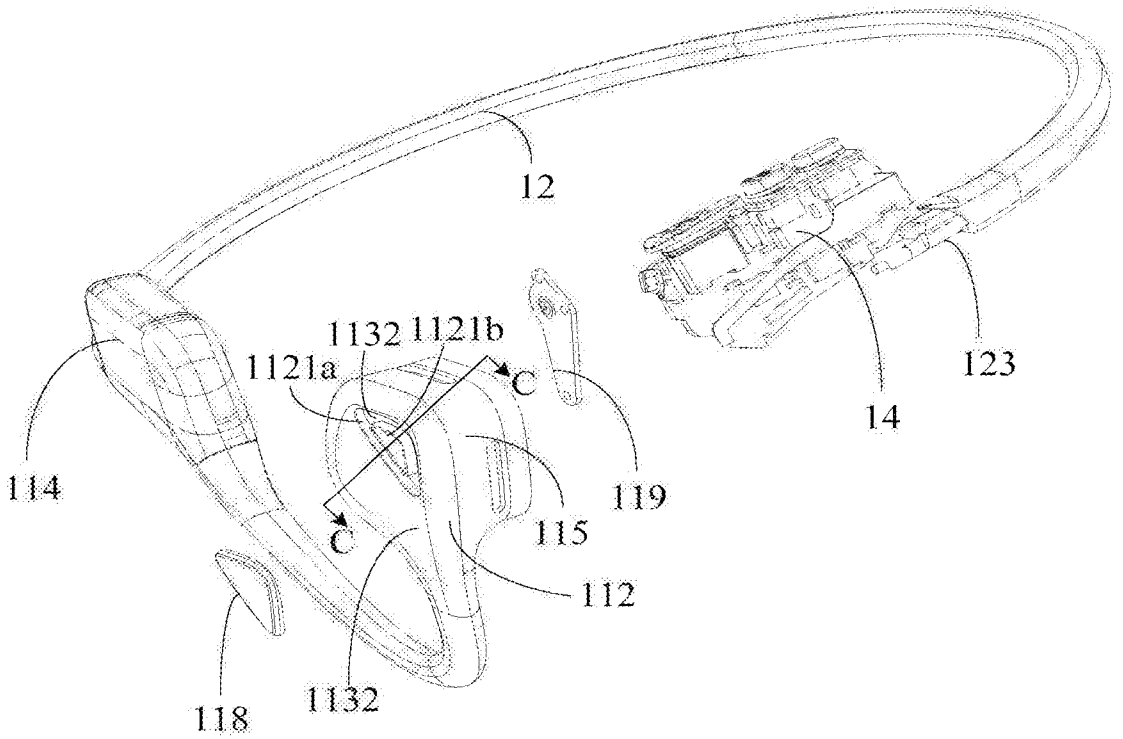


图5

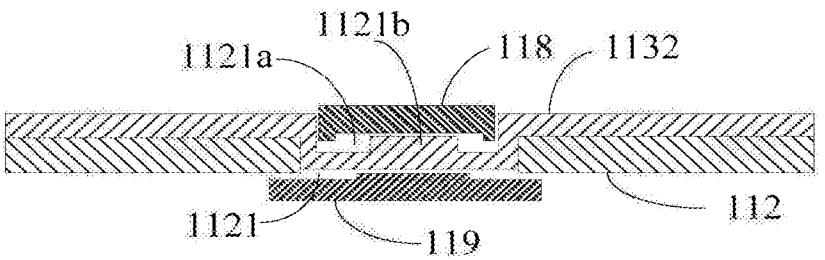


图6

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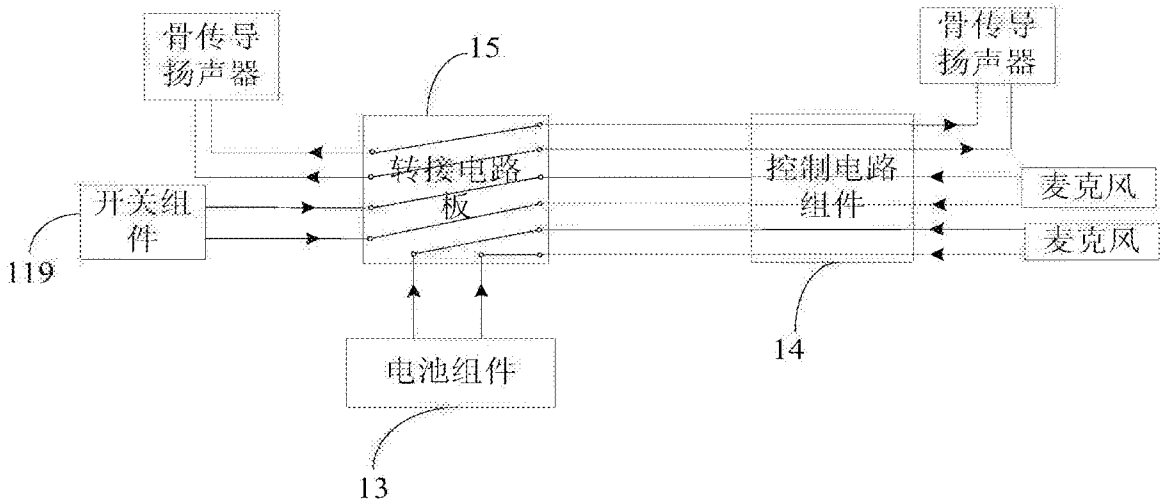


图7

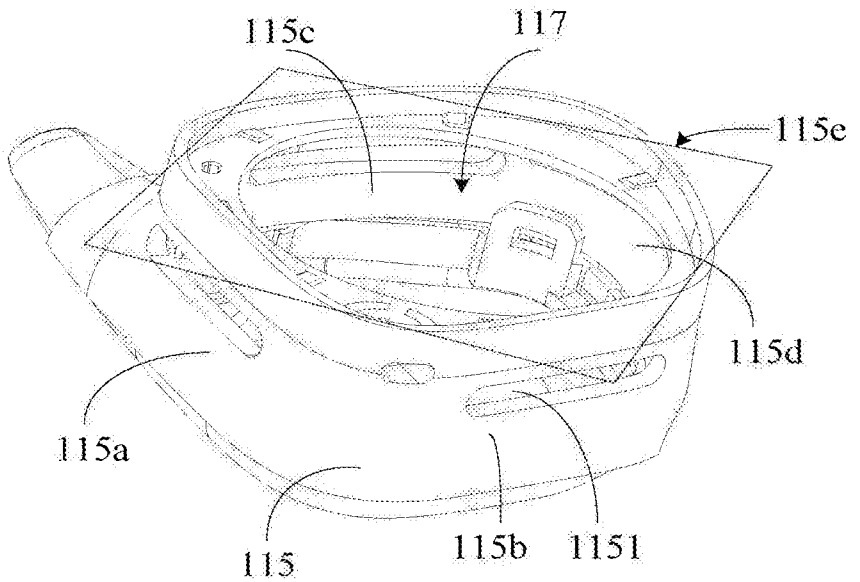


图8

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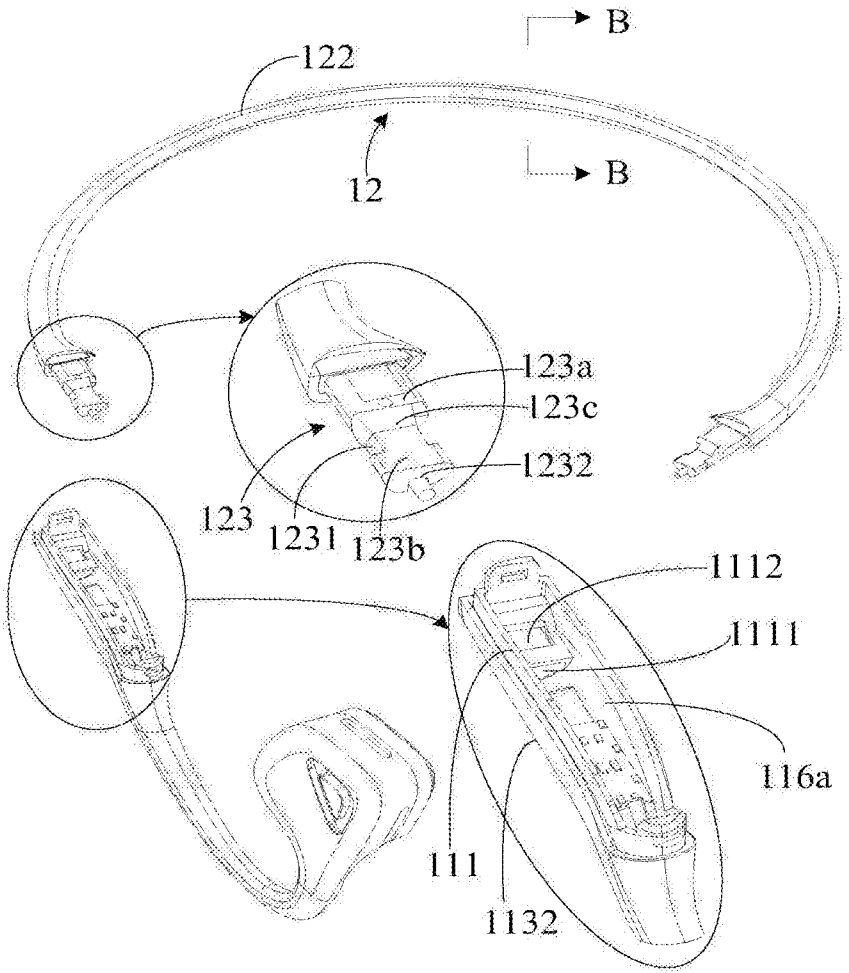


图9

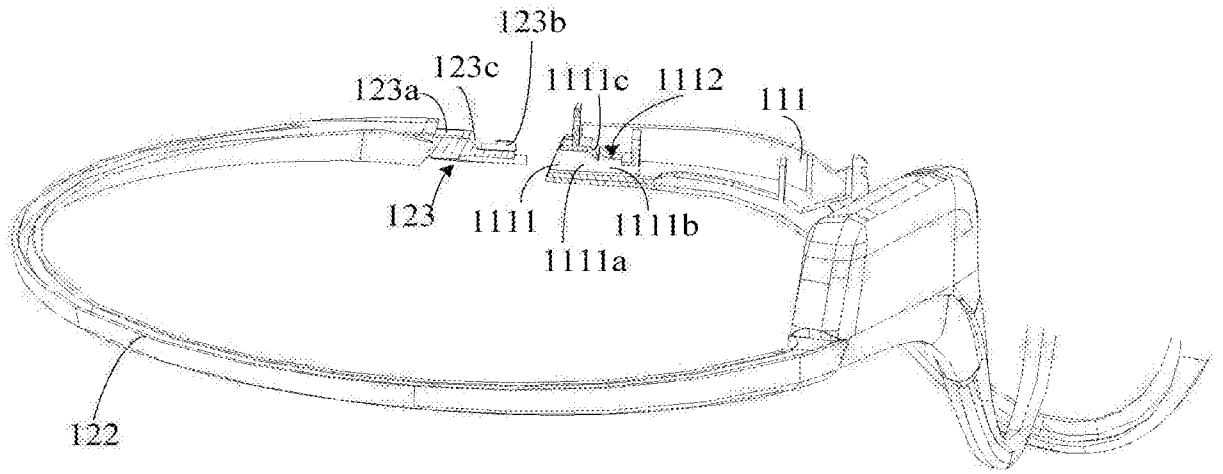


图10

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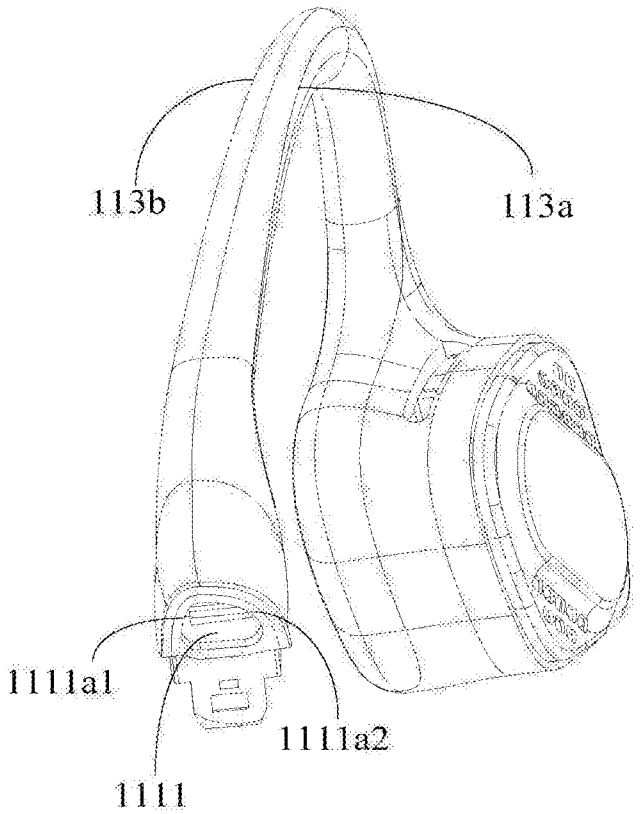


图11

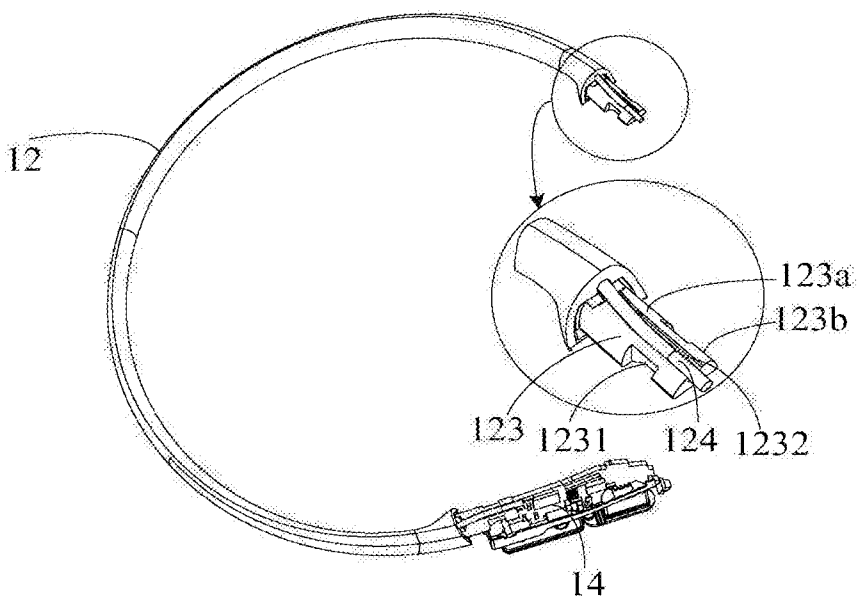


图12

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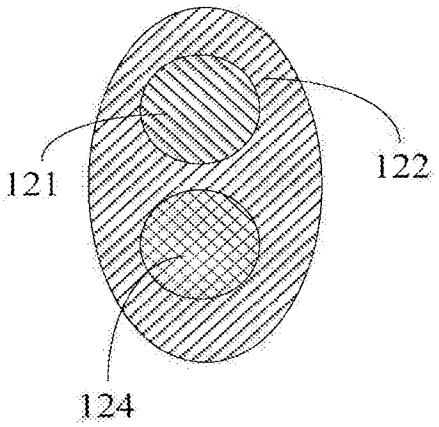


图13

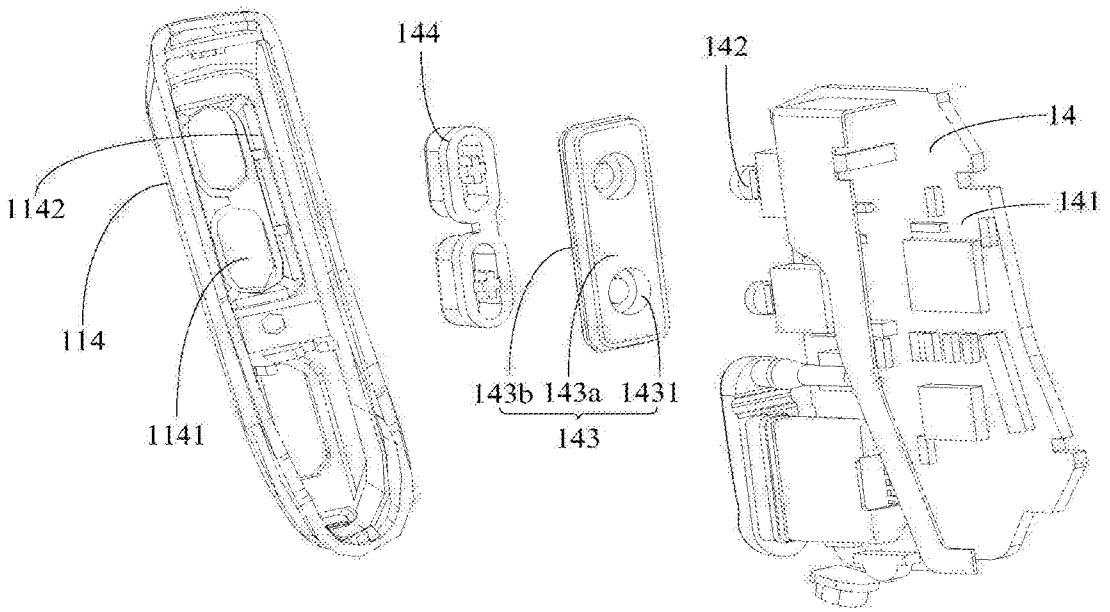


图14

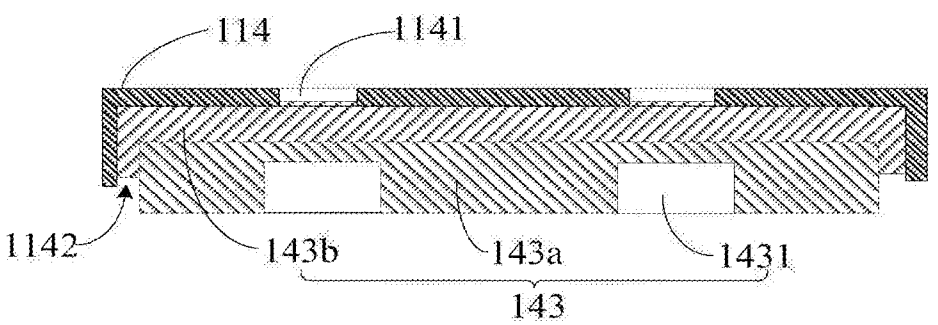


图15

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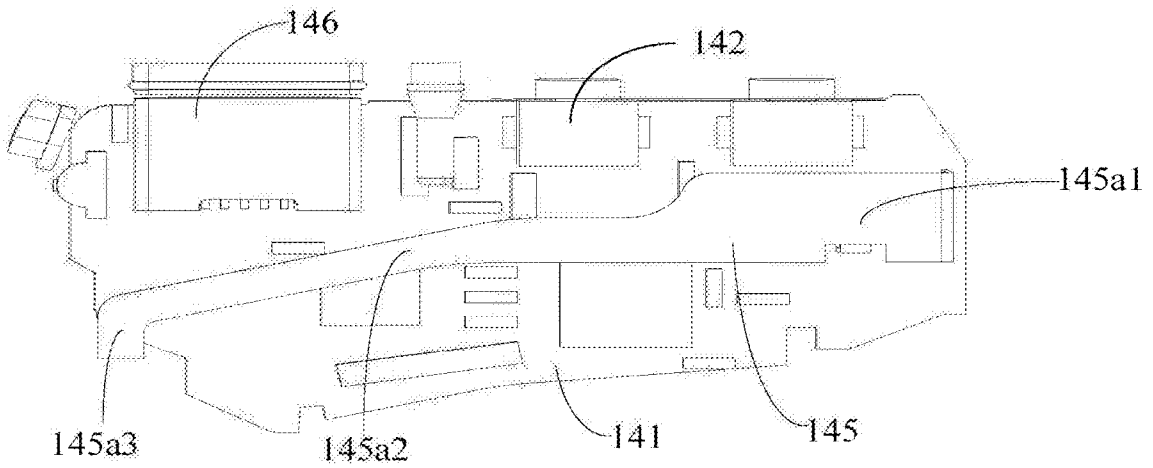


图16

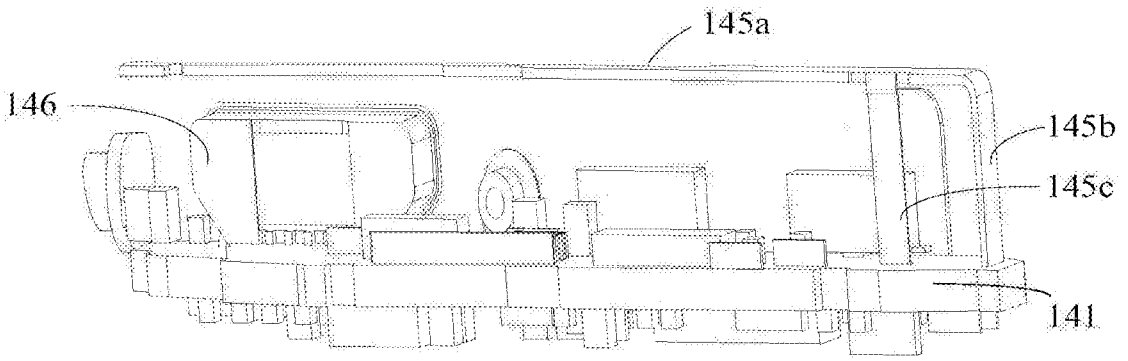


图17

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A kind of bone conduction earphone

Abstract

The utility model embodiment provides a kind of bone conduction earphone, including two ear-hang components, hanging component afterwards, battery component and control circuit component, ear-hang component includes the first housing, second housing, connection member, 3rd housing and the 4th housing, wherein connection member includes the first resilient coating that both ends connect the first elastic metallic yarn of the first housing and the second housing and are coated on the first elastic metallic yarn respectively, 3rd housing and the first housing coordinate, to form the first accommodation space, wherein battery component, control circuit component is respectively arranged at the first accommodation space of two ear-hang components.Hanging component includes the second elastic metallic yarn, the second resilient coating being coated on the second elastic metallic yarn and the Plug Division for being arranged at the second elastic metallic yarn both ends afterwards, and first housing of the Plug Division respectively with two ear-hang components patches cooperation, and is fixedly connected.By the above-mentioned means, the utility model can effectively strengthen the bending performance and wearing comfort of bone conduction earphone.

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Description

A kind of bone conduction earphone

Technical field

Earphone field is the utility model is related to, more particularly to a kind of bone conduction earphone.

Background technology

Osteoacusis is a kind of sound conduction mode, i.e., sound is converted into the mechanical oscillation of different frequency, passes through the cranium of people Bone, osseous labyrinth, inner ear lymph transmission, spiral organ, auditory nerve, auditory center transmit sound wave.Bone conduction earphone is passed using bone Waveguide technology is called, is close to bone, and sound wave directly reaches auditory nerve by bone.Therefore ears can be opened, does not injure eardrum, Therefore liked by consumers in general.Existing bone conduction earphone is poor with texture there is

Claims (10)

Hide Dependent

1. a kind of bone conduction earphone, it is characterised in that the bone conduction earphone includes two ear-hang components, rear hanging component, battery Component and control circuit component, the ear-hang component include the first housing, the second housing, connection first housing and second The connection member of housing, the 3rd housing and the 4th housing, wherein the connection member connects described first respectively including both ends First elastic metallic yarn of housing and second housing and the first elasticity being coated on first elastic metallic yarn are covered Layer, first resilient coating further cover at least part outer surface of first housing and the second housing, and the described 3rd Housing coordinates with first housing, is housed with formation for housing the first of the battery component or the control circuit component Space, the 4th housing coordinate with second housing, to form the second accommodation

bending performance, causes fragile With wear it is uncomfortable the problems such as.

Utility model content

The utility model can improve existing earphone and wear mainly solving the technical problems that provide a kind of bone conduction earphone Wear uncomfortable problem.

In order to solve the above technical problems, the utility model embodiment provides a kind of bone conduction earphone, including two ear-hang groups Part, rear hanging component, battery component and control circuit component, the ear-hang component include the first housing, the second housing, connection institute Connection member, the 3rd housing and the 4th housing of the first housing and the second housing are stated, wherein the connection member includes both ends The first elastic metallic yarn of first housing and second housing is connected respectively and is coated on first elastic metallic The first resilient coating on silk, first resilient coating further cover at least part of first housing and the second housing Outer surface, the 3rd housing coordinate with first housing, are used to house the battery component or the control electricity to be formed First accommodation space of road component, the 4th housing coordinate with second housing, are raised one's voice with being formed for housing osteoacusis Second accommodation space of device, wherein the battery component be arranged at one of described two ear-hang components it is described first accommodating Space, the control circuit component are arranged in first accommodation space of the other of described two ear-hang components ; Institute Stating rear hanging component includes the second elastic metallic yarn, the second resilient coating being coated on second elastic metallic yarn and setting in the Plug Division at the second elastic metallic yarn both ends, first housing of the Plug Division respectively with described two ear-hang components connects Inserting is closed, and is fixedly connected.

Compared with prior art, the beneficial effects of the utility model are : The utility model embodiment passes through the first elasticity gold Belong to silk and connect the first housing and the second housing, and the first resilient coating coats the first elastic metallic yarn, the second resilient coating cladding Second elastic metallic yarn, due to the first elastic metallic yarn, the second elastic metallic yarn, the first resilient coating and the second resilient coating Elastic reaction, can effectively strengthen the bending performance of ear-hang, effectively carry out elastic recovery when being bent and recover former Shape, it is unlikely to deform, and traditional bone conductors earphone can be improved using plastics as fragile caused by the material of ear-hang component The problems such as, and the first resilient coating directly contacts human body with the second resilient coating, wears more comfortable.

space for being used for housing bone-conduction speaker, Wherein described battery component is arranged at first accommodation space of one of described two ear-hang components, the control circuit Component is arranged in first accommodation space of the other of described two ear-hang components ; Hanging component includes second after described Elastic metallic yarn, the second resilient coating being coated on second elastic metallic yarn and it is arranged at second elastic metallic The Plug Division at silk both ends, first housing of the Plug Division respectively with described two ear-hang components patches cooperation, and is fixedly connected.

2. bone conduction earphone according to claim 1, it is characterised in that the end set of first housing has for permitting Perhaps the vertical direction of the jointing holes of Plug Division insertion and the direction of insertion in the Plug Division connect the jointing holes with Outside perforate, to allow into the jointing holes to apply from the outside through the perforate glue or installation stopper, to cause Plug Division is stated to be fixed in the presence of the glue or stopper in the jointing holes.

3. bone conduction earphone according to claim 2, it is characterised in that fluting is provided with the side wall of the Plug Division, The fluting is exposed through the perforate, and for receiving the glue or stopper.

4. bone conduction earphone according to claim 3, it is characterised in that the Plug Division includes and the described second elasticity gold The first of category silk connection patches section and patches section with described first and be connected and away from the of second elastic metallic yarn setting Two patch section, and direction of insertion of the jointing holes along the Plug Division is divided into for receiving the described first the first hole for patching section Section and for receiving the described second the second hole section for patching section, wherein first hole section is sized to allow for described second Patch section to move freely in first hole section along the direction of insertion, and make it that described first patches section and first hole Tight fit between section.

5. bone conduction earphone according to claim 4, it is characterised in that second hole section is dimensioned so that institute State second and patch tight fit between section and second hole section ; And/or described first patch section both sides and connect with first hole section The shape of tactile contact surface is

Brief description of the drawings

Fig. 1 is the structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 2 is that bone conduction earphone overall structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 3 is another structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 4 is the cross section structure schematic diagram of A-A in Fig. 3 ;

Fig. 5 is that bone conduction earphone part-structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 6 is the cross section structure schematic diagram of C-C in Fig. 5 ;

Fig. 7 is circuit diagram in the utility model bone conduction earphone embodiment ;

Fig. 8 is the structural representation of the 4th housing in the utility model bone conduction earphone embodiment ;

Fig. 9 is that bone conduction earphone Plug Division is illustrated with patching pore structure amplification in the utility model bone conduction earphone embodiment Figure ;

Figure 10 is Plug Division and jointing holes cross section structure schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 11 is jointing holes structural representation in the utility model bone conduction earphone embodiment ;

Figure 12 is Plug Division structural representation in the utility model bone conduction earphone embodiment ;

Figure 13 is Fig. 9 B-B cross section structure schematic diagram ;

Figure 14 is that bone conduction earphone another part structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 15 is Figure 14 part-structure schematic cross-section ;

Figure 16 is control circuit component structure diagram in the utility model bone conduction earphone embodiment ;

Figure 17 is another structural representation of control circuit component in the utility model bone conduction earphone embodiment.

Embodiment

different ; And/or the fluting is arranged at described second and patched in section.

6. bone conduction earphone according to claim 5, it is characterised in that described first, which patches section and described second, patches section The stepped setting in bottom surface and patch section described first and second junction for patching section is provided with the first wedge-shaped mistake Section is crossed, and the junction of first hole section and second hole section is provided with corresponding with the described first wedge-shaped changeover portion Two wedge-shaped changeover portions ; And/or the rear hanging component further comprises by the second wire group of second resilient coating cladding, The both ends of wherein described second wire group are exposed from second resilient coating, and the top surface of the Plug Division is provided with for accommodating The groove of sunkening cord of the exposed parts of the second wire group.

7. bone conduction earphone according to claim 1, it is characterised in that the 4th housing is set in prism-shaped, wherein Draw sound hole in the bar shaped that is at least provided with one side of the 4th housing, wherein length direction and the institute of sound hole are drawn in the bar shaped The bottom surface for stating the 4th housing be arranged in parallel, and the bar shaped draws the length of sound hole not less than the width of the side where it 2/3rds.

8. bone conduction earphone according to claim 1, it is characterised in that for accommodating the ear-hang of the control circuit component Button perforate and the storage tank connected with the button perforate, the control circuit component bag are provided with 3rd housing of component Circuit board, the switch being fixed on the circuit board, waterproof liner and button are included, wherein the button is arranged at the button In perforate and exposed through the button perforate, the waterproof liner includes liner plate main body and is coated on the lining with injection molding manner The 3rd resilient coating in plate main body, the waterproof liner be arranged in the storage tank and the 3rd resilient coating with it is described The sidewall elastomer of storage tank abuts, the button and it is described switch the both sides that are respectively arranged at the waterproof liner and respectively with institute State waterproof liner abutting ; And/or

The through hole is covered formed with through hole, first resilient coating on second housing,

Refering to Fig. 1 and Fig. 2, the utility model bone conduction earphone embodiment includes ear-hang component 11, and ear-hang component 11 includes First housing 111, the second housing 112 and the connection member 113 of the first housing 111 of connection and the second housing 112, wherein connecting Part 113 connects the first elastic metallic yarn 1131 of the first housing 111 and the second housing 112 including both ends and is coated on respectively The first resilient coating 1132 on first elastic metallic yarn 1131.

Typically, bone conduction earphone also includes the elements such as bone-conduction speaker, battery, control circuit, such as osteoacusis is raised one's voice Device is used to export sound to user by vibration in a manner of osteoacusis.Battery is used to give bone conduction earphone each power elements.Control Circuit processed is used to control bone conduction earphone function such as realizing regulation volume, switching on and shutting down, play audio and bluetooth communication.

Ear-hang component 11 is generally used for user and is hung on its ear when wearing bone conduction earphone, can so make osteoacusis ear Machine is more firmly worn on the ear of user.Ear-hang component 11 needs to have good resistance to compression and non-deformability, so as to User is not easy to damage or cause its deformation by bone conduction earphone when in use.

In the present embodiment, connection member 113 can directly contact ear and support bone conduction earphone by people's the ear portion, even Relay part 113 includes the first elastic metallic yarn 1131 and the first resilient coating being coated on the first elastic metallic yarn 1131 1132, the first housing 111 and the second housing 112 are connected by the first elastic metallic yarn 1131, can effectively strengthen osteoacusis ear The bending performance and structural stability of machine, ear-hang component 11 is set effectively to carry out elastic recovery when being bent and extensive Shape is restored, is unlikely to deform.In addition traditional bone conductors earphone can be improved using the first elastic metallic yarn 1131 and uses plastics conduct The problems such as fragile caused by the material of ear-hang component.Optionally, connection member 113 can include more first elasticity gold Belong to silk 1131, such as more the first tiny elastic metallic yarns 1131 can be set further to improve the curved of ear-hang component 11 Folding reliability, such as 3 first elastic metallic yarns 1131 of setting, the diameter 0.3mm of every first elastic metallic yarn 1131, now The material of 3 first elastic metallic yarns can with it is identical can also part it is identical or all different, every first elasticity gold certainly Belong to silk 1131 diameter can also identical, part it is identical or all different.

In the present embodiment, optionally, the first elastic metallic yarn 1131 can be metal simple-substance, or and further in the through hole Top and further comprise button and switch formed with button holding part, the ear-hang component away from the side of second housing Component, wherein the button is arranged in the button holding part, the switch module is arranged at second housing away from institute The side of the first resilient coating is stated, and is abutted with first resilient coating below the button.

9. bone conduction earphone according to claim 1, it is characterised in that first housing and the second housing are respectively with note Modeling mode is fixedly connected with the both ends of first elastic metallic yarn, and first resilient coating is fixed with injection molding manner and is coated on On first elastic metallic yarn, the Plug Division is individually fixed in the second elastic metallic yarn both ends with injection molding manner ; With/ Or, first elastic metallic yarn is at least made up of titanium alloy material, second elastic metallic yarn is at least by titanium alloy material It is made.

10. bone conduction earphone according to claim 1, it is characterised in that the inside of first resilient coating is further The lead channels for connecting first housing and second housing are provided with, the ear-hang component further comprises from institute State the first wire group that the first housing extends to second housing through the lead channels, the radial dimension of the lead channels It is arranged to allow the first wire group to move along the lead channels, the first wire group is used to electrically connect the osteoacusis Loudspeaker and the battery component or the control circuit component.

including more The alloy material of kind metal material, such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium close Gold, chrome-molybdenum steel etc. or the composite including metal material and nonmetallic materials.Optionally, the first elastic metallic Silk 1131 is titanium alloy wire, or is at least made up of titanium alloy material, such as a diameter of 0.8-1.5mm titanium alloy wire, optional For 1.0-1.25mm.

In the present embodiment, the first resilient coating of outer cladding 1132 of the first elastic metallic yarn 1131, the first resilient coating 1132 directly contact with ear, because the elastic reaction of the first resilient coating 1132 enables to user easily to wear bone Conduct earphone.In addition, the first resilient coating 1132 can more effectively coat the first elasticity gold due to the presence of its elastic reaction Belong to silk 1131, remain to effectively coat the first elastic metallic yarn 1131 even in after repeatedly bending, ensure bone conduction earphone knot The validity of structure.Optionally, the first resilient coating 1132 is layer of silica gel, certainly in other embodiments, the first resilient coating 1132 can also be emulsion layer either rubber layer or other flexible plastic layers, or be the composite comprising silica gel Layer.

Optionally, the first housing 111 and the second housing 112 are respectively with injection molding manner and the first elastic metallic yarn 1131 Both ends are fixedly connected, and the first resilient coating 1132 is fixed with injection molding manner and is coated on the first elastic metallic yarn 1131.Optionally It is that the first housing 111 and the second housing 112 are plastic casing, and the first elastic metallic yarn is fixed in a manner of injection molding 1131 both ends, and the first resilient coating 1132 are integrally formed on the first elastic metallic yarn 1131 of cladding, so that the Connection between one housing 111, the second housing 112 and the first elastic metallic yarn 1131 is more firm, and causes bone conduction earphone One body-sensing is stronger with texture, makes the more compact structure of bone conduction earphone lighter.In the present embodiment, injection molding manner can be note The one kind being moulded into type, thermoplastic shaping, compression molding etc., but not limited to this.

Refering to Fig. 3 and Fig. 4, optionally, the first resilient coating 1132 by different colours two sub- resilient coatings 1132a, 1132b are put together, and two of which elastic coating 1132a, 1132b split seam are located at connection member 113 respectively Be oppositely arranged two sides 113a, 113b on, wherein split is sewn on the throwing for example on lateral surface 113a on same side Shadow offsets one from another.Such as when carrying out injection molding, two bullets using at least two molds to the first resilient coating 1132 Property coating 1132a, 1132b are molded respectively, the two kinds of colors that thus can form different ratio be, for example, light gray with it is dark-grey The combination of

color or other colors, and split seam is located on two sides 113a, 113b that connection member 113 is oppositely arranged, and Projection offsets one from another on same side so that the visual effect of bone conduction earphone more preferably, further as staggering coats the first bullet Property wire 1131 cause covered effect it is more preferable.Certain first resilient coating 1132 elastic can also be covered by two of same color Layer is put together.By injection molding twice, formation two is elastic on two sides 113a, 113b of connection member 113 respectively Coating 1132a, 1132b, due to the presence of injection pressure when can improve single injection-molded or be injected separately shaping up and down Easily causing element such as the first elastic metallic yarn 1131 in the first resilient coating 1132 to produce displacement reduces connection member 113 Forming Quality.Certainly, in other embodiments, the first resilient coating 1132 can directly form a coating, or be formed The more than two elastic coating of quantity.

In the present embodiment, the two sides of connection member 113 include being oppositely arranged medial surface 113b and lateral surface 113a, are Refer to the ear-hang component 11 when wearing and be hung on human ear, connection member 113 towards the side of head part be medial surface 113b, towards human ear Side be lateral surface 113a.

With continued reference to Fig. 3 and Fig. 4, optionally, two sub- resilient coating 1132a, 1132b split seam are respectively positioned at company On the medial surface 113b and lateral surface 113a of relay part 113, and the split seam on the lateral surface 113a of connection member 113 The projection compared to the split seam on the medial surface 113b of connection member 113 is projected closer to connection member 113 and human ear Contact position.It can thus be appreciated that a split seam is located at the position of lateral surface 113a close contact human ear, and another is spelled Elastic coating 1132a that joint close is located at medial surface 113b almost to show same color on lateral surface 113a or 1132b, such as lateral surface 113a almost show light gray so that the body-sensing of bone conduction earphone one is stronger, more attractive in appearance.

Optionally, split seam is arranged so that two sub- resilient coating 1132a, 1132b in same side such as 113a Or the area on 113b is different from each other.In other embodiments, split seam may be arranged so that two sub-resilient coatings The area of 1132a, 1132b on same side is identical or is substantially the same.

Refering to Fig. 2 to Fig. 4, optionally, the color for being arranged so that two sub- resilient coating 1132a, 1132b is stitched in split Relatively shallower elastic coating 1132a footprint areas on lateral surface 113a are relatively large.That is, the elastic of light colour is covered Layer 1132a is more located at lateral surface 113a, and the elastic coating 1132b of dark colour is more located at

medial surface 113b, so So that the surface of connector 113 has more harmony, strengthen the aesthetic properties of bone conduction earphone while structural behaviour is ensured.

With continued reference to Fig. 1, optionally, the both ends of the first elastic metallic yarn 1131 set in flat and are respectively embedded into One housing 111 and the second housing 112.Namely formed and be fixed in a manner of injection in the first housing 111 and the second housing 112 First elastic metallic yarn 1131 is in the both ends that flat is set, and can so increase the first elastic metallic yarn 1131 and the first housing 111st, the contact area of the second housing 112 so that the first elastic metallic yarn 1131 and the first housing 111, the second housing 112 are more steady Surely interfix.Optionally, it should be in flat that the first elastic metallic yarn 1131 is more than connection in the width at the both ends of flat setting The width of the coupling part at the flat both ends set, so plays a spacing effect after shaping, prevents the first elasticity gold Category silk 1131 is pulled out or come off from the first housing 111, the second housing 112.Optionally, first elastic metallic yarn 1131 Both ends are set in shape of threads.In shaping, partial shell can be taken shape in screw thread, to play fixed effect.Certainly, first The both ends of elastic metallic yarn 1131 can be set in flat and shape of threads respectively.In other embodiments, the first elasticity gold Category silk 1131 both ends can partly be located at indent to form depressed part, the first housing 111 and the second housing 112 in shaping in depressed part, to play fixation.

Refering to Fig. 1 and Fig. 2, optionally, the first resilient coating 1132 further coats the first housing 111 and the second housing 112 at least part outer surface, such as whole outer surfaces.I.e. the first resilient coating 1132 coats first in a manner of injection molding Elastic metallic yarn 1131, at least part outer surface of the first housing 111, at least part outer surface of the second housing 112, so make It is stronger to obtain texture and the body-sensing of bone conduction earphone, and the presence of the first resilient coating 1132, can further containment vessel The element of body and enclosure interior so that bone conduction earphone is more resistant to abrasion.

Refering to Fig. 5 and Fig. 6, optionally, formed with through hole 1121 on the second housing 112.I.e. through hole 1121 runs through second The medial surface and lateral surface of housing 112.First resilient coating 1132 cover through hole 1121 and further above through hole 1121 and Side away from the second housing 112 (i.e. the medial surface away from the second housing 112) is formed with button holding part 1121a.Button holds The portion 1121a of putting is to be covered through hole 1121 in injection moulding process by the first resilient coating 1132 and formed, in button holding part 1121a Because the presence of the first resilient coating 1132 is can to completely cut off moisture content, dust etc. to enter 112 in second shell body.Ear-hang component 11 enters One step includes

button 118 and switch module 119, and wherein button 118 is arranged in button holding part 1121a.Switch module 119 is set Be placed in the second housing 112 away from the first resilient coating 1132 side, i.e. the second housing 112 medial surface, and with button 118 First resilient coating 1132 of lower section abuts.Optionally, a boss 1121b, button are provided with button holding part 1121a 118 are fixed in a manner of for example pasting on boss 1121b.In the present embodiment, because the first resilient coating 1132 is with injection Mode, which is fixed, to be coated on second shell body 112, and covers through hole 1121, has more preferable waterproof effect.Optionally, boss 1121b is integrally formed when the first resilient coating 1132 covers through hole 1121 and formed by the first resilient coating 1132.

In the present embodiment, the switch module 119 on the second housing 112 is mainly used for controlling the function of bone conduction earphone Switch, such as broadcasting and the pause of music, voice are answered with hanging up, connecting wireless signal to be connected mobile device such as bluetooth Communication, or the selection etc. of bone conduction earphone mode of operation, not limited to this.

Refering to Fig. 1, Fig. 2, Fig. 4 and Fig. 7, optionally, the inside of the first resilient coating 1132 is further provided with being used for The lead channels 1134 of the first housing 111 and the second housing 112 are connected, ear-hang component 11 further comprises from the first housing 111 The first wire group 1133 of the second housing 112 is extended to through lead channels 1134, the radial dimension of lead channels 1134 is arranged to The first wire group 1133 is allowed to be moved along lead channels 1134.

By setting lead channels 1134, such as first the one end of the first wire group 1133 can be connected when assembling in the later stage Element such as bone-conduction speaker in (such as in a manner of onboard) second housing 112, then the first wire group 1133 is another Hold through lead channels 1134 with connect the first housing 111 in element such as battery component 13, control circuit component 14 or Switching circuit board 15 etc., packaging technology can be so reduced, and existing bone conduction earphone can be improved in the first resilient coating 1132 that wiring is embedded to caused by the first wire group 1133 in injection molding is difficult and the problems such as be unfavorable for later period maintenance.When So, the one end of the first wire group 1133 first can also be connected into (such as in a manner of onboard) first housing 111 when assembling in the later stage Interior element such as battery component 13, control circuit component 14 or switching circuit board 15, then the first wire group 1133 is another Hold through lead channels 1134 to connect the element in the second housing 112 such as bone-conduction speaker.

In the present embodiment, 1134 specific molding mode of lead channels for example including providing one first elasticity gold first Belong to the first housing 111 of the connection of silk 1131 and the component of the second housing 112, further in the second housing 112 and the first housing 111 Between additional metal silk (not shown) is removably set, further in the first elastic metallic yarn 1131, additional gold Belong to silk and the partial outer face of the first housing 111 and the second housing 112 and first resilient coating 1132 is formed with injection molding manner, into Additional metal silk is extracted after type to form lead channels 1134.In other embodiments, such as the first resilient coating 1132 is molded During shaping, be embedded to easily melting property material, in the first 1132 injection molding of resilient coating, this easily melting property material melts and flow out, shape Into lead channels 1134.In another example lead channels 1134 can be after the shaping of the first resilient coating 1132, by way of threading a needle Passage is formed, then expands passage by way of hot melt and forms lead channels 1134.

With continued reference to Fig. 1 and Fig. 4, in the present embodiment, optionally, lead channels 1134 are arranged at the first elastic metallic The downside of silk 1131, with when in use compared to contact of first elastic metallic yarn 1131 closer to connection member 113 with human ear Position.In the present embodiment, the first lead channels 1134 are independently arranged with the first elastic metallic yarn 1131 interval.In other implementations In example, the first lead channels 1134 can merge setting with the first elastic metallic yarn 1131, i.e., the first wire group 1133 is first The first elastic metallic yarn 1131 is can contact in lead channels 1134.In the present embodiment, lead channels 1134 are arranged at the first bullet The downside of property wire 1131, with when in use compared to the first elastic metallic yarn 1131 closer to connection member 113 and human ear Contact position, due to the presence of lead channels 1134, can make it that the first resilient coating 1132 close to human ear is more elastic It is softer, wear more comfortable.In other embodiments, certain first lead channels 1134 can also be arranged on the first elasticity The upside of wire 1131, the first elastic metallic yarn 1131 is closer to human ear when in use.

Refering to Fig. 1, Fig. 2 and Fig. 3, optionally, ear-hang component 11 includes the 3rd housing 114 and the 4th housing 115.Wherein 3rd housing 114 coordinates with the first housing 111, to form the first appearance for being used for housing battery component 13 or control circuit component 14 116 between being empty.4th housing 115 coordinates with the second housing 112, is used for the second accommodating sky for housing bone-conduction speaker to be formed Between 117.Optionally, the 4th housing 115 and the 3rd housing 114 are plastic casing.

Optionally, the second housing 112 is connected with the 4th housing 115 by the first snap component (not marking),

the first card Searning element includes the first holding section and the first buckling parts, and the first holding section is arranged on the 4th housing 115, and the first buckling parts is set It is placed on the second housing 112, when the second housing 112 and the 4th housing 115 coordinate, the first holding section card on the 4th housing 115 Enter the first buckling parts of the second housing 112, the second housing 112 is fixed together with the 4th housing 115.Optionally, Two housings 112 are attached with the 4th housing 115 by least one set of first snap component such as 4 group of first snap component.When Right second housing 112 can also be bonded with the 4th housing 115 by glue, or be made simultaneously with glue by the first engaging component It is connected with being fixed, or by fasteners such as screws.

Optionally, the 3rd housing 114 is connected with the first housing 111 by the second snap component (not marking), the second card Buckle assembly includes the second holding section and the second buckling parts, and the second holding section is arranged on the 3rd housing 114, and the second buckling parts is set Put on the first housing 111, when the first housing 111 and the 3rd housing 114 coordinate, the second holding section card of the 3rd housing 114 Enter the second buckling parts of the first housing 111, the first housing 111 is fixed together with the 3rd housing 114.

In the present embodiment, the 3rd housing 114 of ear-hang component 11 coordinates with the first housing 111, is used to house to be formed First accommodation space 116 of battery component 13 or control circuit component 14, the 4th housing 115 coordinates with the second housing 112, with shape into the second accommodation space 117 for housing bone-conduction speaker, the first wire group 1133 can move through lead channels 1134 are used to electrically connect bone-conduction speaker and battery component 13 or control circuit component 14.In the present embodiment, battery component 13 for example including battery and battery management circuit, and battery is that bone conduction earphone miscellaneous part is supplied by battery management circuit Electricity, such as battery management circuit include charging circuit, current foldback circuit, over-discharge protection circuit, overvoltage crowbar etc..Such as Battery is rechargeable battery, for example, lithium battery.Refering to Fig. 7, optionally, bone conduction earphone, which still further comprises, for example transfers Circuit board 15, it is arranged in the first accommodation space 116, battery component 14 is divided into multiple wiring solder joints by switching circuit board 15, With two bone-conduction speakers, control circuit component 14, microphone and the switch module of corresponding connection bone conduction earphone 119 etc., said elements associated tracks are connected with above-mentioned wiring solder joint and turned on by Fig. 7 modes, are easy to wiring and assembling.Such as electricity Pond component 14 connects switching circuit

board 15 by two wiring solder joints of both positive and negative polarity, and switching circuit board 15 separates 10 wiring welderings Point, to connect the miscellaneous part of bone conduction earphone.

Refering to Fig. 1 and Fig. 2, optionally, the first sub-accommodation space 116a, the 3rd housing are provided with the first housing 111 The second sub-accommodation space 116b is provided with 114, and it is accommodating with the first son when the 3rd housing 114 and the first housing 111 coordinate Space 116a is collectively forming the first accommodation space 116, such as is fixedly connected by the first snap component.Wherein second son holds The volume for being empty a 116b is more than the first sub-accommodation space 116a.Such as second sub-accommodation space 116b volume be first son hold It is empty 2-5 times of a 116a, for example, 3-4 times, for example, 3.2 times, or for example, 2.5 times.

In assembled battery component 13 or control circuit component 14, such as first by battery component 13 or control circuit component 14 are placed in the first sub-accommodation space 116a, for example, battery by glue material or sticking double faced adhesive tape in the first sub- accommodation space In 116a, or control circuit component 14 is fixed in the first sub- accommodation space 116a by snap-in structure so that battery component 13 or control circuit component 14 it is most of exposed, be easy to the techniques such as assembling and wiring, then the 3rd housing 114 is passed through into the second card Buckle assembly covers with the first housing 111, and the first sub- sub- accommodation space 116b of accommodation space 116a and second form the first accommodating sky Between 116, so improving traditional bone conductors earphone needs to assemble battery or control board and be contained in and ear-hang one In the housing of shaping and further battery control circuit plate exterior section is affixed on using silica gel strip to carry out coating caused assembling The problem of complex procedures, simplify structure and assembling procedure.

Refering to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in prism-shaped, wherein in the 4th housing 115 at least Bar shaped is provided with one side and draws sound hole 1151, the length direction of sound hole 1151 and the bottom surface of the 4th housing 115 are drawn in wherein bar shaped It is parallel or be arranged substantially in parallel, and bar shaped draw sound hole 1151 length be not less than side where it width three/Two.In the present embodiment, bar shaped draws the relatively parallel bottom surface 115e of sound hole and refers to that the 4th housing 115 is towards human body face when wearing Plane defined in the edge of opening of the one side in portion.

Typically, bone-conduction speaker peritropous environment of meeting during vibration transmits sound, in addition to wearer, ring Other people in border can also hear

that the sound of loudspeaker, such as the vibration of bone-conduction speaker cause the second accommodation space 117 The vibration of interior air and the vibration for causing the grade of the 4th housing 115, so as to occur leaking sound phenomenon, the sound of bone conduction earphone can be influenceed Matter.It is to propagate to the sound wave guiding in the second accommodation space 117 outside space to draw sound hole 1151, with leakage speech ripple with atmosphere Propagation interferes, and so as to reduce the amplitude of Lou speech ripple, reduces leakage sound.

With continued reference to Fig. 8, in order to further improve leakage sound phenomenon, the present embodiment passes through at least the one of the 4th housing 115 Side sets bar shaped to draw sound hole 1151, and is appropriately arranged with its size and direction improves the leakage sound that traditional bone conductors earphone belt comes and showed As still than it is more serious the problem of.Further, bar shaped is drawn the length direction of sound hole 1151 and parallel with the bottom surface of the 4th housing 115 set Put, can not only ensure attractive in appearance, and the uniformity of the intensity of acoustic wave through directed parallel, so as to ensure interference effect.In this reality Apply in example, bar shaped draw sound hole 1151 length be not less than side where it width 2/3rds, can effectively guide the Sound wave in two accommodation spaces 117.Be chosen as, bar shaped draw sound hole 1151 length be its where side width four/ Three.Certainly, in other embodiments, wherein being at least set side by side with least two articles of bar shapeds on one side in the 4th housing 115 Draw sound hole 1151, such as setting two parallel bar shapeds to draw sound hole 1151 at least on one side, and with the bottom of the 4th housing 115 Face 115e is parallel.

Optionally, the 4th housing 115 bone conduction earphone using when side 115d close to human ear on be not provided with bar shaped Draw sound hole 1151.Certainly, in other embodiments, can also the 4th housing 115 when bone conduction earphone uses close to human ear Side 115d on set draw sound hole, can be that point type draws sound hole, or sound hole 1151 is drawn in bar shaped.

With continued reference to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in quadrangular shape, wherein in the 4th housing 115 Bar shaped, which is provided with, on two sides 115a, 115c being disposed adjacent with connection member 113 draws sound hole 1151, further remaining two In individual side 115b, 115d bone conduction earphone using when the side 115b away from human ear equally set bar shaped to draw sound hole 1151, and in remaining two sides 115b, 115d bone conduction earphone using when side 115b close to human ear on do not set Put bar shaped and draw sound hole 1151.Namely set three bar shapeds to draw sound hole 1151 on three sides 115a, 115b, 115c, passed in bone Guide lug machine using when be not provided with bar shaped close to the

side 115d of human ear and draw sound hole 1151, so can further reduce Lou sound and show As ensureing the tonequality of bone conduction earphone.

In the present embodiment, the 4th housing 115 is set in quadrangular shape, such as including four-prism and class quadrangular Shape.Such as specifically, two sides 115a, 115c being disposed adjacent with connection member 113 of the 4th housing 115 any one side The length in face is all higher than the length of remaining two sides 115b, 115d any one side, further, the 4th housing 115 It is unequal or equal with two sides 115a, 115c that connection member 113 is disposed adjacent length.In other embodiment In, the 4th housing 115 is set in quadrangular shape, and the length of its four sides can be equal.

In the present embodiment, optionally, two sides being disposed adjacent with connection member 113 of the 4th housing 115 Angle between 115a, 115c is 90 ° -150 °, is chosen as 100 ° -130 °, is chosen as 110 ° -120 °.

Optionally, it is further provided with covering the water proof and dust proof filter screen that sound hole 1151 is drawn in bar shaped, example in the 4th housing 115 Such as waterproof ventilated membrane (not shown).Water proof and dust proof filter screen is set, can prevent the dust outside bone conduction earphone and waterproof bone from passing The water inlet of guide lug machine enters damage bone-conduction speaker.

In the present embodiment, a microphone aperture (not shown) is respectively arranged with the second housing 112 and the 4th housing 115, Specifically, the first microphone aperture be arranged on the not direct remaining two sides 115b being connected with connection member 113 of the 4th housing 115, 115d junction, second microphone hole are arranged on the lateral surface of the second housing 112 and close to the 4th housing 115 and connection members 113 junction.By setting two microphones in the microphone aperture of two stagger settings, phonetic entry matter can be strengthened Amount, and effective Noise Reduction is played, thus improve the definition of phonetic entry.

Refering to Fig. 2 and Fig. 9, in the present embodiment, the quantity of ear-hang component 11 is two, and bone conduction earphone further wraps include rear hanging component 12.Hanging component 12 includes the second elastic metallic yarn 121, second be coated on the second elastic metallic yarn 121 afterwards Resilient coating 122 and the Plug Division 123 for being arranged at the both ends of the second elastic metallic yarn 121.Plug Division 123 respectively with two ear-hangs First housing 111 of component 11 patches cooperation, and is fixedly connected.Optionally, Plug Division 123 is fixed on second with injection molding manner The both ends of elastic metallic yarn 121, Plug Division 123 can be so set more securely to be fixed on the both ends of the second elastic metallic yarn 121. Optionally, the second elastic metallic

yarn 121 can be metal simple-substance, or include the alloy material of various metals material, Such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium alloy, chrome-molybdenum steel etc. or bag include metal material and the composite of nonmetallic materials.In the present embodiment, the second elastic metallic yarn 121 is titanium alloy wire, or Person is at least made up of titanium alloy material.In the present embodiment, the second resilient coating 122 is layer of silica gel.In other embodiment mode In, the second resilient coating 122 can also be rubber layer or emulsion layer, or the composite layer including silica gel.

Cany out patching cooperation by the Plug Division 123 of rear hanging component 12 and the first housing 111 of two ear-hang components 11, change It has been apt to the problems such as earphone size that existing bone conduction earphone is brought using the fixed form such as screw is larger, so as to simplify structure, Mitigate the weight of bone conduction earphone, facilitate later stage wiring and cost can be reduced.

Refering to Fig. 9 and Figure 10, optionally, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111 and the vertical direction connection jointing holes 1111 of direction of insertion in Plug Division 123 and the perforate 1112 of outside, To allow into jointing holes 1111 to apply from the outside through perforate 1112 glue or installation stopper (not shown), to cause Plug Division 123 are fixed in the presence of glue or stopper in jointing holes 1111.In this embodiment, perforate 1112 is positioned at the described first son In accommodation space 116a.In other embodiments, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111, there is a recess on Plug Division 123, there is a resilient projection in jointing holes 1111, Plug Division 123 is inserted and patched During hole 1111, resilient projection is caught in recess, and Plug Division 123 and jointing holes 1111 are coordinated into fixation.Such as Plug Division 123 is inserted During jointing holes 1111, resilient projection is first extruded, after be caught in the presence of elastic restoring force in recess.Optionally, patch The depth that portion 123 inserts jointing holes 1111 is 6-11mm, is chosen as 8-10mm.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is provided with the side wall of Plug Division 123.The warp of fluting 1231 Perforate 1112 is exposed or part is exposed, and for receiving glue or stopper.Optionally, Plug Division 123 is at least one It is provided with side wall on fluting 1231, such as two side walls and is provided with fluting 1231.In other embodiments, can make simultaneously With glue and stopper, such as first fixed using stopper, then apply glue and further fix.In the present embodiment, stopper E.g. chock or pin or the fixture insertion fluting 1231 with certain elasticity is interference fitted.

Refering to Fig. 2, Fig. 9 and Figure 10, optionally, Plug Division 123 includes first be connected with the second elastic metallic yarn 121 Patch section 123a and patch section 123a with first and be connected and second patch section away from what the second elastic metallic yarn 121 was set 123b.Direction of insertion of the jointing holes 1111 along Plug Division 123 is divided into for receiving the first the first hole section for patching section 123a 1111a and the second hole section 1111b that section 123b is patched for reception second.Wherein the first hole section 1111a is sized to permit Perhaps second patch section 123b and moved freely along direction of insertion in the first hole section 1111a, and cause first to patch section 123a and the Tight fit between one hole section 1111a.Section and both ends hole section are patched by two sections to be respectively cooperating with fixing, and can cause Plug Division 123 are more securely fixed in the first housing 111, strengthen the structural stability of bone conduction earphone.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is further disposed at the second side wall for patching section 123b. Perforate 1112 connects the second hole section 1111b of jointing holes 1111.In the present embodiment, a section 123b is patched in Plug Division 123 second The first hole section 1111a and the second hole section 1111b is passed sequentially through, so that first patches section 123a and the first hole section 1111a close-fittings Close, second patch section 123b fluting 1231 it is exposed through perforate 1112, for receiving glue or stopper.Connect by first insert section 123a and the first hole section 1111a tight fit and the second jointing holes 1111 and the second hole section 1111b further cooperation It is fixed, effectively rear extension can be fixedly connected with ear-hang.In other embodiments, fluting 1231 can be arranged on first and patch In section 123a side wall.Perforate 1112 connects the second hole section 1111b of jointing holes 1111.

Optionally, the second hole section 1111b be dimensioned so that second patch section 123b and the second hole section 1111b it Between tight fit.Thus by the first tight fit, the second jointing holes 1111 and the second hole for patching section 123a and the first hole section 1111a Section 1111b tight fit and the glue of application or stopper are fixed, and effectively further hang by after and are fixed with ear-hang Connection, and structure can be simplified, make bone conduction earphone lighting.Certainly, in other embodiments, first section 123a and are patched Tight fit between one hole section 1111a, and second to patch section 123b and the second hole section 1111b can be other kinds of secure fit Such as it is clasped.

Refering to Figure 11, optionally, first patches the shape of section 123a both sides and the first hole section 1111a contact surfaces contacted It is different.First patches section 123a both sides shape difference, and accordingly the first hole section 1111a patches what section 123a

was contacted with first 1111a1,1111a2 are also different for two sides.For example, the curved setting in the first hole section 1111a two sides, medial surface 1111a2 Radius of curvature be more than lateral surface 1111a1 radius of curvature, namely medial surface 1111a2 radian change is relatively slow, and outer Side 1111a1 radian change is relatively large, and first patches section corresponding setting in 123a two sides.Certainly, in other embodiment In, the first hole section 1111a curved setting in two sides, medial surface 1111a2 radius of curvature is less than lateral surface 1111a1's Radius of curvature, namely medial surface 1111a2 radian change are relatively large, and the change of lateral surface 1111a1 radian is relatively small. First hole section 1111a two sides are medial surface 1111a2 close to human body head when wearing, and are outer away from human body head Side 1111a1.First patches the shape difference of section 123a both sides and the first hole section 1111a contact surfaces contacted so that first connects Insert section 123a and be unable to anti-plug, and two Plug Divisions 123 are hung from mixed insertion after also causing, play effective fool proof effect, facilitate group Dress.

Refering to Fig. 9 and Figure 10, optionally, first, which patches section 123a and second, patches section 123b bottom surface and stepped sets Put and patch section 123a first and the second junction for patching section 123b is provided with the first wedge-shaped changeover portion 123c, and the first hole Section 1111a and the second hole section 1111b junction is provided with the second wedge-shaped changeover portion corresponding with the first wedge-shaped changeover portion 123c 1111c。

In the present embodiment, first section 123a is patched and the second bottom surface for patching section 123b refers to when wearing close to human ear The one side of root.Top surface is then the one side away from people's the ear portion.

In the present embodiment, first patch section 123a thickness and be greater than the second thickness for patching section 123b and i.e. stepped set Put, there is thickness difference in both junctions, and set the first wedge-shaped changeover portion 123c, it is corresponding in the first hole section 1111a and Second hole section 1111b junction sets the second wedge-shaped changeover portion 1111c being adapted with the first wedge-shaped changeover portion 123c, the One patches section 123a and second when patching a section 123b and being sequentially inserted into the first hole section 1111a and the second hole section 1111b, the first wedge-shaped mistake Cross section 123c and the second wedge-shaped changeover portion 1111c to abut against, second can be facilitated to patch section 123b and first and patch section 123a's Insertion, and play a part of buffering transition, spacing and further fixation.

Refering to Fig. 9, Figure 12 and Figure 13, optionally, rear hanging component 12 further comprises being wrapped by the second resilient coating 122 The the second wire group 124 covered, wherein the both ends of the second wire group 124 are exposed from the second resilient coating 122, the top of Plug Division 123 Face is provided with the groove 1232 of sunkening cord of the exposed parts for accommodating the second wire group 124.In the present embodiment, the second wire group 124, for connecting the element in two ear-hang components 11 such as connecting battery and control circuit component 14.Setting is sunken cord groove 1232, the second wire group 124 on the one hand effectively can be arranged and fixed, on the other hand can reduce volume In other embodiment In, groove 1232 of sunkening cord can also be not provided with, and by other means enter the second wire group 124 such as glue or double faced adhesive tape Row is fixed, or the top surface of Plug Division 123 is provided with the projection (not shown) that two rows are set up in parallel, and can be held between two row's projections Receive the second wire group 124.

Refering to Fig. 2, optionally, bone conduction earphone further comprises battery component 13 and control circuit component 14, wherein Battery component 13 is arranged at the first accommodation space 116 of one of two ear-hang components 11, and control circuit component 14 is arranged at In first accommodation space 116 of the other of two ear-hang components 11.

Refering to Figure 14 and Figure 15, optionally, the 3rd housing of the ear-hang component 11 for accommodating control circuit component 14 Button perforate 1141 and the storage tank 1142 connected with button perforate 1141 are provided with 114, control circuit component 14 includes electricity Road plate 141, the switch 142 being fixed on circuit board 141, waterproof liner 143 and button 144, wherein button 144 be arranged at by In key perforate 1141 and exposed through button perforate 1141, waterproof liner 143 includes liner plate main body 143a and with injection molding manner bag The 3rd resilient coating 143b overlayed on liner plate main body 143a, waterproof liner 143 is arranged in storage tank 1142 and the 3rd elasticity Coating 143b abuts with the sidewall elastomer of storage tank 1142, and button 144 and switch 142 are respectively arranged at the two of waterproof liner 143 Side and abutted respectively with waterproof liner 143.In this embodiment, the 3rd resilient coating 143b coats liner plate main body 143a one side And liner plate main body 143a edge, at least covered section edge, can also coat whole edges certainly.In other embodiment In, the 3rd resilient coating 143b can coat liner plate main body 143a completely, that is, coat liner plate main body 143a two sides.

In the present embodiment, the switch 142 on circuit board 141 be mainly used for switching on and shutting down, volume adjusting or other out Change function etc..

With continued reference to Figure 14 and Figure 15, the 3rd resilient coating 143b is coated with injection molding manner in the main body of waterproof liner 143, So that the 3rd resilient coating 143b is not easy to come off from the main body of waterproof liner 143, and the 3rd resilient coating 143b and proof liner Compactness between plate main body 143a is more preferable, improves existing bone conduction earphone water resistance, ensures the validity of waterproof.At this In embodiment, liner plate main body 143a can be plastics, and the 3rd resilient coating 143b can be silica gel, latex, rubber or be conjunction into thing.

Optionally, waterproof liner 143 is provided with the locating slot for accommodating switch 142 close to the side of switch 142 1431,.

In the present embodiment, the method for assembly control circuit component 14 for example first by button 144, waterproof liner 143 according to It is secondary to be placed on the 3rd housing 114, and button 144 set it is exposed through button perforate 1141, then circuit board 141 pass through switch 142 And the locating slot 1431 of waterproof liner 143 abuts with waterproof liner 143.By setting locating slot 1431, the essence of switch 142 can be made Location fit accurately is carried out with button 144, so as to pass through effectively Operation switch 142 of button 144.

Refering to Figure 16 and Figure 17, optionally, control circuit component 14 further comprises the day being arranged on circuit board 141 Line 145, antenna 145 include antenna body 145a spaced with circuit board 141 and are connected antenna body 145a and circuit The grounding parts 145b and current feed department 145c of plate 141, wherein when being looked up perpendicular to the side of circuit board 141, antenna body 145a is bent from grounding parts 145b to the side of circuit board 141 to be extended.In the present embodiment, antenna body 145a is to circuit board 141 side bending, the length of antenna 145, Enhanced Radiation Reduced Blast efficiency can be increased in the confined space.In the present embodiment, day Line 145 is generally used for what is communicated wirelessly, such as bluetooth communication.In other embodiments, WiFi communication, honeybee be can also be Nest data communication, NFC etc..

Optionally, antenna body 145a includes parallel portion 145a1 and kink 145a2, perpendicular to circuit board 141 Side looks up, and parallel portion 145a1 width is more than kink 145a2 width, parallel portion 145a1 one end connection grounding parts 145b and current feed department 145c, it is in rank that the other end, which connects kink 145a2, parallel portion 145a1 and kink 145a2 in junction, Scalariform is set, and kink 145a2 is bent from junction to the side of circuit board 141.

Optionally, control circuit component 14 further comprises the grounded parts 146 being arranged on circuit board 141, wherein Antenna body 145a bends extension to the side of

the remote grounded parts 146 of circuit board 141.In the present embodiment, grounded parts 146 be the switch 142 on USB interface and/or circuit, or other grounded parts 146.Typically, such as USB of grounded parts 146 Interface, certain interference can be all caused to antenna 145, in the present embodiment, antenna body 145a connects to the remote of circuit board 141 The side bending extension of ground part 146, can improve interference of the grounded parts 146 to the signal of antenna 145 in the confined space, protect Demonstrate,prove signal quality.In the present embodiment, USB interface can be used in bone conduction earphone and external device such as mobile terminal transmission number According to, it can also be used to charged for battery component 13.

Optionally, bearing of trend of the antenna body 145a width along antenna body 145a tapers into.It is such as specific Ground, the parallel portion 145a1 width width that passes through is constant, kink 145a2 width gradually along bearing of trend by Gradual change is small.Certainly in other embodiments, parallel portion 145a1 width passes through and can tapered into, but parallel Width of the width of portion's 145a1 other ends still greater than kink 145a2.

Optionally, bearing of trend of the antenna body 145a bending angle along antenna body 145a becomes larger.Such as Bending angle becomes larger, usually in order to which remote grounded parts 146 is such as USB, so as to ensure that the radiation of antenna 145 is imitated Rate.Optionally, there is bending pin 145a3, bending angle herein in the one end of kink 145a2 away from parallel portion 145a1 Maximum, on the other hand it is to lift radiation efficiency on the one hand in order to meet the needs of the size of antenna 145.

Embodiment of the present utility model is the foregoing is only, not thereby limits the scope of the claims of the present utility model, it is all It is the equivalent structure or equivalent flow conversion made using the utility model specification and accompanying drawing content, or directly or indirectly uses In other related technical areas, similarly it is included in scope of patent protection of the present utility model.

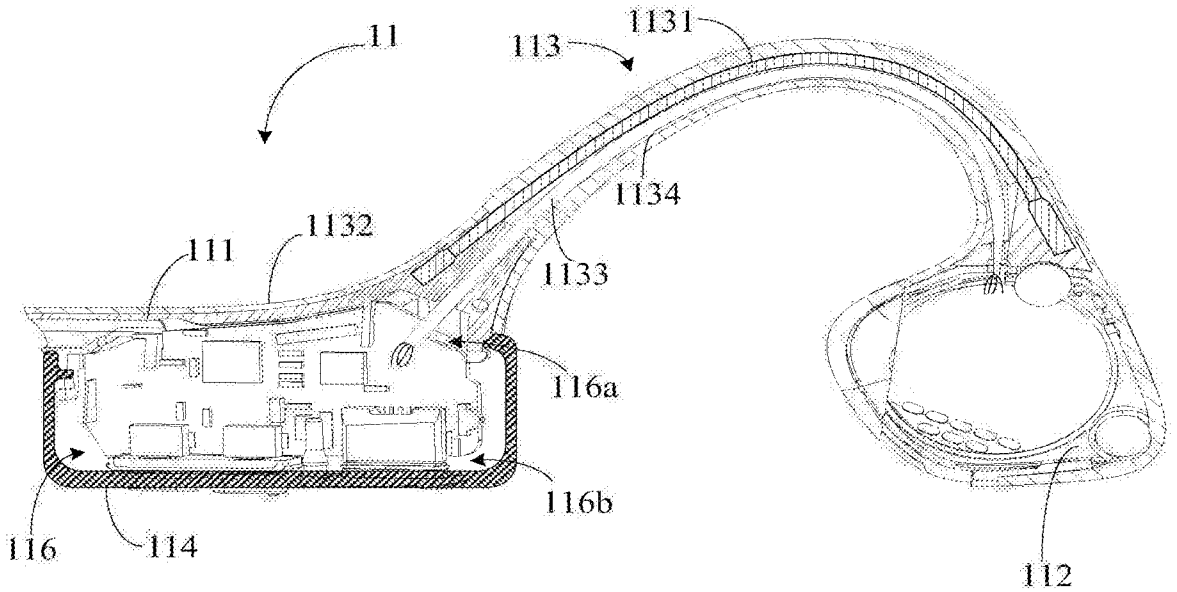


图1

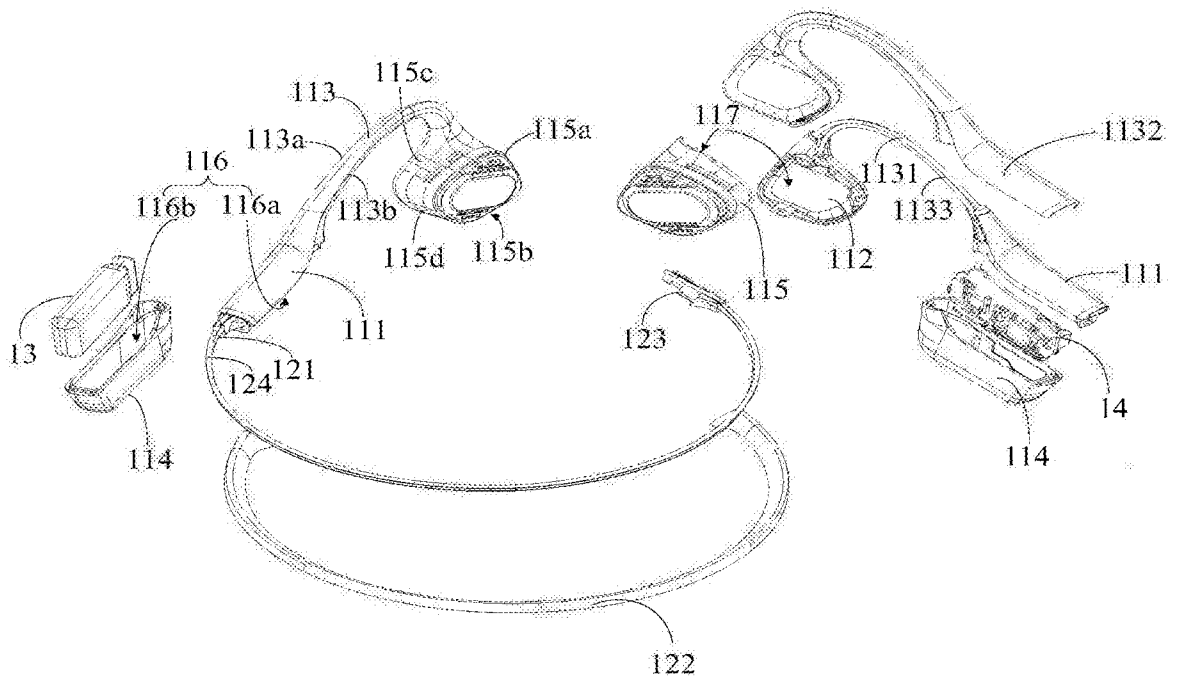


图2

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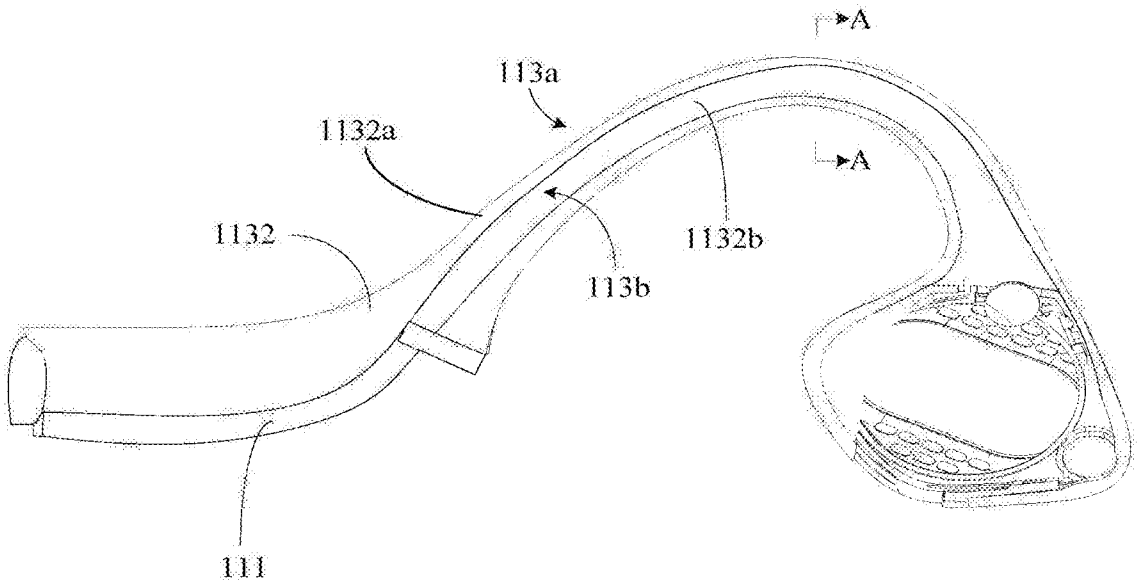


图3

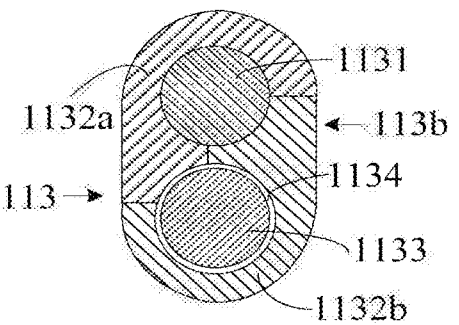


图4

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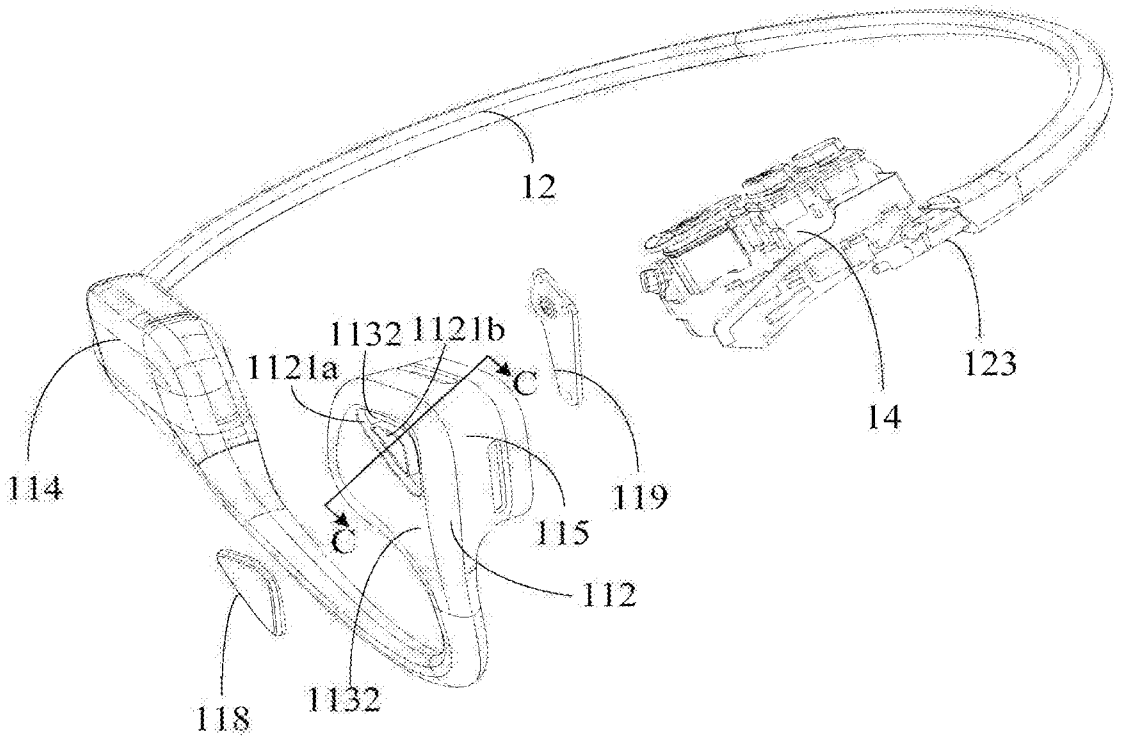


图5

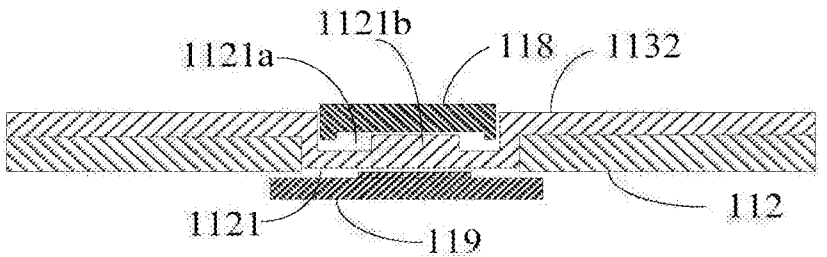


图6

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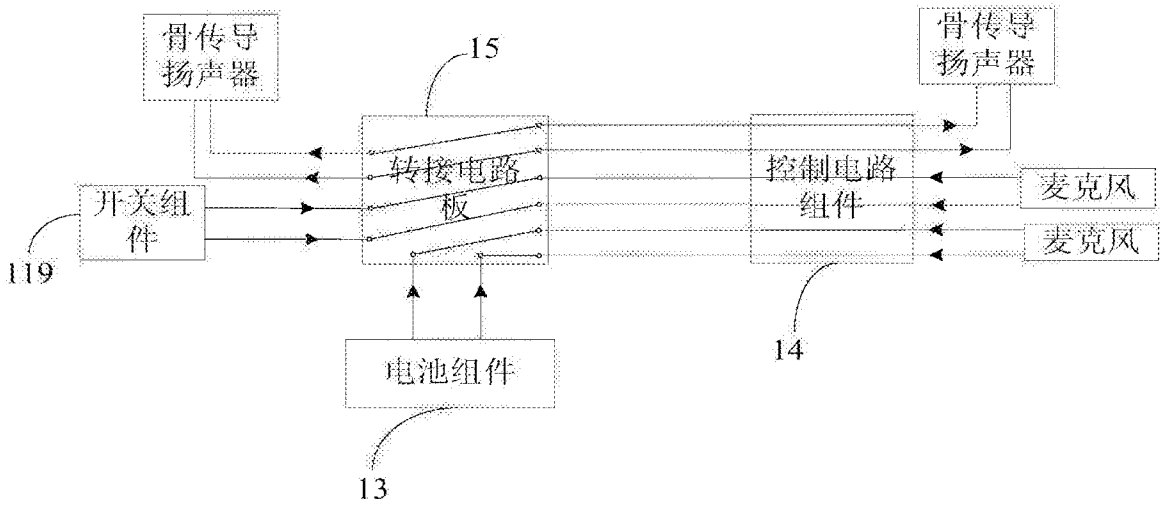


图7

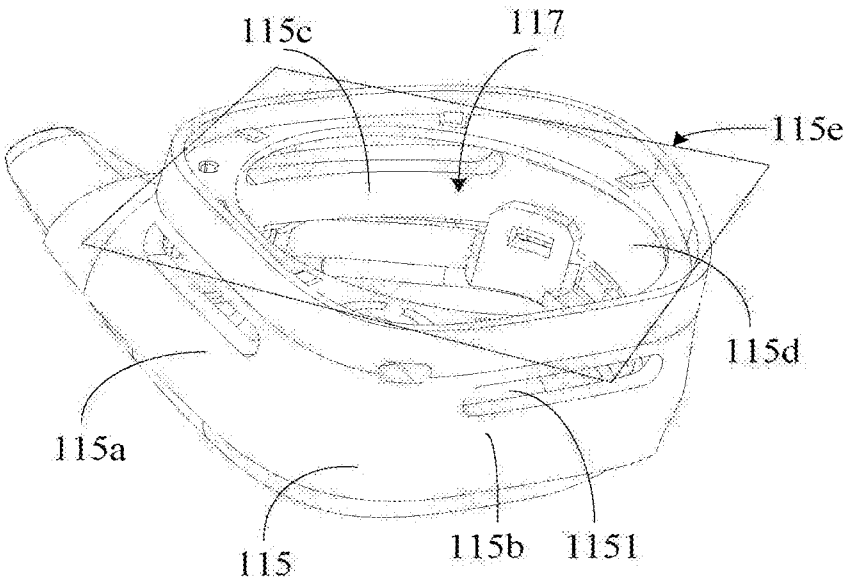


图8

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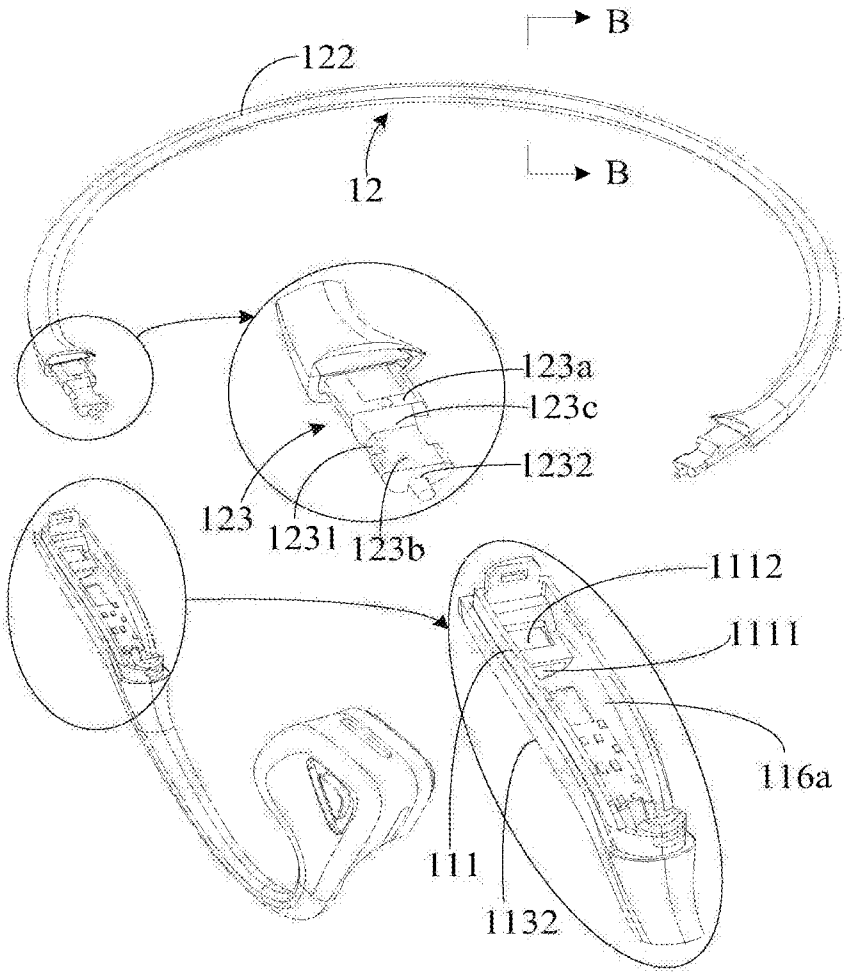


图9

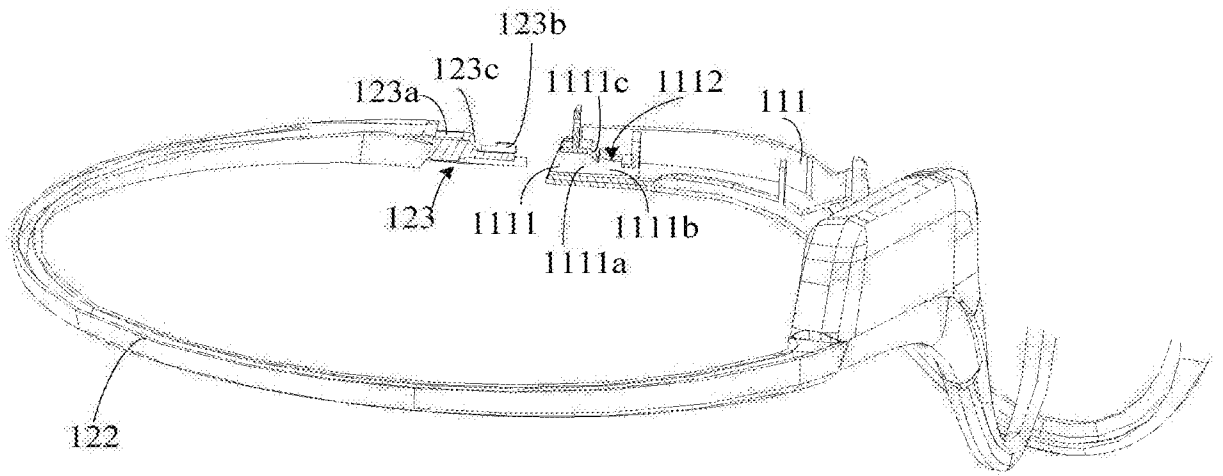


图10

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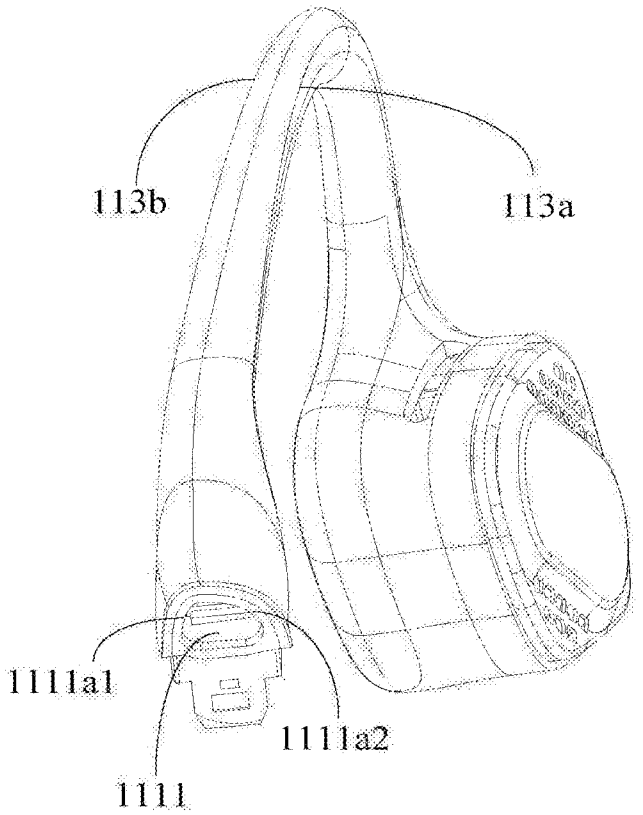


图11

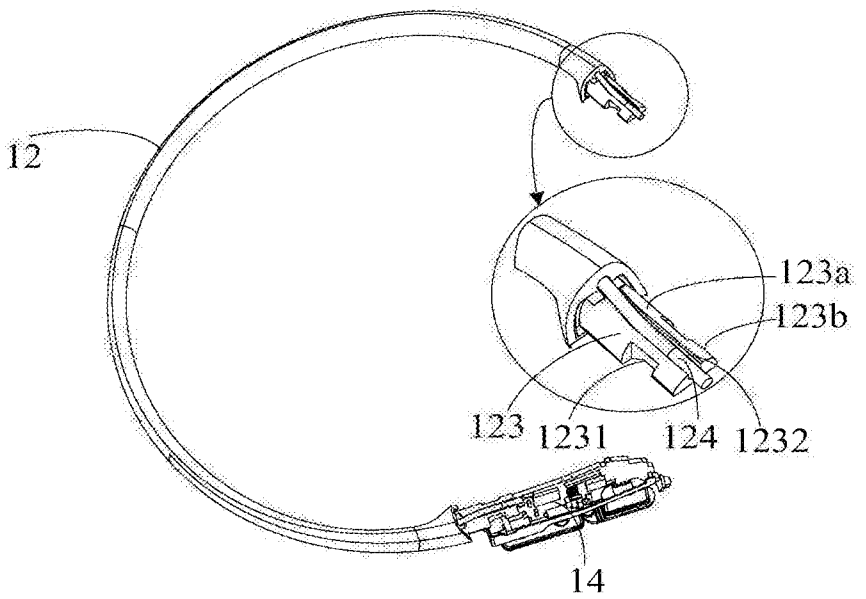


图12

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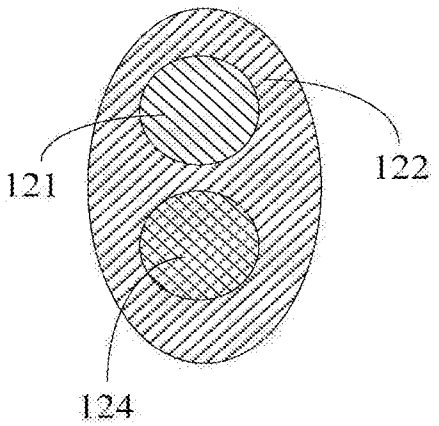


图13

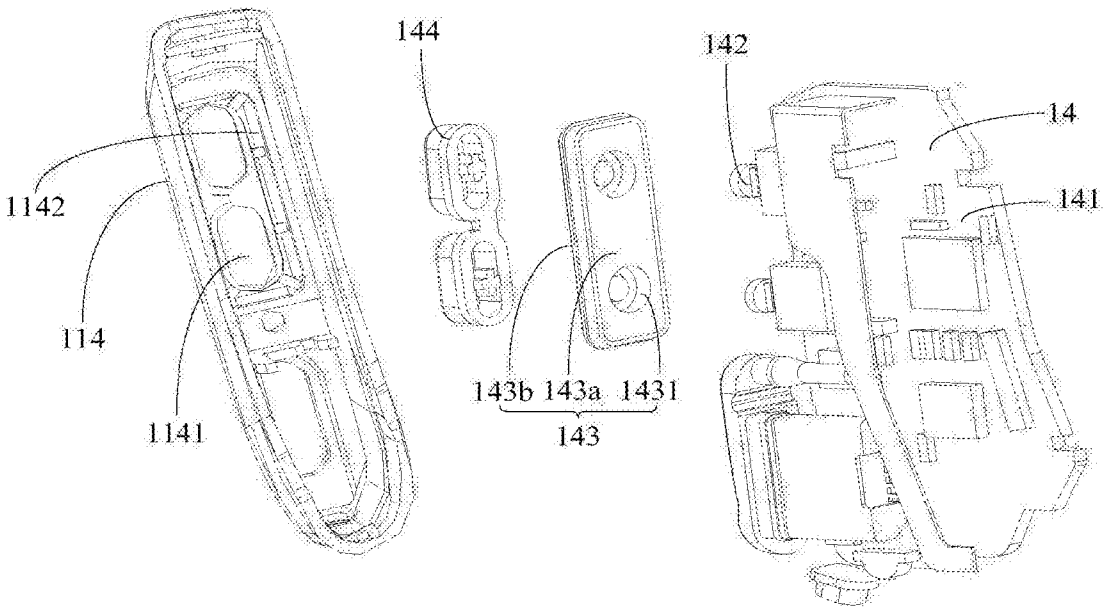


图14

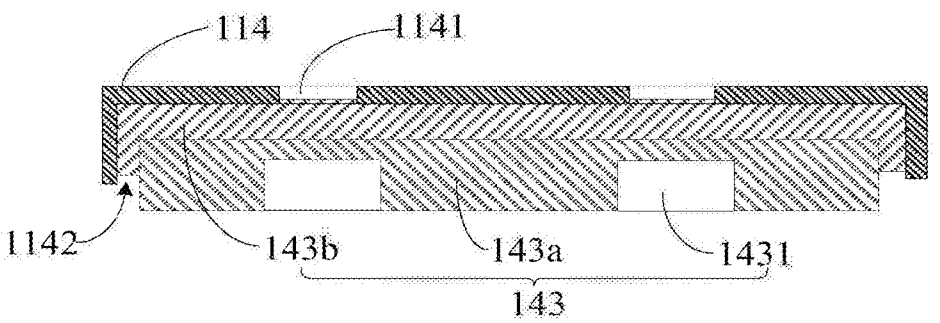


图15

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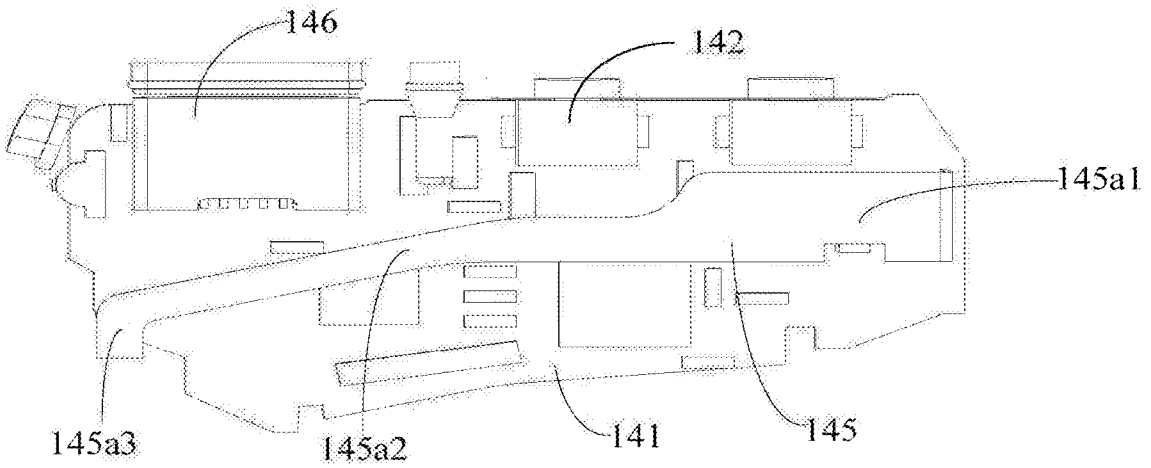


图16

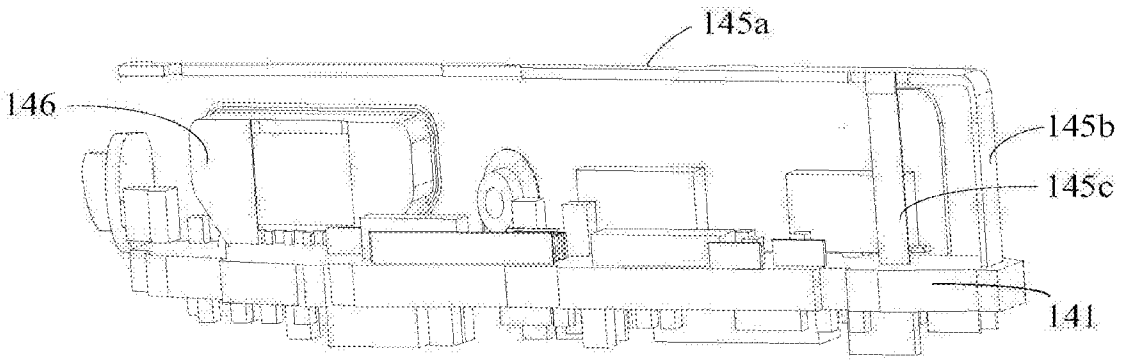


图17

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H04R 1/10(2006.01)

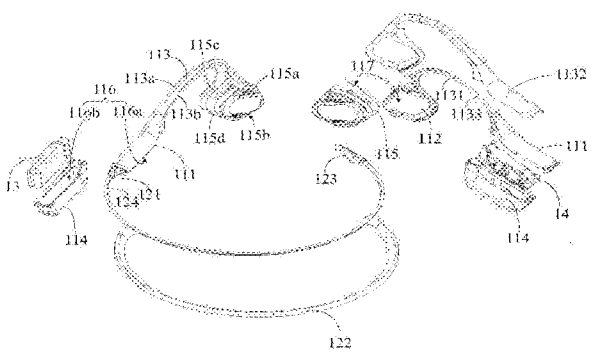
权利要求书2页 说明书11页 附图8页

(54)实用新型名称

一种骨传导耳机

(57)摘要

本实用新型实施例提供一种骨传导耳机，包括两个耳挂组件、后挂组件、电池组件以及控制电路组件，耳挂组件包括第一壳体、第二壳体、连接部件、第三壳体以及第四壳体，其中连接部件包括两端分别连接第一壳体和第二壳体的第一弹性金属丝以及包覆在第一弹性金属丝上的第一弹性覆层，第三壳体与第一壳体配合，以形成第一容置空间，其中电池组件、控制电路组件分别设置于两个耳挂组件的第一容置空间。后挂组件包括第二弹性金属丝、包覆在第二弹性金属丝上的第二弹性覆层以及设置于第二弹性金属丝两端的接插部，接插部分别与两个耳挂组件的第一壳体接插配合，并固定连接。通过上述方式，本实用新型能够有效增强骨传导耳机的弯折性能以及佩戴舒适性。



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1.一种骨传导耳机，其特征在于，所述骨传导耳机包括两个耳挂组件、后挂组件、电池组件以及控制电路组件，所述耳挂组件包括第一壳体、第二壳体、连接所述第一壳体和第二壳体的连接部件、第三壳体以及第四壳体，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层，所述第一弹性覆层进一步覆盖所述第一壳体与第二壳体的至少部分外表面，所述第三壳体与所述第一壳体配合，以形成用于收容所述电池组件或所述控制电路组件的第一容置空间，所述第四壳体与所述第二壳体配合，以形成用于收容骨传导扬声器的第二容置空间，其中所述电池组件设置于所述两个耳挂组件中的一者的所述第一容置空间，所述控制电路组件设置于所述两个耳挂组件中的另一者的所述第一容置空间内；所述后挂组件包括第二弹性金属丝、包覆在所述第二弹性金属丝上的第二弹性覆层以及设置于所述第二弹性金属丝两端的接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

2.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体的端部设置有用于允许所述接插部插入的接插孔以及在所述接插部的插入方向的垂直方向连通所述接插孔与外部的开孔，以允许从外部经所述开孔向所述接插孔内施加胶水或安装卡止件，以使得所述接插部在所述胶水或卡止件的作用下固定在所述接插孔内。

3.根据权利要求2所述的骨传导耳机，其特征在于，所述接插部的侧壁上设置有开槽，所述开槽经所述开孔外露，并用于接收所述胶水或卡止件。

4.根据权利要求3所述的骨传导耳机，其特征在于，所述接插部包括与所述第二弹性金属丝连接的第一接插段以及与所述第一接插段连接且远离所述第二弹性金属丝设置的第二接插段，所述接插孔沿所述接插部的插入方向划分为用于接收所述第一接插段的第一孔段和用于接收所述第二接插段的第二孔段，其中所述第一孔段的尺寸设置成允许所述第二接插段沿所述插入方向在所述第一孔段内自由移动，且使得所述第一接插段与所述第一孔段之间紧配合。

5.根据权利要求4所述的骨传导耳机，其特征在于，所述第二孔段的尺寸设置成使得所述第二接插段与所述第二孔段之间紧配合；和/或，所述第一接插段两侧与所述第一孔段接触的接触面的形状不同；和/或，所述开槽设置于所述第二接插段上。

6.根据权利要求5所述的骨传导耳机，其特征在于，所述第一接插段和所述第二接插段的底面呈阶梯状设置且在所述第一接插段和所述第二接插段的连接处设置有第一楔形过渡段，并且所述第一孔段和所述第二孔段的连接处设置有与所述第一楔形过渡段对应的第二楔形过渡段；和/或，所述后挂组件进一步包括由所述第二弹性覆层包覆的第二导线组，其中所述第二导线组的两端从所述第二弹性覆层外露，所述接插部的顶面设置有用于容纳所述第二导线组的外露部分的埋线槽。

7.根据权利要求1所述的骨传导耳机，其特征在于，所述第四壳体呈棱柱状设置，其中在所述第四壳体的至少一侧面上设置有条形引音孔，其中所述条形引音孔的长度方向与所述第四壳体的底面平行设置，且所述条形引音孔的长度不小于其所在的所述侧面的宽度的三分之二。

8.根据权利要求1所述的骨传导耳机，其特征在于，用于容纳所述控制电路组件的耳挂组件的第三壳体上设置有按键开孔和与所述按键开孔连通的容置槽，所述控制电路组件包括电路板、固定于所述电路板上的开关、防水衬板以及按键，其中所述按键设置于所述按键

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开孔内且经所述按键开孔外露，所述防水衬板包括衬板主体以及以注塑方式包覆在所述衬板主体上的第三弹性覆层，所述防水衬板设置于所述容置槽内且所述第三弹性覆层与所述容置槽的侧壁弹性抵接，所述按键和所述开关分别设置于所述防水衬板的两侧且分别与所述防水衬板抵接；和/或，

所述第二壳体上形成有通孔，所述第一弹性覆层覆盖所述通孔，并进一步在所述通孔上方且远离所述第二壳体的一侧形成有按键容置部，所述耳挂组件进一步包括按键和开关组件，其中所述按键设置于所述按键容置部内，所述开关组件设置于所述第二壳体远离所述第一弹性覆层的一侧，并与所述按键下方的所述第一弹性覆层抵接。

9.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体和第二壳体分别以注塑方式与所述第一弹性金属丝的两端固定连接，所述第一弹性覆层以注塑方式固定包覆于所述第一弹性金属丝上，所述接插部以注塑方式分别固定于所述第二弹性金属丝两端；和/或，所述第一弹性金属丝至少由钛合金材料制成，所述第二弹性金属丝至少由钛合金材料制成。

10.根据权利要求1所述的骨传导耳机，其特征在于，所述第一弹性覆层的内部进一步设置有用于连通所述第一壳体和所述第二壳体的引线通道，所述耳挂组件进一步包括从所述第一壳体经所述引线通道延伸至所述第二壳体的第一导线组，所述引线通道的径向尺寸设置成允许所述第一导线组沿所述引线通道移动，所述第一导线组用于电连接所述骨传导扬声器与所述电池组件或所述控制电路组件。

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技术领域

[0001] 本实用新型涉及耳机领域，特别是涉及一种骨传导耳机。

背景技术

[0002] 骨传导是一种声音传导方式，即将声音转化为不同频率的机械振动，通过人的颅骨、骨迷路、内耳淋巴液传递、螺旋器、听神经、听觉中枢来传递声波。骨传导耳机利用骨传导技术受话，紧贴骨头，声波直接通过骨头传至听神经。因此可以开放双耳，不伤害鼓膜，也因此受到广大消费者的喜爱。现有的骨传导耳机存在着弯折性能与质感较差，导致易损坏和佩戴不舒适等问题。

实用新型内容

[0003] 本实用新型主要解决的技术问题是提供一种骨传导耳机，能够改善现有的耳机佩戴不舒适的问题。

[0004] 为解决上述技术问题，本实用新型实施例提供一种骨传导耳机，包括两个耳挂组件、后挂组件、电池组件以及控制电路组件，所述耳挂组件包括第一壳体、第二壳体、连接所述第一壳体和第二壳体的连接部件、第三壳体以及第四壳体，其中所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层，所述第一弹性覆层进一步覆盖所述第一壳体与第二壳体的至少部分外表面，所述第三壳体与所述第一壳体配合，以形成用于收容所述电池组件或所述控制电路组件的第一容置空间，所述第四壳体与所述第二壳体配合，以形成用于收容骨传导扬声器的第二容置空间，其中所述电池组件设置于所述两个耳挂组件中的一者的所述第一容置空间，所述控制电路组件设置于所述两个耳挂组件中的另一者的所述第一容置空间内；所述后挂组件包括第二弹性金属丝、包覆在所述第二弹性金属丝上的第二弹性覆层以及设置于所述第二弹性金属丝两端的接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

[0005] 与现有技术相比，本实用新型的有益效果是：本实用新型实施例通过第一弹性金属丝连接第一壳体与第二壳体，且第一弹性覆层包覆第一弹性金属丝，第二弹性覆层包覆第二弹性金属丝，由于第一弹性金属丝、第二弹性金属丝、第一弹性覆层以及第二弹性覆层的弹性作用，能够有效增强耳挂的弯折性能，在受到弯折时有效地进行弹性回复而恢复原状，不易变形，且能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题，且第一弹性覆层与第二弹性覆层直接接触人体，佩戴更舒适。

附图说明

[0006] 图1是本实用新型骨传导耳机实施例中耳挂组件的结构示意图；

[0007] 图2是本实用新型骨传导耳机实施例中骨传导耳机整体结构拆解示意图；

[0008] 图3是本实用新型骨传导耳机实施例中耳挂组件的另一结构示意图；

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[0009] 图4是图3中A-A的截面结构示意图；

[0010] 图5是本实用新型骨传导耳机实施例中骨传导耳机部分结构拆解示意图；

[0011] 图6是图5中C-C的截面结构示意图；

[0012] 图7是本实用新型骨传导耳机实施例中电路示意图；

[0013] 图8是本实用新型骨传导耳机实施例中第四壳体的结构示意图；

[0014] 图9是本实用新型骨传导耳机实施例中骨传导耳机接插部与接插孔结构放大示意图；

[0015] 图10是本实用新型骨传导耳机实施例中接插部与接插孔截面结构示意图；

[0016] 图11是本实用新型骨传导耳机实施例中接插孔结构示意图；

[0017] 图12是本实用新型骨传导耳机实施例中接插部结构示意图；

[0018] 图13是图9的B-B的截面结构示意图；

[0019] 图14是本实用新型骨传导耳机实施例中骨传导耳机另一部分结构拆解示意图；

[0020] 图15是图14的部分结构截面示意图；

[0021] 图16是本实用新型骨传导耳机实施例中控制电路组件结构示意图；

[0022] 图17是本实用新型骨传导耳机实施例中控制电路组件另一结构示意图。

具体实施方式

[0023] 参阅图1和图2，本实用新型骨传导耳机实施例包括耳挂组件11，耳挂组件11包括第一壳体111、第二壳体112以及连接第一壳体111和第二壳体112的连接部件113，其中连接部件113包括两端分别连接第一壳体111和第二壳体112的第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132。

[0024] 一般，骨传导耳机还包括骨传导扬声器、电池、控制电路等元件，例如骨传导扬声器用于以骨传导的方式通过振动向用户输出声音。电池用于给骨传导耳机各元件供电。控制电路用于控制骨传导耳机例如实现调节音量、开关机、播放音频以及蓝牙通讯等功能。

[0025] 耳挂组件11一般用于用户在佩戴骨传导耳机时挂于其耳部，如此可以使骨传导耳机较稳固地佩戴于用户的耳部。耳挂组件11需要具备良好的抗压以及抗变形能力，以便在用户在使用时不容易将骨传导耳机损坏或者致其变形。

[0026] 在本实施例中，连接部件113可直接接触耳部并通过人耳根部支承骨传导耳机，连接部件113包括第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132，通过第一弹性金属丝1131连接第一壳体111与第二壳体112，能够有效增强骨传导耳机的弯折性能以及结构稳定性，使耳挂组件11在受到弯折时能够有效地进行弹性回复而恢复原状，不易变形。此外采用第一弹性金属丝1131能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。可选的是，连接部件113可以包括多根第一弹性金属丝1131，例如可以设置多根细小的第一弹性金属丝1131能够进一步提高耳挂组件11的弯折可靠性，例如设置3根第一弹性金属丝1131，每根第一弹性金属丝1131的直径0.3mm，此时3根第一弹性金属丝的材料可以相同也可以部分相同，或者全部不同，当然每根第一弹性金属丝1131的直径也可以相同、部分相同或者全部不同。

[0027] 在本实施例中，可选的是，第一弹性金属丝1131可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合

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金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。可选的是，第一弹性金属丝1131为钛合金丝，或者至少由钛合金材料制成，例如直径为0.8-1.5mm的钛合金丝，可选为1.0-1.25mm。

[0028] 在本实施例中，第一弹性金属丝1131外包覆第一弹性覆层1132，第一弹性覆层1132直接与耳部接触，由于第一弹性覆层1132的弹性作用能够使得用户可以舒适地佩戴骨传导耳机。此外，第一弹性覆层1132由于其弹性作用的存在能够更有力地包覆第一弹性金属丝1131，即使在经过多次弯折后仍能有效包覆第一弹性金属丝1131，保证骨传导耳机结构的有效性。可选的是，第一弹性覆层1132为硅胶层，当然在其他实施例中，第一弹性覆层1132还可以是乳胶层或者橡胶层，或者其他有弹性的塑料层，或者为包含硅胶的复合材料层。

[0029] 可选的是，第一壳体111和第二壳体112分别以注塑方式与第一弹性金属丝1131的两端固定连接，第一弹性覆层1132以注塑方式固定包覆于第一弹性金属丝1131上。可选的是，第一壳体111以及第二壳体112为塑料壳体，以注塑成型的方式固定在第一弹性金属丝1131的两端，以及第一弹性覆层1132是一体成型包覆第一弹性金属丝1131上，如此使得第一壳体111、第二壳体112与第一弹性金属丝1131之间的连接更稳固，且使得骨传导耳机的一体感与质感更强，使骨传导耳机的结构更紧凑更轻便。在本实施例中，注塑方式可以是注塑成型、热塑成型、压塑成型等中的一种，但不限于此。

[0030] 参阅图3和图4，可选的是，第一弹性覆层1132由不同颜色的两个子弹性覆层1132a、1132b拼合而成，其中两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的相对设置的两个侧面113a、113b上，其中拼合缝在同一侧面上例如在外侧面113a上的投影彼此错开。例如在进行注塑成型时，采用至少两套模具对第一弹性覆层1132的两个子弹性覆层1132a、1132b分别进行成型，由此可形成不同配比的两种颜色例如为淡灰色与深灰色或者其他颜色的组合，且拼合缝位于连接部件113相对设置的两侧面113a、113b上，且在同一侧面上投影彼此错开，使得骨传导耳机的视觉效果更佳，进一步由于错开包覆第一弹性金属丝1131使得包覆效果更好。当然第一弹性覆层1132也可以由同颜色的两个子弹性覆层拼合而成。通过两次注塑成型分别在连接部件113的两侧面113a、113b上形成两个子弹性覆层1132a、1132b，能够改善一次注塑成型或者上下分开注塑成型时由于注塑压力的存在容易导致第一弹性覆层1132内的元件例如第一弹性金属丝1131产生移位降低连接部件113的成型质量。当然，在其他实施例中，第一弹性覆层1132可以直接形成一个覆层，或者形成数量多于两个的子弹性覆层。

[0031] 在本实施例中，连接部件113的两侧面包括相对设置内侧面113b与外侧面113a，是指在佩戴时耳挂组件11挂于人耳，连接部件113朝向人头部的一侧为内侧面113b，朝向人耳的一侧为外侧面113a。

[0032] 继续参阅图3和图4，可选的是，两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的内侧面113b和外侧面113a上，且位于连接部件113的外侧面113a上的拼合缝的投影相较于位于连接部件113的内侧面113b上的拼合缝的投影更靠近连接部件113与人耳的接触位置。由此可知道，一条拼合缝位于外侧面113a的靠近接触人耳的位置，而另一条拼合缝位于内侧面113b以使得外侧面113a上几乎显示同一种颜色的子弹性覆层1132a或者1132b，例如外侧面113a几乎显示淡灰色，使得骨传导耳机一体感更强，更加美观。

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[0033] 可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b在同一侧面例如113a或者113b上的面积彼此不同。在其他实施例中，拼合缝可以设置成使得两个子弹性覆层1132a、1132b在同一侧面上的面积相同或者大体相同。

[0034] 参阅图2至图4，可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b的颜色相对较浅的子弹性覆层1132a在外侧面113a上占据面积相对较大。也即，浅颜色的子弹性覆层1132a更多地位于外侧面113a，深颜色的子弹性覆层1132b更多地位于内侧面113b，如此使得连接件113的表面更具协调性，在保证结构性能的同时增强骨传导耳机的美学性能。

[0035] 继续参阅图1，可选的是，第一弹性金属丝1131的两端呈扁平状设置并分别嵌入第一壳体111和第二壳体112。也即在第一壳体111与第二壳体112以注塑的方式形成且固定于第一弹性金属丝1131呈扁平状设置的两端，如此可以增大第一弹性金属丝1131与第一壳体111、第二壳体112的接触面积，使得第一弹性金属丝1131与第一壳体111、第二壳体112更稳定地相互固定。可选的是，第一弹性金属丝1131呈扁平设置的两端的宽度大于连接该呈扁平设置的两端的连接部分的宽度，如此在成型后起到一个限位的作用，防止将第一弹性金属丝1131从第一壳体111、第二壳体112中拉出或者脱落。可选的是，第一弹性金属丝1131的两端呈螺纹状设置。在成型时，部分壳体可以成型于螺纹中，以起到固定的作用。当然，第一弹性金属丝1131的两端可以分别呈扁平状以及螺纹状设置。在其他实施例中，第一弹性金属丝1131两端还可以内凹以形成凹陷部，第一壳体111与第二壳体112在成型时，部分位于凹陷部内，以起到固定作用。

[0036] 参阅图1和图2，可选的是，第一弹性覆层1132进一步包覆第一壳体111和第二壳体112的至少部分外表面，例如全部外表面。即第一弹性覆层1132以注塑成型的方式包覆第一弹性金属丝1131、第一壳体111的至少部分外表面、第二壳体112的至少部分外表面，如此使得骨传导耳机的质感以及一体感更强，而且第一弹性覆层1132的存在，可以进一步保护壳体以及壳体内部的元件，使得骨传导耳机更耐磨损。

[0037] 参阅图5和图6，可选的是，第二壳体112上形成有通孔1121。即通孔1121贯穿第二壳体112的内侧面与外侧面。第一弹性覆层1132覆盖通孔1121并进一步在通孔1121上方且远离第二壳体112(即远离第二壳体112的内侧面)的一侧形成有按键容置部1121a。按键容置部1121a是由第一弹性覆层1132在注塑过程中覆盖通孔1121而形成，按键容置部1121a内由于第一弹性覆层1132的存在是可以隔绝水份、尘土等进入第二壳体内112。耳挂组件11进一步包括按键118和开关组件119，其中按键118设置于按键容置部1121a内。开关组件119设置于第二壳体112的远离第一弹性覆层1132的一侧，即第二壳体112的内侧面，并与按键118下方的第一弹性覆层1132抵接。可选的是，按键容置部1121a内设置有一凸台1121b，按键118以例如黏贴的方式固定在凸台1121b上。在本实施例中，由于第一弹性覆层1132以注塑方式固定包覆在第二壳体112上，且覆盖通孔1121，具有更好防水效果。可选的是，凸台1121b是在第一弹性覆层1132覆盖通孔1121时由第一弹性覆层1132一体成型而形成的。

[0038] 在本实施例中，第二壳体112上的开关组件119主要是用于控制骨传导耳机的功能开关，例如音乐的播放与暂停、语音的接听与挂断、连通无线信号以连接移动设备例如蓝牙通讯，或者骨传导耳机工作模式的选择等，不限于此。

[0039] 参阅图1、图2、图4和图7，可选的是，第一弹性覆层1132的内部进一步设置有用于连通第一壳体111和第二壳体112的引线通道1134，耳挂组件11进一步包括从第一壳体111

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经引线通道1134延伸至第二壳体112的第一导线组1133，引线通道1134的径向尺寸设置成允许第一导线组1133沿引线通道1134移动。

[0040] 通过设置引线通道1134，例如在后期组装时可以先将第一导线组1133一端连接(例如以板载的方式)第二壳体112内的元件例如骨传导扬声器，再将第一导线组1133另一端穿过引线通道1134以连接第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15等，如此可以减少组装工艺，而且能够改善现有骨传导耳机在第一弹性覆层1132在注塑成型时埋入第一导线组1133所带来的接线困难且不利于后期维修等问题。当然，在后期组装时也可以先将第一导线组1133一端连接(例如以板载的方式)第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15，再将第一导线组1133另一端穿过引线通道1134以连接第二壳体112内的元件例如骨传导扬声器等。

[0041] 在本实施例中，引线通道1134具体的成型方式例如包括首先提供一个第一弹性金属丝1131连接的第一壳体111与第二壳体112的组件，进一步在第二壳体112与第一壳体111之间以可拆卸的方式设置附加金属丝(图未示)，再进一步在第一弹性金属丝1131、附加金属丝以及第一壳体111和第二壳体112的部分外表面以注塑方式形成第一弹性覆层1132，成型后抽取附加金属丝以形成引线通道1134。在其他实施例中，例如第一弹性覆层1132注塑成型时，埋入易融性材料，在第一弹性覆层1132注塑成型时，该易融性材料融化而流出，形成引线通道1134。又例如引线通道1134可以在第一弹性覆层1132成型后，通过穿针的方式形成通道，再通过热熔的方式扩大通道形成引线通道1134。

[0042] 继续参阅图1和图4，在本实施例中，可选的是，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置。在本实施例中，第一引线通道1134与第一弹性金属丝1131间隔独立设置。在其他实施例中，第一引线通道1134可以与第一弹性金属丝1131合并设置，即第一导线组1133在第一引线通道1134内可接触第一弹性金属丝1131。在本实施例中，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置，由于引线通道1134的存在，可以使得靠近人耳的第一弹性覆层1132更具弹性更加柔和，佩戴更加舒适。在其他实施例中，当然第一引线通道1134也可以设置在第一弹性金属丝1131的上侧，在使用时第一弹性金属丝1131更靠近人耳。

[0043] 参阅图1、图2和图8，可选的是，耳挂组件11包括第三壳体114和第四壳体115。其中第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116。第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117。可选的是，第四壳体115与第三壳体114为塑料壳体。

[0044] 可选的是，第二壳体112与第四壳体115通过第一卡扣组件(未标注)连接，第一卡合组件包括第一卡合部以及第一扣合部，第一卡合部设置于第四壳体115上，第一扣合部设置于第二壳体112上，第二壳体112与第四壳体115配合时，第四壳体115上的第一卡合部卡入第二壳体112的第一扣合部，以将第二壳体112与第四壳体115固定在一起。可选的是，第二壳体112与第四壳体115通过至少一组第一卡扣组件例如4组第一卡扣组件进行连接。当然第二壳体112与第四壳体115也可以通过胶水粘合，或者通过第一卡合组件与胶水同时作用进行固定，或者通过螺丝等紧固件连接固定。

[0045] 可选的是，第三壳体114与第一壳体111通过第二卡扣组件(未标注)连接，第二卡

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扣组件包括第二卡合部以及第二扣合部，第二卡合部设置在第三壳体114上，第二扣合部设置在第一壳体111上，在第一壳体111与第三壳体114配合时，第三壳体114的第二卡合部卡入第一壳体111的第二扣合部，以将第一壳体111与第三壳体114固定在一起。

[0046] 在本实施例中，耳挂组件11的第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116，第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117，第一导线组1133可以移动穿过引线通道1134用于电连接骨传导扬声器与电池组件13或控制电路组件14。在本实施例中，电池组件13例如包括电池以及电池管理电路，电池通过电池管理电路为骨传导耳机其他部件进行供电，例如电池管理电路包括充电电路、过流保护电路、过放保护电路、过压保护电路等。例如电池为可充电电池，例如为锂电池。参阅图7，可选的是，骨传导耳机还进一步包括例如转接电路板15，设置于第一容置空间116内，电池组件14通过转接电路板15分成多个接线焊点，以相对应连接骨传导耳机的两个骨传导扬声器、控制电路组件14、麦克风、以及开关组件119等，上述元件相关导线与上述接线焊点连接并按图7方式导通，便于接线和组装。例如电池组件14通过正负极的两个接线焊点连接转接电路板15，转接电路板15分出10个接线焊点，以连接骨传导耳机的其他部件。

[0047] 参阅图1和图2，可选的是，第一壳体111内设置有第一子容置空间116a，第三壳体114内设置有第二子容置空间116b，并在第三壳体114与第一壳体111配合时与第一子容置空间116a共同形成第一容置空间116，例如通过第一卡扣组件进行固定连接。其中第二子容置空间116b的体积大于第一子容置空间116a。例如第二子容置空间116b的体积是第一子容置空间116a的2-5倍，例如为3-4倍，例如为3.2倍，或例如为2.5倍。

[0048] 在组装电池组件13或者控制电路组件14，例如先将电池组件13或者控制电路组件14放置在第一子容置空间116a内，例如电池通过胶材或者双面胶粘贴于第一子容置空间116a内，或者控制电路组件14通过卡合结构固定于第一子容置空间116a内，使得电池组件13或者控制电路组件14大部分外露，便于组装和接线等工艺，再将第三壳体114通过第二卡扣组件与第一壳体111盖合，第一子容置空间116a与第二子容置空间116b形成第一容置空间116，如此改善了传统骨传导耳机需要将电池或者控制电路板装配并容纳在与耳挂一体成型的壳体内并进一步利用硅胶条贴于电池控制电路板外部部分进行包覆所导致的组装工序复杂的问题，简化结构以及组装工序。

[0049] 参阅图2和图8，可选的是，第四壳体115呈棱柱状设置，其中在第四壳体115的至少一侧面上设置有条形引音孔1151，其中条形引音孔1151的长度方向与第四壳体115的底面平行或者大致平行设置，且条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二。在本实施例中，条形引音孔相对平行的底面115e是指在佩戴时第四壳体115朝向人体脸部的一面的开口边缘所定义的平面。

[0050] 一般，骨传导扬声器在振动的过程中会向周边的环境传递声音，除了佩戴者外，环境中的他人也能够听到扬声器的声音，例如骨传导扬声器的振动引起了第二容置空间117内空气的振动以及引起第四壳体115等的振动，从而出现漏音现象，会影响骨传导耳机的音质。引音孔1151是将第二容置空间117内的声波引导传播至空间外，与漏音声波同在空气中传播发生干涉，从而降低漏音声波的振幅，减小漏音。

[0051] 继续参阅图8，为了进一步改善漏音现象，本实施例通过在第四壳体115的至少一

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侧面设置条形引音孔1151，并适当设置其尺寸和方向改善了传统骨传导耳机带来的漏音现象仍比较严重的问题。进一步地，条形引音孔1151的长度方向与第四壳体115的底面平行设置，不仅可以保证美观，而且经平行引导的声波强度的均匀性，从而保证干涉效果。在本实施例中，条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二，能够有效引导第二容置空间117内的声波。可选为，条形引音孔1151的长度为其所在的侧面的宽度的四分之三。当然，在其他实施例中，其中在第四壳体115的至少一侧面上并列设置有至少两条条形引音孔1151，例如在至少一侧面上设置两条平行的条形引音孔1151，且与第四壳体115的底面115e平行。

[0052] 可选的是，第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上不设置条形引音孔1151。当然，在其他实施例中，也可以在第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上设置引音孔，可以是点式引音孔，或者条形引音孔1151。

[0053] 继续参阅图2和图8，可选的是，第四壳体115呈四棱柱状设置，其中在第四壳体115与连接部件113相邻设置的两个侧面115a、115c上设置有条形引音孔1151，进一步剩余的两个侧面115b、115d中的在骨传导耳机使用时远离人耳的侧面115b同样设置条形引音孔1151，且剩余的两个侧面115b、115d中的在骨传导耳机使用时靠近人耳的侧面115b上不设置条形引音孔1151。也即在三个侧面115a、115b、115c上设置三个条形引音孔1151，在骨传导耳机使用时靠近人耳的侧面115d不设置条形引音孔1151，如此可以进一步减少漏音现象，保证骨传导耳机的音质。

[0054] 在本实施例中，第四壳体115呈四棱柱状设置，例如包括正四棱柱以及类四棱柱状。例如具体地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的任一个侧面的长度均大于剩余的两个侧面115b、115d的任一个侧面的长度，进一步地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的长度不相等或者相等。在其他实施例中，第四壳体115呈四棱柱状设置，其四个侧面的长度均可相等。

[0055] 在本实施例中，可选的是，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c之间的夹角为90°-150°，可选为100°-130°，可选为110°-120°。

[0056] 可选的是，第四壳体115内进一步设置有覆盖条形引音孔1151的防水防尘滤网，例如防水透气膜(图未示)。设置防水防尘滤网，可以防止骨传导耳机外的灰尘以及防水骨传导耳机进水进入损坏骨传导扬声器。

[0057] 在本实施例中，第二壳体112与第四壳体115上分别设置有一麦克风孔(图未示)，具体的，第一麦克风孔设置在第四壳体115不直接与连接部件113连接的剩余两侧面115b、115d的连接处，第二麦克风孔设置在第二壳体112的外侧面且靠近第四壳体115与连接部件113的连接处。通过在两个错开设置的麦克风孔内设置两个麦克风，能够增强语音输入质量，且起到有效的降噪作用，由此提高语音输入的清晰度。

[0058] 参阅图2以及图9，在本实施例中，耳挂组件11的数量为两个，骨传导耳机进一步包括后挂组件12。后挂组件12包括第二弹性金属丝121、包覆在第二弹性金属丝121上的第二弹性覆层122以及设置于第二弹性金属丝121两端的接插部123。接插部123分别与两个耳挂组件11的第一壳体111接插配合，并固定连接。可选的是，接插部123以注塑方式固定于第二弹性金属丝121的两端，如此可以使接插部123更稳固地固定于第二弹性金属丝121的两端。可选的是，第二弹性金属丝121可以为金属单质，也可以为包括多种金属材料的合金材料，

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例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。在本实施例中，第二弹性金属丝121为钛合金丝，或者至少由钛合金材料制成。在本实施例中，第二弹性覆层122为硅胶层。在其他实施例方式中，第二弹性覆层122也可以为橡胶层或者乳胶层，或者是包括硅胶的复合材料层。

[0059] 通过后挂组件12的接插部123与两个耳挂组件11的第一壳体111进行接插配合，改善了现有的骨传导耳机采用螺丝等固定方式带来的耳机尺寸较大等问题，从而简化结构，减轻骨传导耳机的重量，方便后期接线且能降低成本。

[0060] 参阅图9和图10，可选的是，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111以及在接插部123的插入方向的垂直方向连通接插孔1111与外部的开孔1112，以允许从外部经开孔1112向接插孔1111内施加胶水或安装卡止件(图未示)，以使得接插部123在胶水或卡止件的作用下固定在接插孔1111内。在本实施中，开孔1112位于所述第一子容置空间116a内。在其他实施例中，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111，接插部123上具有一凹部，接插孔1111内具有一弹性凸部，接插部123插入接插孔1111时，弹性凸部卡入凹部，以将接插部123与接插孔1111配合固定。例如接插部123插入接插孔1111时，弹性凸部先被挤压，后在弹性恢复力的作用下卡入凹部内。可选的是，接插部123插入接插孔1111的深度为6-11mm，可选为8-10mm。

[0061] 继续参阅图9和图10，可选的是，接插部123的侧壁上设置有开槽1231。开槽1231经开孔1112外露或者部分外露，并用于接收胶水或卡止件。可选的是，接插部123的至少一个侧壁上设置有开槽1231，例如两个侧壁上均设置有开槽1231。在其他实施例中，可以同时使用胶水和卡止件，例如先使用卡止件固定，再施加胶水进一步固定。在本实施例中，卡止件例如是楔子或者销钉、或者具有一定弹性的固定件插入开槽1231进行过盈配合。

[0062] 参阅图2、图9和图10，可选的是，接插部123包括与第二弹性金属丝121连接的第一接插段123a以及与第一接插段123a连接且远离第二弹性金属丝121设置的第二接插段123b。接插孔1111沿接插部123的插入方向划分为用于接收第一接插段123a的第一孔段1111a和用于接收第二接插段123b的第二孔段1111b。其中第一孔段1111a的尺寸设置成允许第二接插段123b沿插入方向在第一孔段1111a内自由移动，且使得第一接插段123a与第一孔段1111a之间紧配合。通过两段接插段与两端孔段的分别配合固定，可以使得接插部123更稳固地固定在第一壳体111内，增强骨传导耳机的结构稳定性。

[0063] 继续参阅图9和图10，可选的是，开槽1231进一步设置在第二接插段123b的侧壁。开孔1112连通接插孔1111的第二孔段1111b。在本实施例中，在接插部123第二接插段123b依次通过第一孔段1111a以及第二孔段1111b，以使第一接插段123a与第一孔段1111a紧配合，第二接插段123b的开槽1231经开孔1112外露，以用于接收胶水或者卡止件。通过第一接插段123a与第一孔段1111a的紧配合以及第二接插孔1111与第二孔段1111b的进一步配合固定，能够有效地将后挂与耳挂固定连接。在其他实施例中，开槽1231可以设置在第一接插段123a的侧壁上。开孔1112连通接插孔1111的第二孔段1111b。

[0064] 可选的是，第二孔段1111b的尺寸设置成使得第二接插段123b与第二孔段1111b之间紧配合。如此通过第一接插段123a与第一孔段1111a的紧配合、第二接插孔1111与第二孔段1111b的紧配合以及施加的胶水或者卡止件进行固定，进一步有效地将后挂与耳挂固定连接，且能够简化结构，使骨传导耳机轻便化。当然，在其他实施例中，第一接插段123a与第

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一孔段1111a之间紧配合，而第二接插段123b与第二孔段1111b可以是其他类型的固定配合例如卡扣配合。

[0065] 参阅图11，可选的是，第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同。第一接插段123a的两侧形状不同，相对应地第一孔段1111a与第一接插段123a接触的两侧面1111a1、1111a2也不同。例如，第一孔段1111a的两侧面均呈弧形设置，内侧面1111a2的曲率半径大于外侧面1111a1的曲率半径，也即内侧面1111a2的弧度变化相对较缓，而外侧面1111a1的弧度变化相对较大，第一接插段123a两侧面相对应设置。当然，在其他实施例中，第一孔段1111a的两侧面均呈弧形设置，内侧面1111a2的曲率半径小于外侧面1111a1的曲率半径，也即内侧面1111a2的弧度变化相对较大，而外侧面1111a1的弧度变化相对较小。第一孔段1111a的两侧面在佩戴时靠近人体头部的为内侧面1111a2，远离人体头部即为外侧面1111a1。第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同，使得第一接插段123a不能反插，且也使得后挂两个接插部123不能混插，起到有效的防呆效果，方便组装。

[0066] 参阅图9和图10，可选的是，第一接插段123a和第二接插段123b的底面呈阶梯状设置且在第一接插段123a和第二接插段123b的连接处设置有第一楔形过渡段123c，并第一孔段1111a和第二孔段1111b的连接处设置有与第一楔形过渡段123c对应的第二楔形过渡段1111c。

[0067] 在本实施例中，第一接插段123a与第二接插段123b的底面是指在佩戴时靠近人耳根部的一面。顶面则为远离人耳根部的一面。

[0068] 在本实施例中，第一接插段123a厚度要大于第二接插段123b的厚度即呈阶梯状设置，两者的连接处存在厚度差，且设置第一楔形过渡段123c，相对应的在第一孔段1111a和第二孔段1111b的连接处设置与第一楔形过渡段123c相适应的第二楔形过渡段1111c，在第一接插段123a与第二接插段123b依次插入第一孔段1111a与第二孔段1111b时，第一楔形过渡段123c与第二楔形过渡段1111c相抵接，能够方便第二接插段123b与第一接插段123a的插入，且起到缓冲过渡、限位以及进一步固定的作用。

[0069] 参阅图9、图12以及图13，可选的是，后挂组件12进一步包括由第二弹性覆层122包覆的第二导线组124，其中第二导线组124的两端从第二弹性覆层122外露，接插部123的顶面设置有用于容纳第二导线组124的外露部分的埋线槽1232。在本实施例中，第二导线组124，用于连接两个耳挂组件11内的元件例如连接电池以及控制电路组件14等。设置埋线槽1232，一方面可以有效布置和固定第二导线组124，另一方面可以减少体积。在其他实施例中，也可以不设置埋线槽1232，而通过其他方式例如胶水或者双面胶等将第二导线组124进行固定，或者在接插部123顶面设置有两排并列设置的凸块(图未示)，两排凸块之间可以容纳第二导线组124。

[0070] 参阅图2，可选的是，骨传导耳机进一步包括电池组件13和控制电路组件14，其中电池组件13设置于两个耳挂组件11中的一者的第一容置空间116，控制电路组件14设置于两个耳挂组件11中的另一者的第一容置空间116内。

[0071] 参阅图14和图15，可选的是，用于容纳控制电路组件14的耳挂组件11的第三壳体114上设置有按键开孔1141和与按键开孔1141连通的容置槽1142，控制电路组件14包括电路板141、固定于电路板141上的开关142、防水衬板143以及按键144，其中按键144设置于按

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键开孔1141内且经按键开孔1141外露，防水衬板143包括衬板主体143a以及以注塑方式包覆在衬板主体143a上的第三弹性覆层143b，防水衬板143设置于容置槽1142内且第三弹性覆层143b与容置槽1142的侧壁弹性抵接，按键144和开关142分别设置于防水衬板143的两侧且分别与防水衬板143抵接。在本实施中，第三弹性覆层143b包覆衬板主体143a的一侧面以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐

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渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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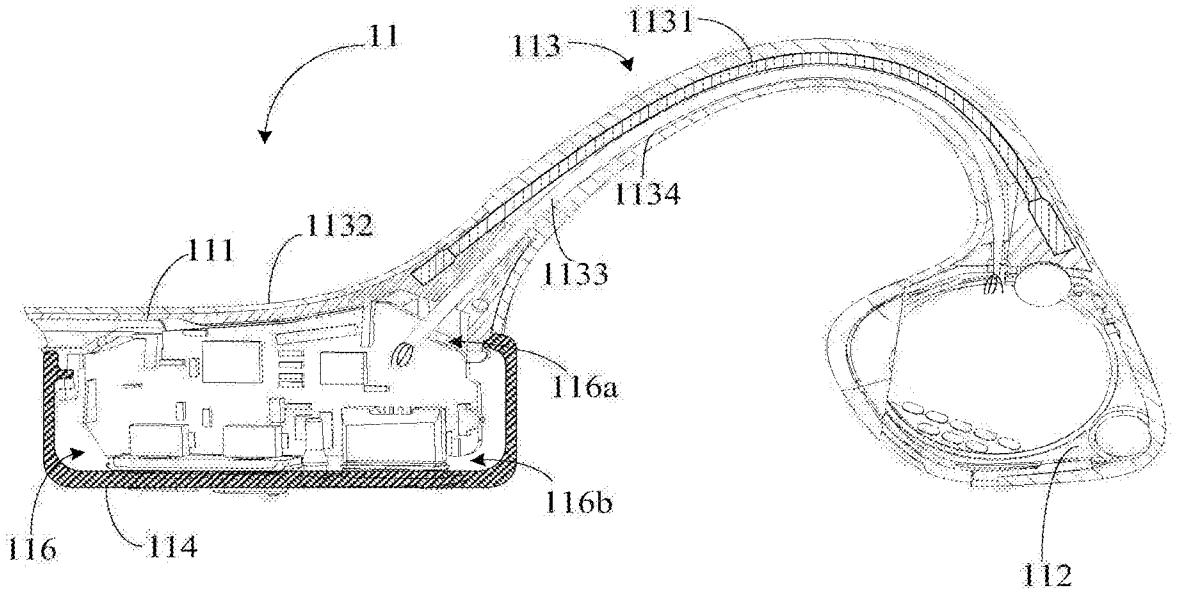


图1

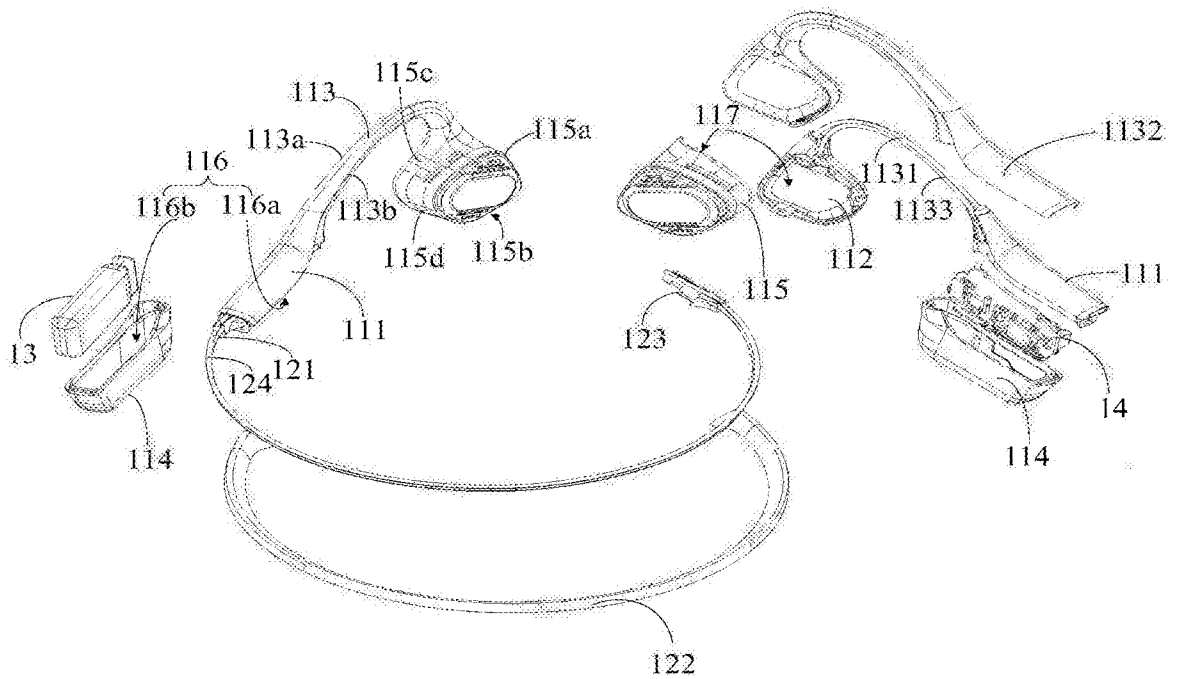


图2

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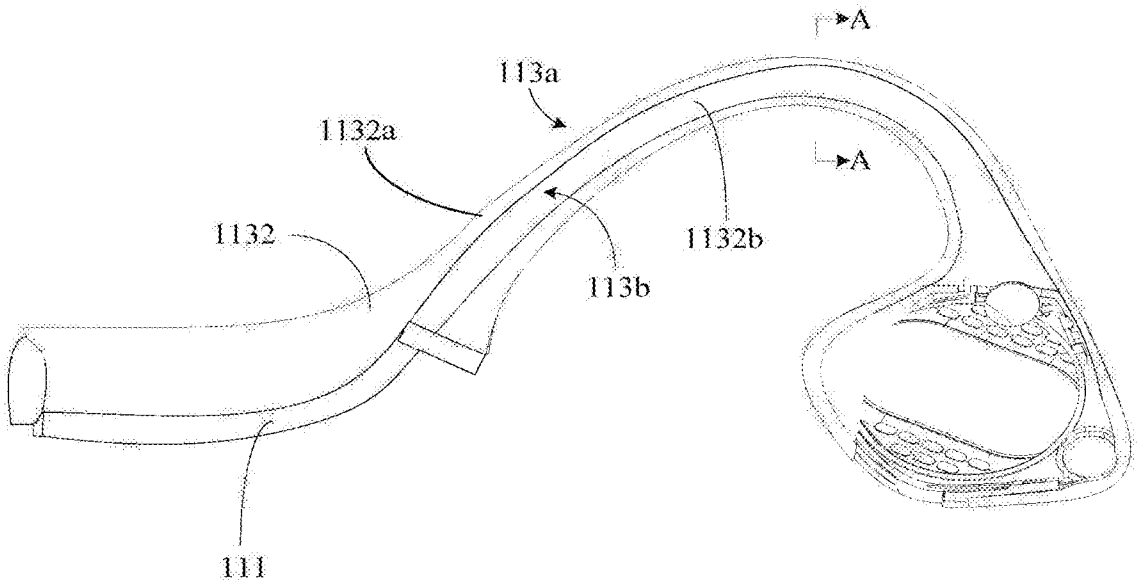


图3

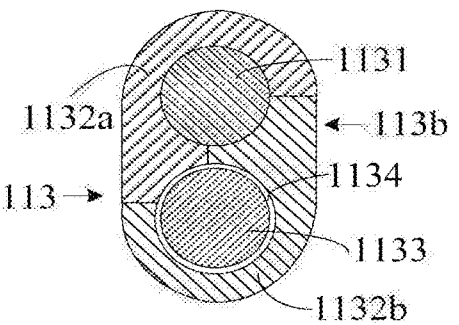


图4

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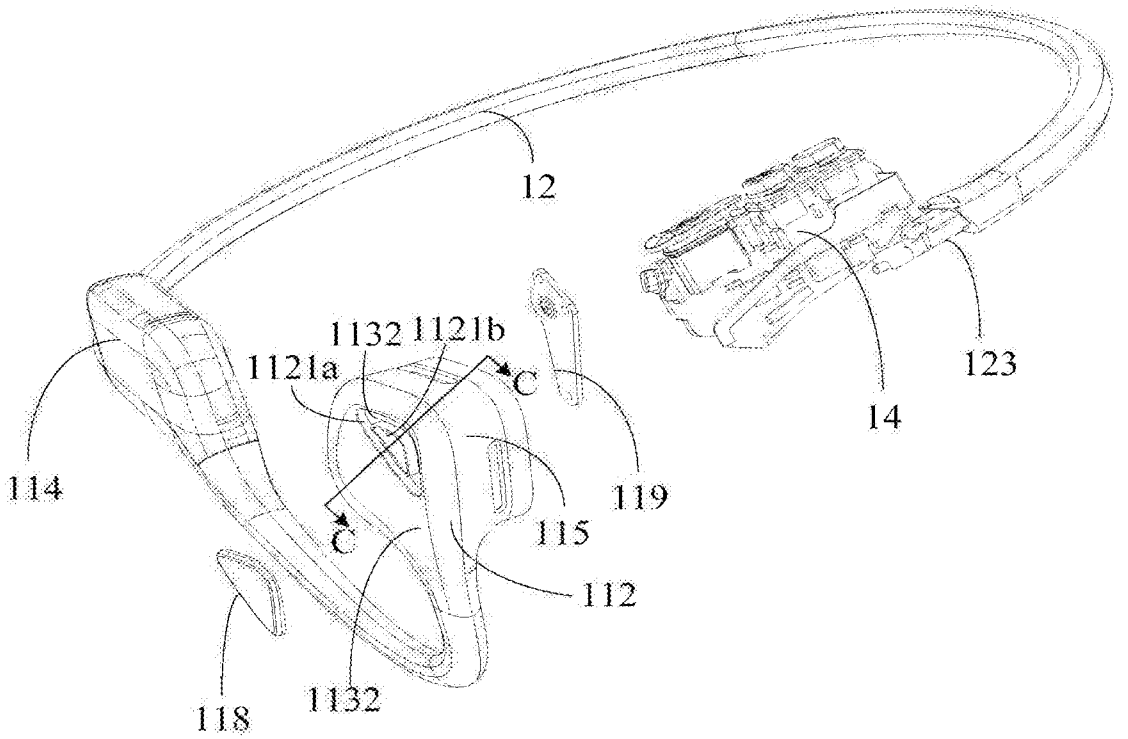


图5

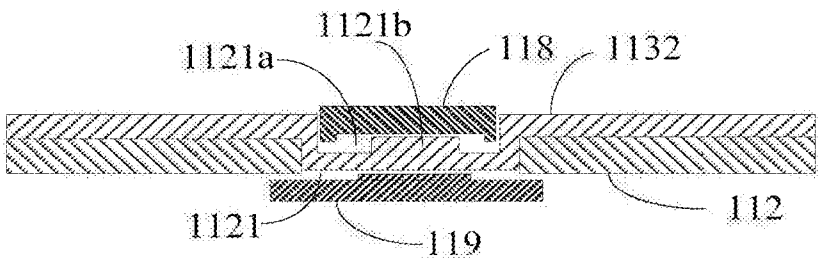


图6

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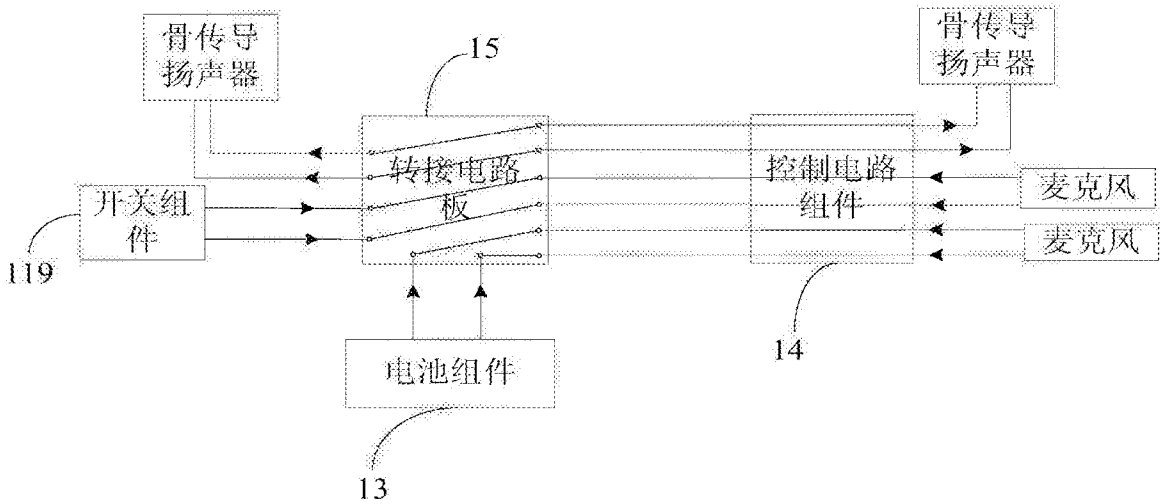


图7

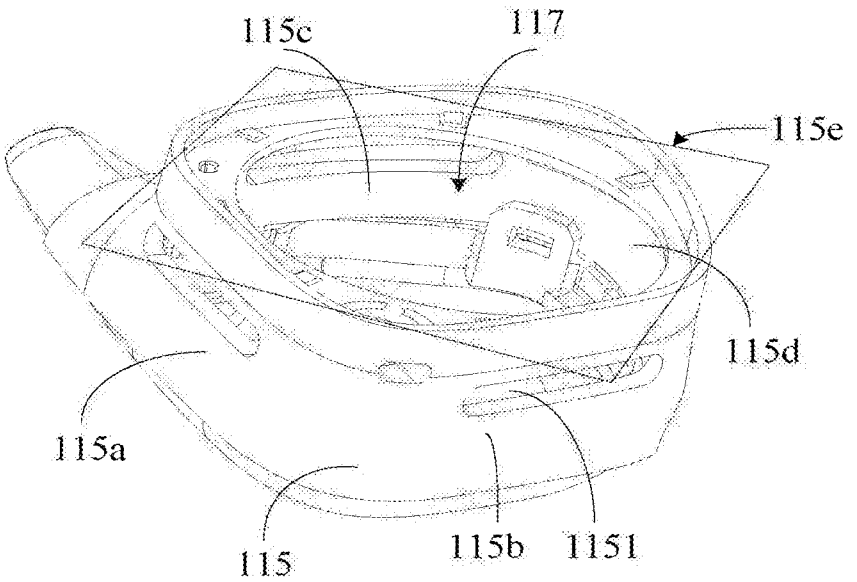


图8

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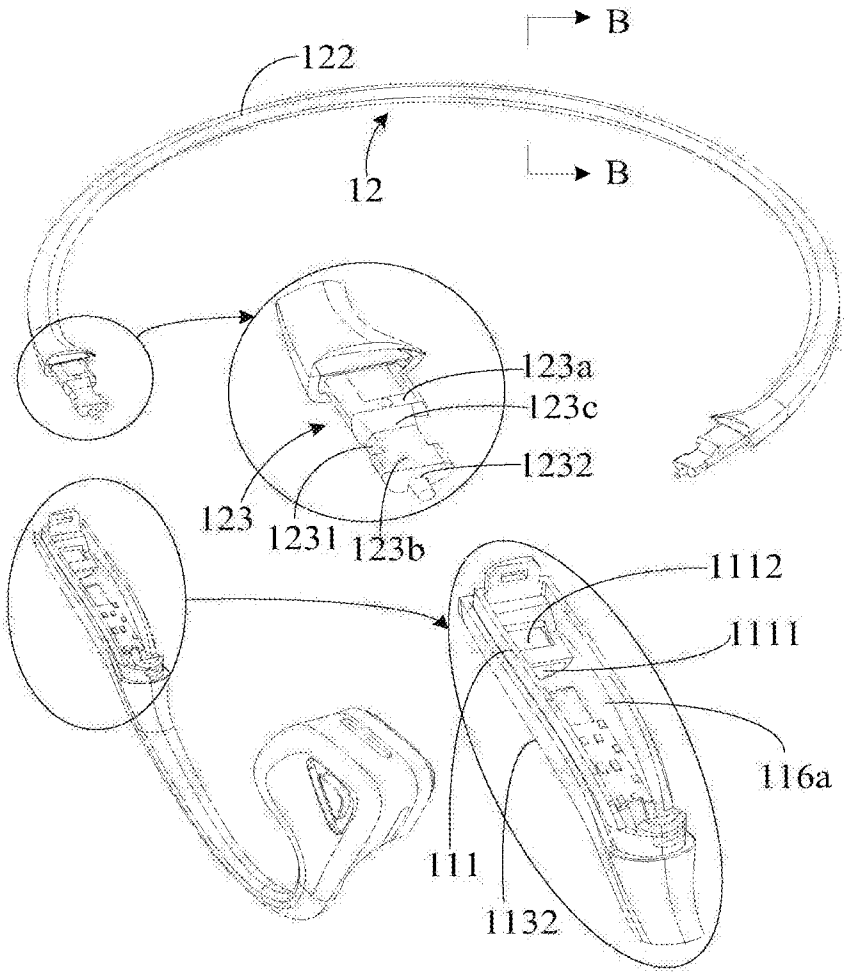


图9

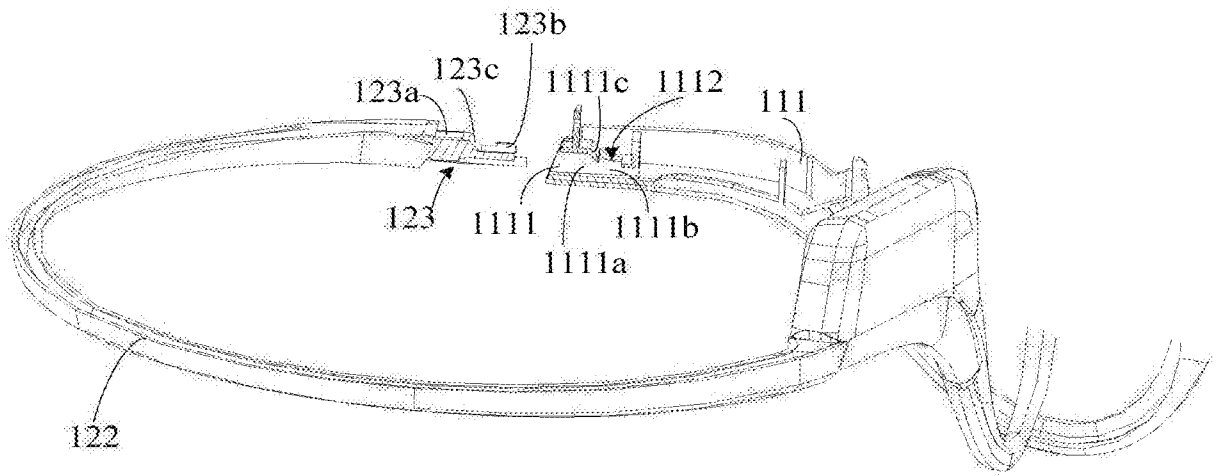


图10

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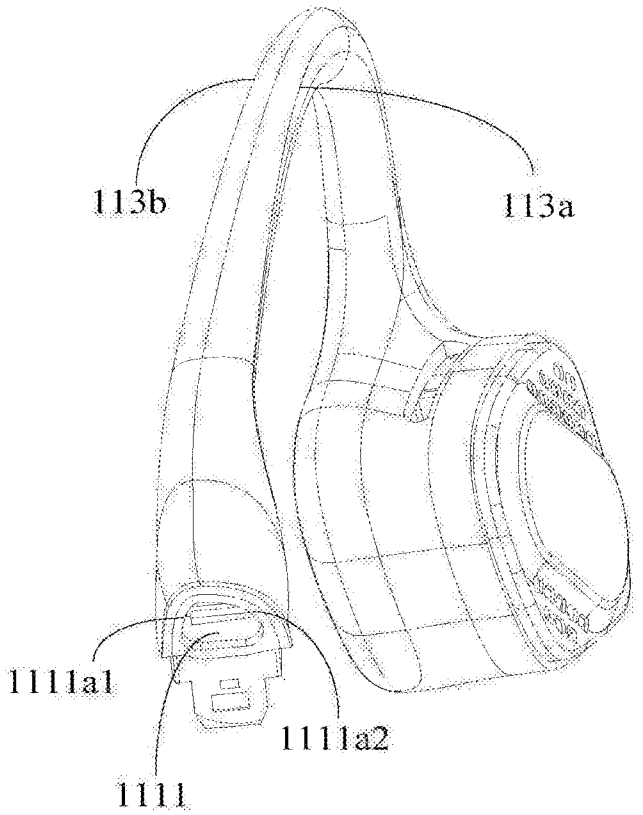


图11

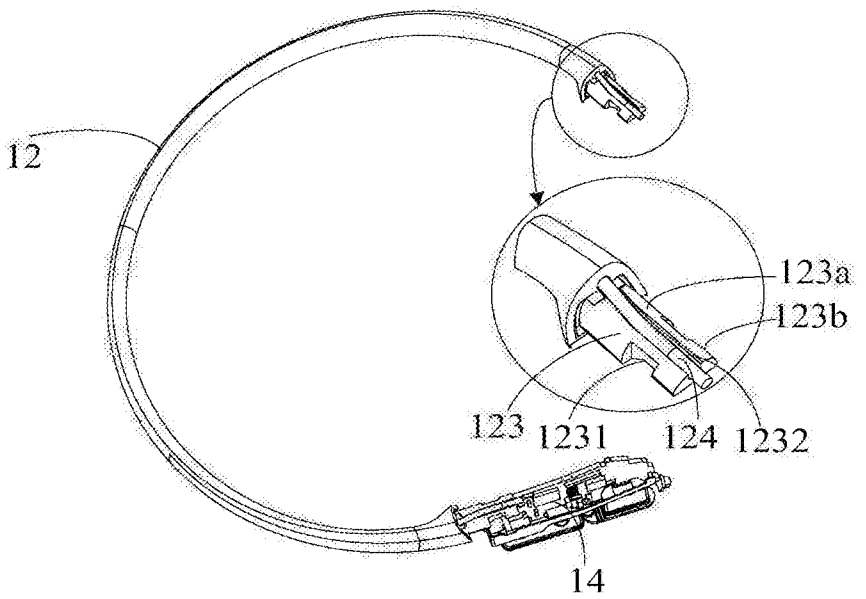


图12

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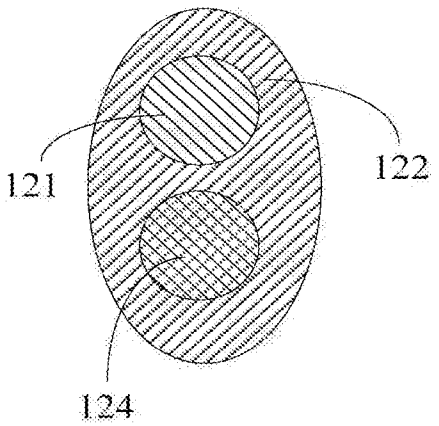


图13

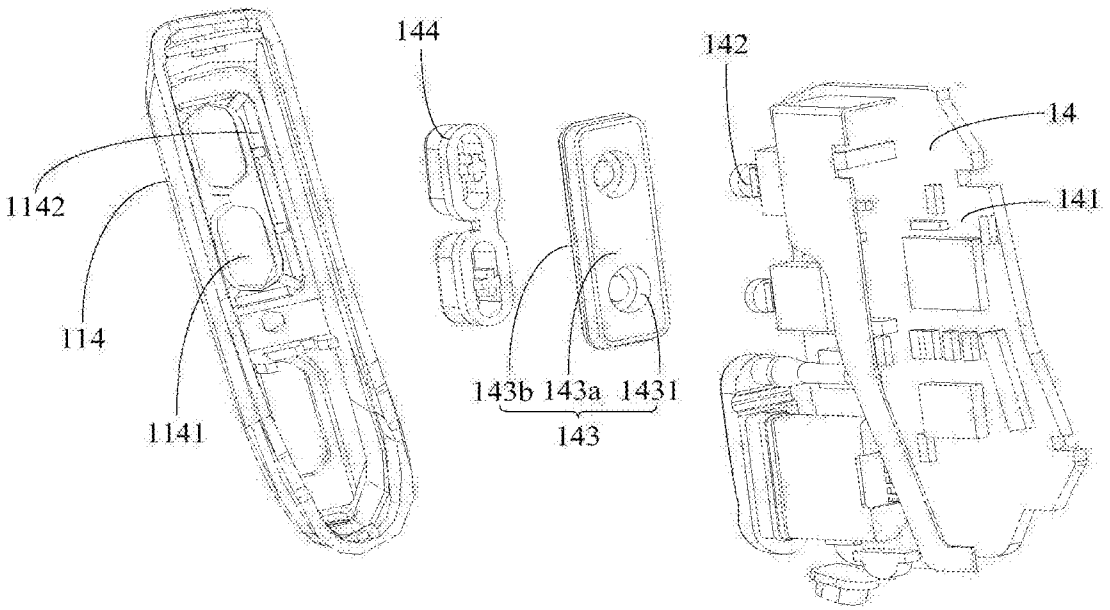


图14

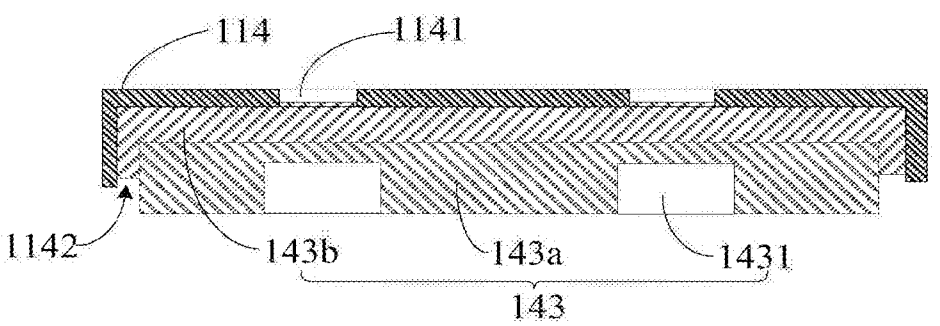


图15

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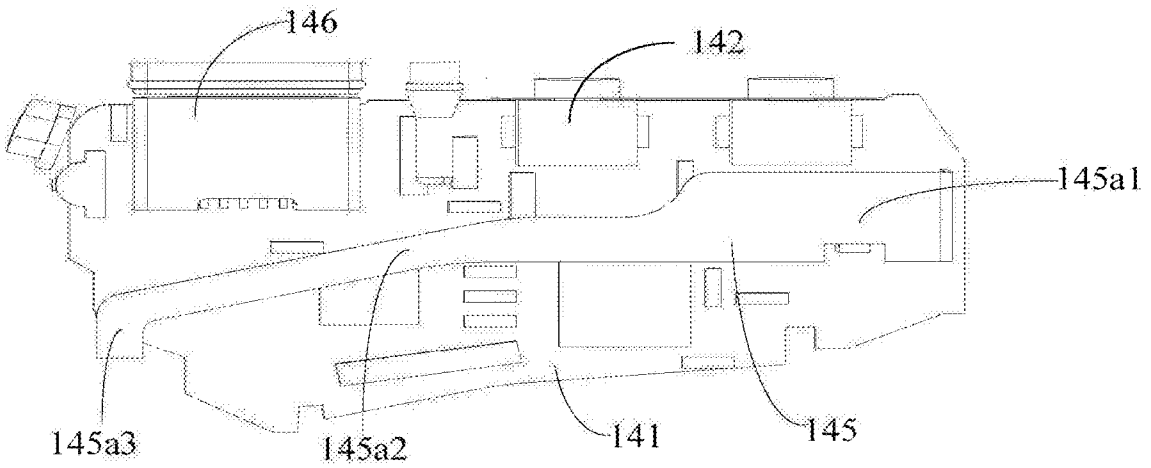


图16

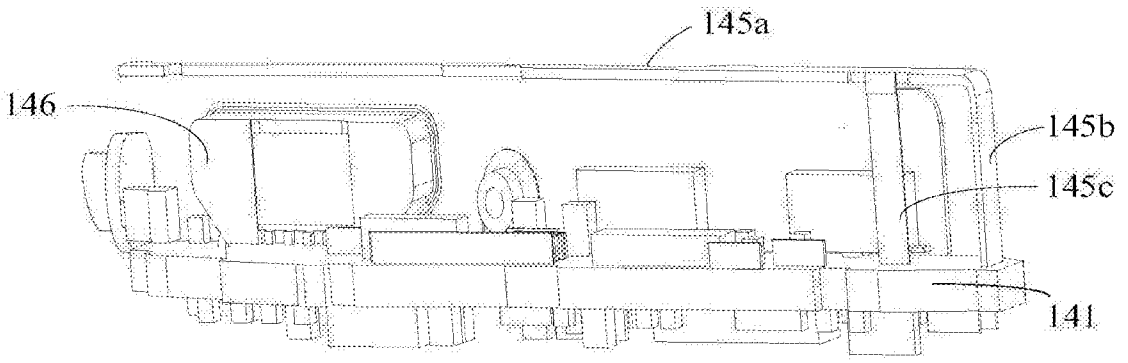


图17

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A kind of bone conduction earphone

Abstract

The utility model embodiment, which provides a kind of bone conduction earphone, includes two ear-hang components, the ear-hang component includes the first housing, the second housing and the connection member of connection first housing and the second housing, the bone conduction earphone further comprises rear hanging component, hanging component is provided at both ends with Plug Division after described, first housing of the Plug Division respectively with described two ear-hang components patches cooperation, and is fixedly connected.By the above-mentioned means, the utility model enables to bone conduction earphone structure easier.

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Worldwide applications

2017 CN

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2018-03-02	Publication of CN207070282U
2020-07-20	First worldwide family litigation filed

Info: Cited by (2), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Description

A kind of bone conduction earphone

Technical field

Earphone field is the utility model is related to, more particularly to a kind of bone conduction earphone.

Background technology

Osteoacusis is a kind of sound conduction mode, i.e., sound is converted into the mechanical oscillation of different frequency, passes through the cranium of people Bone, osseous labyrinth, inner ear lymph transmission, spiral organ, auditory nerve, auditory center transmit sound wave.Bone conduction earphone is passed using bone Waveguide technology is called, is close to bone, and sound wave directly reaches auditory nerve by bone.Therefore ears can be opened, does not injure eardrum, Therefore liked by consumers in general.But existing bone conduction earphone each several part is typically all to be fixed by screw etc. Connection, the rear

Claims (10)

Hide Dependent

1. a kind of bone conduction earphone, it is characterised in that the bone conduction earphone includes two ear-hang components, the ear-hang component bag The first housing, the second housing and the connection member of connection first housing and the second housing are included, the bone conduction earphone enters One step includes rear hanging component, it is described after hanging component be provided at both ends with Plug Division, the Plug Division respectively with described two ear-hang groups First housing of part patches cooperation, and is fixedly connected.

2. bone conduction earphone according to claim 1, it is characterised in that the end set of first housing has for permitting Perhaps the vertical direction of the jointing holes of Plug Division insertion and the direction of insertion in the Plug Division connect the jointing holes with Outside perforate, to allow into the jointing holes

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extension of especially existing bone conduction earphone are needed by screw connection with ear-hang, due to depositing for screw and screw hole The overall dimensions of earphone can not be reduced, assembling the problems such as inconvenient.

Utility model content

The utility model can be effectively improved existing bone and pass mainly solving the technical problems that provide a kind of bone conduction earphone After guide lug machine hang with ear-hang by screw and screw hole be connected caused by earphone size can not reduce the problems such as.

In order to solve the above technical problems, the utility model embodiment, which provides a kind of bone conduction earphone, includes two ear-hang groups Part, the ear-hang component include the first housing, the second housing and the connection member of connection first housing and the second housing, The bone conduction earphone further comprises rear hanging component, and the rear hanging component is provided at both ends with Plug Division, the Plug Division difference Cooperation is patched with the first housing of described two ear-hang components, and is fixedly connected.

Compared with prior art, the beneficial effects of the utility model are : The utility model at rear hanging component both ends by setting Plug Division is put, first housing of the Plug Division respectively with described two ear-hang components patches cooperation, eliminate existing osteoacusis The screw of earphone coordinates fixed mode, can effectively reduce the rear extension of bone conduction earphone and the size of ear-hang link position, with This can reduce earphone size, and be easy to assemble.

Brief description of the drawings

Fig. 1 is the structural representation of the utility model bone conduction earphone embodiment middle ear hanging componenti ;

Fig. 2 is that bone conduction earphone overall structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 3 is another structural representation of the utility model bone conduction earphone embodiment middle ear hanging component ;

Fig. 4 is the cross section structure schematic diagram of A-A in Fig. 3 ;

Fig. 5 is that bone conduction earphone part-structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Fig. 6 is the cross section structure schematic diagram of C-C in Fig. 5 ;

to apply from the outside through the perforate glue or installation stopper, to cause Plug Division is stated to be fixed in the presence of the glue or stopper in the jointing holes.

3. bone conduction earphone according to claim 2, it is characterised in that fluting is provided with the side wall of the Plug Division, The fluting is exposed through the perforate, and for receiving the glue or stopper.

4. bone conduction earphone according to claim 3, it is characterised in that the connection member connects institute respectively including both ends State the first elastic metallic yarn of the first housing and second housing and be coated on first elastic metallic yarn first Resilient coating, the rear hanging component include the second elastic metallic yarn and the second bullet being coated on second elastic metallic yarn Property coating, the Plug Division is arranged on the second elastic metallic yarn both ends.

5. bone conduction earphone according to claim 4, it is characterised in that the Plug Division includes and the described second elasticity gold The first of category silk connection patches section and patches section with described first and be connected and away from the of second elastic metallic yarn setting Two patch section, and direction of insertion of the jointing holes along the Plug Division is divided into for receiving the described first the first hole for patching section Section and for receiving the described second the second hole section for patching section, wherein first hole section is sized to allow for described second Patch section to move freely in first hole section along the direction of insertion, and make it that described first patches section and first hole Tight fit between section.

6. bone conduction earphone according to claim 5, it is characterised in that second hole section is dimensioned so that institute State second and patch tight fit between section and first hole section ; And/or

Described first patches the shape difference for the contact surface that section both sides contact with first hole section.

7. bone conduction earphone according to claim 5, it is characterised in that the fluting is arranged at described second and patches section On.

8. bone conduction earphone according to claim 5, it is characterised in that described first,

Fig. 7 is circuit diagram in the utility model bone conduction earphone embodiment ;

Fig. 8 is the structural representation of the 4th housing in the utility model bone conduction earphone embodiment ;

Fig. 9 is that bone conduction earphone Plug Division is illustrated with patching pore structure amplification in the utility model bone conduction earphone embodiment Figure ;

Figure 10 is Plug Division and jointing holes cross section structure schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 11 is jointing holes structural representation in the utility model bone conduction earphone embodiment ;

Figure 12 is Plug Division structural representation in the utility model bone conduction earphone embodiment ;

Figure 13 is Fig. 9 B-B cross section structure schematic diagram ;

Figure 14 is that bone conduction earphone another part structure disassembles schematic diagram in the utility model bone conduction earphone embodiment ;

Figure 15 is Figure 14 part-structure schematic cross-section ;

Figure 16 is control circuit component structure diagram in the utility model bone conduction earphone embodiment ;

Figure 17 is another structural representation of control circuit component in the utility model bone conduction earphone embodiment.

Embodiment

Refering to Fig. 1 and Fig. 2, the utility model bone conduction earphone embodiment includes ear-hang component 11, and ear-hang component 11 includes First housing 111, the second housing 112 and the connection member 113 of the first housing 111 of connection and the second housing 112, wherein connecting Part 113 connects the first elastic metallic yarn 1131 of the first housing 111 and the second housing 112 including both ends and is coated on respectively The first resilient coating 1132 on first elastic metallic yarn 1131.

Typically, bone conduction earphone also includes the elements such as bone-conduction speaker, battery, control circuit, such as osteoacusis is raised one's voice Device is used to export sound to user by vibration in a manner of osteoacusis.Battery is used to give bone conduction earphone each power elements.Control Circuit processed is used to control bone conduction earphone function such as realizing regulation volume, switching on and shutting down, play audio and bluetooth communication.

which patches section and described second, patches section The stepped setting in bottom surface and patch section described first and second junction for patching section is provided with the first wedge-shaped mistake Section is crossed, and the junction of first hole section and second hole section is provided with corresponding with the described first wedge-shaped changeover portion Two wedge-shaped changeover portions.

9. bone conduction earphone according to claim 4, it is characterised in that hanging component further comprises by described the after described Second wire group of two resilient coatings cladding, wherein the both ends of the second wire group are exposed from second resilient coating, institute The top surface for stating Plug Division is provided with the groove of sunkening cord of the exposed parts for accommodating the second wire group.

10. bone conduction earphone according to claim 4, it is characterised in that first housing and the second housing respectively with Injection molding manner is fixedly connected with the both ends of first elastic metallic yarn, and first resilient coating is fixed with injection molding manner and coated In on first elastic metallic yarn, the Plug Division is fixed on the both ends of second elastic metallic yarn with injection molding manner.

Ear-hang component 11 is generally used for user and is hung on its ear when wearing bone conduction earphone, can so make osteoacusis ear Machine is more firmly worn on the ear of user.Ear-hang component 11 needs to have good resistance to compression and non-deformability, so as to User is not easy to damage or cause its deformation by bone conduction earphone when in use.

In the present embodiment, connection member 113 can directly contact ear and support bone conduction earphone by people's the ear portion, even Relay part 113 includes the first elastic metallic yarn 1131 and the first resilient coating being coated on the first elastic metallic yarn 1131 1132, the first housing 111 and the second housing 112 are connected by the first elastic metallic yarn 1131, can effectively strengthen osteoacusis ear The bending performance and structural stability of machine, ear-hang component 11 is set effectively to carry out elastic recovery when being bent and extensive Shape is restored, is unlikely to deform.In addition traditional bone conductors earphone can be improved using the first elastic metallic yarn 1131 and uses plastics conduct The problems such as fragile caused by the material of ear-hang component.Optionally, connection member 113 can include more first elasticity gold Belong to silk 1131, such as more the first tiny elastic metallic yarns 1131 can be set further to improve the curved of ear-hang component 11 Folding reliability, such as 3 first elastic metallic yarns 1131 of setting, the diameter 0.3mm of every first elastic metallic yarn 1131, now The material of 3 first elastic metallic yarns can with it is identical can also part it is identical or all different, every first elasticity gold certainly Belong to silk 1131 diameter can also identical, part it is identical or all different.

In the present embodiment, optionally, the first elastic metallic yarn 1131 can be metal simple-substance, or including more The alloy material of kind metal material, such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium close Gold, chrome-molybdenum steel etc. or the composite including metal material and nonmetallic materials Optionally, the first elastic metallic Silk 1131 is titanium alloy wire, or is at least made up of titanium alloy material, such as a diameter of 0.8-1.5mm titanium alloy wire, optional For 1.0-1.25mm.

In the present embodiment, the first resilient coating of outer cladding 1132 of the first elastic metallic yarn 1131, the first resilient coating 1132 directly contact with ear, because the elastic reaction of the first resilient coating 1132 enables to user cosily to wear bone Conduct earphone.In addition, the first resilient coating 1132 can more effectively coat the first elasticity gold due to the presence of its elastic reaction Belong to silk 1131, remain to effectively coat the first elastic metallic yarn 1131 even in after repeatedly bending, ensure bone conduction earphone knot The validity of structure.Optionally, the first resilient coating 1132 is layer of silica gel, certainly in other

embodiments, the first resilient coating 1132 can also be emulsion layer either rubber layer or other flexible plastic layers, or be the composite comprising silica gel Layer.

Optionally, the first housing 111 and the second housing 112 are respectively with injection molding manner and the first elastic metallic yarn 1131 Both ends are fixedly connected, and the first resilient coating 1132 is fixed with injection molding manner and is coated on the first elastic metallic yarn 1131.Optionally it is that the first housing 111 and the second housing 112 are plastic casing, and the first elastic metallic yarn is fixed in a manner of injection molding 1131 both ends, and the first resilient coating 1132 are integrally formed on the first elastic metallic yarn 1131 of cladding, so that the Connection between one housing 111, the second housing 112 and the first elastic metallic yarn 1131 is more firm, and causes bone conduction earphone One body-sensing is stronger with texture, makes the more compact structure of bone conduction earphone lighter.In the present embodiment, injection molding manner can be note The one kind being moulded into type, thermoplastic shaping, compression molding etc., but not limited to this.

Refering to Fig. 3 and Fig. 4, optionally, the first resilient coating 1132 by different colours two sub- resilient coatings 1132a, 1132b are put together, and two of which elastic coating 1132a, 1132b split seam are located at connection member 113 respectively Be oppositely arranged two sides 113a, 113b on, wherein split is sewn on the throwing for example on lateral surface 113a on same side Shadow offsets one from another.Such as when carrying out injection molding, two bullets using at least two molds to the first resilient coating 1132 Property coating 1132a, 1132b are molded respectively, the two kinds of colors that thus can form different ratio be, for example, light gray with it is dark-grey The combination of color or other colors, and split seam is located on two sides 113a, 113b that connection member 113 is oppositely arranged, and Projection offsets one from another on same side so that the visual effect of bone conduction earphone more preferably, further as staggering coats the first bullet Property wire 1131 cause covered effect it is more preferable.Certain first resilient coating 1132 elastic can also be covered by two of same color Layer is put together.By injection molding twice, formation two is elastic on two sides 113a, 113b of connection member 113 respectively Coating 1132a, 1132b, due to the presence of injection pressure when can improve single injection-molded or be injected separately shaping up and down Easily causing element such as the first elastic metallic yarn 1131 in the first resilient coating 1132 to produce displacement reduces connection member 113 Forming Quality.Certainly, in other embodiments, the first resilient coating 1132 can directly form a coating, or be formed The more than two elastic coating of quantity.

In the present embodiment, the two sides of connection member 113 include being oppositely arranged medial

surface 113b and lateral surface 113a, are Refer to the ear-hang component 11 when wearing and be hung on human ear, connection member 113 towards the side of head part be medial surface 113b, towards human ear Side be lateral surface 113a.

With continued reference to Fig. 3 and Fig. 4, optionally, two sub- resilient coating 1132a, 1132b split seam are respectively positioned at company On the medial surface 113b and lateral surface 113a of relay part 113, and the split seam on the lateral surface 113a of connection member 113 The projection compared to the split seam on the medial surface 113b of connection member 113 is projected closer to connection member 113 and human ear Contact position.It can thus be appreciated that a split seam is located at the position of lateral surface 113a close contact human ear, and another is spelled Elastic coating 1132a that joint close is located at medial surface 113b almost to show same color on lateral surface 113a or 1132b, such as lateral surface 113a almost show light gray so that the body-sensing of bone conduction earphone one is stronger, more attractive in appearance.

Optionally, split seam is arranged so that two sub- resilient coating 1132a, 1132b in same side such as 113a Or the area on 113b is different from each other.In other embodiments, split seam may be arranged so that two sub-resilient coatings The area of 1132a, 1132b on same side is identical or is substantially the same.

Refering to Fig. 2 to Fig. 4, optionally, the color for being arranged so that two sub- resilient coating 1132a, 1132b is stitched in split Relatively shallower elastic coating 1132a footprint areas on lateral surface 113a are relatively large.That is, the elastic of light colour is covered Layer 1132a is more located at lateral surface 113a, and the elastic coating 1132b of dark colour is more located at medial surface 113b, so So that the surface of connector 113 has more harmony, strengthen the aesthetic properties of bone conduction earphone while structural behaviour is ensured.

With continued reference to Fig. 1, optionally, the both ends of the first elastic metallic yarn 1131 set in flat and are respectively embedded into One housing 111 and the second housing 112.Namely formed and be fixed in a manner of injection in the first housing 111 and the second housing 112 First elastic metallic yarn 1131 is in the both ends that flat is set, and can so increase the first elastic metallic yarn 1131 and the first housing 111st, the contact area of the second housing 112 so that the first elastic metallic yarn 1131 and the first housing 111, the second housing 112 are more steady Surely interfix.Optionally, it should be in flat that the first elastic metallic yarn 1131 is more than connection in the width at the both ends of flat setting The width of the coupling part at the flat both ends set, so plays a spacing effect after shaping, prevents the first elasticity gold Category silk 1131 is pulled out or come off from the first housing 111, the second housing

112.Optionally, first elastic metallic yarn 1131 Both ends are set in shape of threads.In shaping, partial shell can be taken shape in screw thread, to play fixed effect.Certainly, first The both ends of elastic metallic yarn 1131 can be set in flat and shape of threads respectively.In other embodiments, the first elasticity gold Category silk 1131 both ends can partly be located at indent to form depressed part, the first housing 111 and the second housing 112 in shaping In depressed part, to play fixation.

Refering to Fig. 1 and Fig. 2, optionally, the first resilient coating 1132 further coats the first housing 111 and the second housing 112 at least part outer surface, such as whole outer surfaces.I.e. the first resilient coating 1132 coats first in a manner of injection molding Elastic metallic yarn 1131, at least part outer surface of the first housing 111, at least part outer surface of the second housing 112, so make It is stronger to obtain texture and the body-sensing of bone conduction earphone, and the presence of the first resilient coating 1132, can further containment vessel The element of body and enclosure interior so that bone conduction earphone is more resistant to abrasion.

Refering to Fig. 5 and Fig. 6, optionally, formed with through hole 1121 on the second housing 112.I.e. through hole 1121 runs through second The medial surface and lateral surface of housing 112.First resilient coating 1132 cover through hole 1121 and further above through hole 1121 and Side away from the second housing 112 (i.e. the medial surface away from the second housing 112) is formed with button holding part 1121a.Button holds The portion 1121a of putting is to be covered through hole 1121 in injection moulding process by the first resilient coating 1132 and formed, in button holding part 1121a Because the presence of the first resilient coating 1132 is can to completely cut off moisture content, dust etc. to enter 112 in second shell body.Ear-hang component 11 enters One step includes button 118 and switch module 119, and wherein button 118 is arranged in button holding part 1121a.Switch module 119 is set Be placed in the second housing 112 away from the first resilient coating 1132 side, i.e. the second housing 112 medial surface, and with button 118 First resilient coating 1132 of lower section abuts.Optionally, a boss 1121b, button are provided with button holding part 1121a 118 are fixed in a manner of for example pasting on boss 1121b.In the present embodiment, because the first resilient coating 1132 is with injection Mode, which is fixed, to be coated on second shell body 112, and covers through hole 1121, has more preferable waterproof effect.Optionally, boss 1121b is integrally formed when the first resilient coating 1132 covers through hole 1121 and formed by the first resilient coating 1132.

In the present embodiment, the switch module 119 on the second housing 112 is mainly used for controlling the function of bone conduction earphone Switch, such as broadcasting and the pause of music, voice are answered with hanging up, connecting wireless signal to be connected mobile device such as bluetooth

Communication, or the selection etc. of bone conduction earphone mode of operation, not limited to this.

Refering to Fig. 1, Fig. 2, Fig. 4 and Fig. 7, optionally, the inside of the first resilient coating 1132 is further provided with being used for The lead channels 1134 of the first housing 111 and the second housing 112 are connected, ear-hang component 11 further comprises from the first housing 111 The first wire group 1133 of the second housing 112 is extended to through lead channels 1134, the radial dimension of lead channels 1134 is arranged to The first wire group 1133 is allowed to be moved along lead channels 1134.

By setting lead channels 1134, such as first the one end of the first wire group 1133 can be connected when assembling in the later stage Element such as bone-conduction speaker in (such as in a manner of onboard) second housing 112, then the first wire group 1133 is another Hold through lead channels 1134 with connect the first housing 111 in element such as battery component 13, control circuit component 14 or Switching circuit board 15 etc., packaging technology can be so reduced, and existing bone conduction earphone can be improved in the first resilient coating 1132 that wiring is embedded to caused by the first wire group 1133 in injection molding is difficult and the problems such as be unfavorable for later period maintenance.When So, the one end of the first wire group 1133 first can also be connected into (such as in a manner of onboard) first housing 111 when assembling in the later stage Interior element such as battery component 13, control circuit component 14 or switching circuit board 15, then the first wire group 1133 is another Hold through lead channels 1134 to connect the element in the second housing 112 such as bone-conduction speaker.

In the present embodiment, 1134 specific molding mode of lead channels for example including providing one first elasticity gold first Belong to the first housing 111 of the connection of silk 1131 and the component of the second housing 112, further in the second housing 112 and the first housing 111 Between additional metal silk (not shown) is removably set, further in the first elastic metallic yarn 1131, additional gold Belong to silk and the partial outer face of the first housing 111 and the second housing 112 and first resilient coating 1132 is formed with injection molding manner, into Additional metal silk is extracted after type to form lead channels 1134.In other embodiments, such as the first resilient coating 1132 is molded During shaping, be embedded to easily melting property material, in the first 1132 injection molding of resilient coating, this easily melting property material melts and flow out, shape into lead channels 1134.In another example lead channels 1134 can be after the shaping of the first resilient coating 1132, by way of threading a needle Passage is formed, then expands passage by way of hot melt and forms lead channels 1134.

With continued reference to Fig. 1 and Fig. 4, in the present embodiment, optionally, lead channels 1134 are arranged at the first elastic metallic The downside of silk 1131, with when in use compared to contact of first elastic metallic yarn 1131 closer to connection member 113 with human ear Position.In the present embodiment, the first lead channels 1134 are independently arranged with the first elastic metallic yarn 1131 interval.In other implementations In example, the first lead channels 1134 can merge setting with the first elastic metallic yarn 1131, i.e., the first wire group 1133 is first The first elastic metallic yarn 1131 is can contact in lead channels 1134.In the present embodiment, lead channels 1134 are arranged at the first bullet The downside of property wire 1131, with when in use compared to the first elastic metallic yarn 1131 closer to connection member 113 and human ear Contact position, due to the presence of lead channels 1134, can make it that the first resilient coating 1132 close to human ear is more elastic It is softer, wear more comfortable.In other embodiments, certain first lead channels 1134 can also be arranged on the first elasticity The upside of wire 1131, the first elastic metallic yarn 1131 is closer to human ear when in use.

Refering to Fig. 1, Fig. 2 and Fig. 8, optionally, ear-hang component 11 includes the 3rd housing 114 and the 4th housing 115.Wherein 3rd housing 114 coordinates with the first housing 111, to form the first appearance for being used for housing battery component 13 or control circuit component 14 116 between being empty.4th housing 115 coordinates with the second housing 112, is used for the second accommodating sky for housing bone-conduction speaker to be formed Between 117.Optionally, the 4th housing 115 and the 3rd housing 114 are plastic casing.

Optionally, the second housing 112 is connected with the 4th housing 115 by the first snap component (not marking), the first card Seaming element includes the first holding section and the first buckling parts, and the first holding section is arranged on the 4th housing 115, and the first buckling parts is set It is placed on the second housing 112, when the second housing 112 and the 4th housing 115 coordinate, the first holding section card on the 4th housing 115 Enter the first buckling parts of the second housing 112, the second housing 112 is fixed together with the 4th housing 115.Optionally, Two housings 112 are attached with the 4th housing 115 by least one set of first snap component such as 4 group of first snap component When Right second housing 112 can also be bonded with the 4th housing 115 by glue, or be made simultaneously with glue by the first engaging component It is connected with being fixed, or by fasteners such as screws.

Optionally, the 3rd housing 114 is connected with the first housing 111 by the second snap component (not marking), the second card Buckle assembly includes the second holding section and the second buckling parts, and the second holding section is arranged on the 3rd housing 114, and the second buckling parts is set Put on the first

housing 111, when the first housing 111 and the 3rd housing 114 coordinate, the second holding section card of the 3rd housing 114 Enter the second buckling parts of the first housing 111, the first housing 111 is fixed together with the 3rd housing 114.

In the present embodiment, the 3rd housing 114 of ear-hang component 11 coordinates with the first housing 111, is used to house to be formed First accommodation space 116 of battery component 13 or control circuit component 14, the 4th housing 115 coordinates with the second housing 112, with shape into the second accommodation space 117 for housing bone-conduction speaker, the first wire group 1133 can move through lead channels 1134 are used to electrically connect bone-conduction speaker and battery component 13 or control circuit component 14.In the present embodiment, baitery component 13 for example including battery and battery management circuit, and battery is that bone conduction earphone miscellaneous part is supplied by battery management circuit Electricity, such as battery management circuit include charging circuit, current foldback circuit, over-discharge protection circuit, overvoltage crowbar etc..Such as Battery is rechargeable battery, for example, lithium battery.Refering to Fig. 7, optionally, bone conduction earphone, which still further comprises, for example transfers Circuit board 15, it is arranged in the first accommodation space 116, battery component 14 is divided into multiple wiring solder joints by switching circuit board 15, With two bone-conduction speakers, control circuit component 14, microphone and the switch module of corresponding connection bone conduction earphone 119 etc., said elements associated tracks are connected with above-mentioned wiring solder joint and turned on by Fig. 7 modes, are easy to wiring and assembling.Such as electricity Pond component 14 connects switching circuit board 15 by two wiring solder joints of both positive and negative polarity, and switching circuit board 15 separates 10 wiring welderings Point, to connect the miscellaneous part of bone conduction earphone.

Refering to Fig. 1 and Fig. 2, optionally, the first sub-accommodation space 116a, the 3rd housing are provided with the first housing 111 The second sub-accommodation space 116b is provided with 114, and it is accommodating with the first son when the 3rd housing 114 and the first housing 111 coordinate Space 116a is collectively forming the first accommodation space 116, such as is fixedly connected by the first snap component.Wherein second son holds The volume for being empty a 116b is more than the first sub-accommodation space 116a.Such as second sub-accommodation space 116b volume be first son hold It is empty 2-5 times of a 116a, for example, 3-4 times, for example, 3.2 times, or for example, 2.5 times.

In assembled baitery component 13 or control circuit componeni 14, such as first by battery component 13 or control circuit component 14 are placed in the first sub-

accommodation space 116a, for example, battery by glue material or sticking double faced adhesive tape in the first sub- accommodation space In 116a, or control circuit component 14 is fixed in the first sub- accommodation space 116a by snap-in structure so that battery component 13 or control circuit component 14 it is most of exposed, be easy to the techniques such as assembling and wiring, then the 3rd housing 114 is passed through into the second card Buckle assembly covers with the first housing 111, and the first sub- sub- accommodation space 116b of accommodation space 116a and second form the first accommodating sky Between 116, so improving traditional bone conductors earphone needs to assemble battery or control board and be contained in and ear-hang one In the housing of shaping and further battery control circuit plate exterior section is affixed on using silica gel strip to carry out coating caused assembling The problem of complex procedures, simplify structure and assembling procedure.

Refering to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in prism-shaped, wherein in the 4th housing 115 at least Bar shaped is provided with one side and draws sound hole 1151, the length direction of sound hole 1151 and the bottom surface of the 4th housing 115 are drawn in wherein bar shaped It is parallel or be arranged substantially in parallel, and bar shaped draw sound hole 1151 length be not less than side where it width three/ Two.In the present embodiment, bar shaped draws the relatively parallel bottom surface 115e of sound hole and refers to that the 4th housing 115 is towards human body face when wearing Plane defined in the edge of opening of the one side in portion.

Typically, bone-conduction speaker peritropous environment of meeting during vibration transmits sound, in addition to wearer, ring Other people in border can also hear that the sound of loudspeaker, such as the vibration of bone-conduction speaker cause the second accommodation space 117 The vibration of interior air and the vibration for causing the grade of the 4th housing 115, so as to occur leaking sound phenomenon, the sound of bone conduction earphone can be influenceed Matter.It is to propagate to the sound wave guiding in the second accommodation space 117 outside space to draw sound hole 1151, with leakage speech ripple with atmosphere Propagation interferes, and so as to reduce the amplitude of Lou speech ripple, reduces leakage sound.

With continued reference to Fig. 8, in order to further improve leakage sound phenomenon, the present embodiment passes through at least the one of the 4th housing 115 Side sets bar shaped to draw sound hole 1151, and is appropriately arranged with its size and direction improves the leakage sound that traditional bone conductors earphone belt comes and showed As still than it is more serious the problem of.Further, bar shaped is drawn the length direction of sound hole 1151 and parallel with the bottom surface of the 4th housing 115 set Put, can not only ensure attractive in appearance, and the uniformity

of the intensity of acoustic wave through directed parallel, so as to ensure interference effect.In this reality Apply in example, bar shaped draw sound hole 1151 length be not less than side where it width 2/3rds, can effectively guide the Sound wave in two accommodation spaces 117.Be chosen as, bar shaped draw sound hole 1151 length be its where side width four/ Three.Certainly, in other embodiments, wherein being at least set side by side with least two articles of bar shapeds on one side in the 4th housing 115 Draw sound hole 1151, such as setting two parallel bar shapeds to draw sound hole 1151 at least on one side, and with the bottom of the 4th housing 115 Face 115e is parallel.

Optionally, the 4th housing 115 bone conduction earphone using when side 115d close to human ear on be not provided with bar shaped Draw sound hole 1151.Certainly, in other embodiments, can also the 4th housing 115 when bone conduction earphone uses close to human ear Side 115d on set draw sound hole, can be that point type draws sound hole, or sound hole 1151 is drawn in bar shaped.

With continued reference to Fig. 2 and Fig. 8, optionally, the 4th housing 115 is set in quadrangular shape, wherein in the 4th housing 115 Bar shaped, which is provided with, on two sides 115a, 115c being disposed adjacent with connection member 113 draws sound hole 1151, further remaining two In individual side 115b, 115d bone conduction earphone using when the side 115b away from human ear equally set bar shaped to draw sound hole 1151, and in remaining two sides 115b, 115d bone conduction earphone using when side 115b close to human ear on do not set Put bar shaped and draw sound hole 1151.Namely set three bar shapeds to draw sound hole 1151 on three sides 115a, 115b, 115c, passed in bone Guide lug machine using when be not provided with bar shaped close to the side 115d of human ear and draw sound hole 1151, so can further reduce Lou sound and show As ensureing the tonequality of bone conduction earphone.

In the present embodiment, the 4th housing 115 is set in quadrangular shape, such as including four-prism and class quadrangular Shape.Such as specifically, two sides 115a, 115c being disposed adjacent with connection member 113 of the 4th housing 115 any one side The length in face is all higher than the length of remaining two sides 115b, 115d any one side, further, the 4th housing 115 It is unequal or equal with two sides 115a, 115c that connection member 113 is disposed adjacent length.In other embodiment In, the 4th housing 115 is set in quadrangular shape, and the length of its four sides can be equal.

In the present embodiment, optionally, two sides being disposed adjacent with connection member 113 of the 4th housing 115 Angle between 115a, 115c is 90 ° -150 °, is chosen as 100 ° -130 °, is chosen as 110 ° -120 °.

Optionally, it is further provided with covering the water proof and dust proof filter screen that sound hole 1151 is

drawn in bar shaped, example in the 4th housing 115 Such as waterproof ventilated membrane (not shown).Water proof and dust proof filter screen is set, can prevent the dust outside bone conduction earphone and waterproof bone from passing The water inlet of guide lug machine enters damage bone-conduction speaker.

In the present embodiment, a microphone aperture (not shown) is respectively arranged with the second housing 112 and the 4th housing 115, Specifically, the first microphone aperture be arranged on the not direct remaining two sides 115b being connected with connection member 113 of the 4th housing 115, 115d junction, second microphone hole are arranged on the lateral surface of the second housing 112 and close to the 4th housing 115 and connection members 113 junction.By setting two microphones in the microphone aperture of two stagger settings, phonetic entry matter can be strengthened Amount, and effective Noise Reduction is played, thus improve the definition of phonetic entry.

Refering to Fig. 2 and Fig. 9, in the present embodiment, the quantity of ear-hang component 11 is two, and bone conduction earphone further wraps Include rear hanging component 12.Hanging component 12 includes the second elastic metallic yarn 121, second be coated on the second elastic metallic yarn 121 afterwards Resilient coating 122 and the Plug Division 123 for being arranged at the both ends of the second elastic metallic yarn 121.Plug Division 123 respectively with two ear-hangs First housing 111 of component 11 patches cooperation, and is fixedly connected Optionally, Plug Division 123 is fixed on second with injection molding manner The both ends of elastic metallic yarn 121, Plug Division 123 can be so set more securely to be fixed on the both ends of the second elastic metallic yarn 121. Optionally, the second elastic metallic yarn 121 can be metal simple-substance, or include the alloy material of various metals material, Such as spring steel, aluminium alloy, magnesium alloy, titanium alloy, nickel alloy, Ti-Ni alloy, magnesium lithium alloy, chrome-molybdenum steel etc. or bag Include metal material and the composite of nonmetallic materials.In the present embodiment, the second elastic metallic yarn 121 is titanium alloy wire, or Person is at least made up of titanium alloy material.In the present embodiment, the second resilient coating 122 is layer of silica gel.In other embodiment mode In, the second resilient coating 122 can also be rubber layer or emulsion layer, or the composite layer including silica gel.

Carry out patching cooperation by the Plug Division 123 of rear hanging component 12 and the first housing 111 of two ear-hang components 11, change It has been apt to the problems such as earphone size that existing bone conduction earphone is brought using the fixed form such as screw is larger, so as to simplify structure, Mitigate the weight of bone conduction earphone, facilitate later stage wiring and cost can be reduced.

Refering to Fig. 9 and Figure 10, optionally, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111 and the vertical direction connection jointing holes 1111 of direction of insertion in Plug Division 123 and the perforate 1112 of outside, To allow into jointing holes 1111 to apply from the outside through perforate 1112 glue or installation stopper (not shown), to cause Plug Division 123 are fixed in the presence of glue or stopper in jointing holes 1111.In this embodiment, perforate 1112 is positioned at the described first son In accommodation space 116a.In other embodiments, the end set of the first housing 111 has what is inserted for allowing Plug Division 123 Jointing holes 1111, there is a recess on Plug Division 123, there is a resilient projection in jointing holes 1111, Plug Division 123 is inserted and patched During hole 1111, resilient projection is caught in recess, and Plug Division 123 and jointing holes 1111 are coordinated into fixation.Such as Plug Division 123 is inserted During jointing holes 1111, resilient projection is first extruded, after be caught in the presence of elastic restoring force in recess.Optionally, patch The depth that portion 123 inserts jointing holes 1111 is 6-11mm, is chosen as 8-10mm.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is provided with the side wall of Plug Division 123.The warp of fluting 1231 Perforate 1112 is exposed or part is exposed, and for receiving glue or stopper.Optionally, Plug Division 123 is at least one it is provided with side wall on fluting 1231, such as two side walls and is provided with fluting 1231.In other embodiments, can make simultaneously With glue and stopper, such as first fixed using stopper, then apply glue and further fix.In the present embodiment, stopper E.g. chock or pin or the fixture insertion fluting 1231 with certain elasticity is interference fitted.

Refering to Fig. 2, Fig. 9 and Figure 10, optionally, Plug Division 123 includes first be connected with the second elastic metallic yarn 121 Patch section 123a and patch section 123a with first and be connected and second patch section away from what the second elastic metallic yarn 121 was set 123b.Direction of insertion of the jointing holes 1111 along Plug Division 123 is divided into for receiving the first the first hole section for patching section 123a 1111a and the second hole section 1111b that section 123b is patched for reception second Wherein the first hole section 1111a is sized to permit Perhaps second patch section 123b and moved freely along direction of insertion in the first hole section 1111a, and cause first to patch section 123a and the Tight fit between one hole section 1111a.Section and both ends hole section are patched by two sections to be respectively cooperating with fixing, and can cause Plug Division 123 are more securely fixed in the first housing 111, strengthen the structural stability of bone conduction earphone.

With continued reference to Fig. 9 and Figure 10, optionally, fluting 1231 is further disposed at the second side wall for

patching section 123b. Perforate 1112 connects the second hole section 1111b of jointing holes 1111.In the present embodiment, a section 123b is patched in Plug Division 123 second The first hole section 1111a and the second hole section 1111b is passed sequentially through, so that first patches section 123a and the first hole section 1111a close-fittings Close, second patch section 123b fluting 1231 it is exposed through perforate 1112, for receiving glue or stopper.Connect by first insert section 123a and the first hole section 1111a tight fit and the second jointing holes 1111 and the second hole section 1111b further cooperation It is fixed, effectively rear extension can be fixedly connected with ear-hang.In other embodiments, fluting 1231 can be arranged on first and patch In section 123a side wall.Perforate 1112 connects the second hole section 1111b of jointing holes 1111.

Optionally, the second hole section 1111b be dimensioned so that second patch section 123b and the second hole section 1111b it Between tight fit.Thus by the first tight fit, the second jointing holes 1111 and the second hole for patching section 123a and the first hole section 1111a Section 1111b tight fit and the glue of application or stopper are fixed, and effectively further hang by after and are fixed with ear-hang Connection, and structure can be simplified, make bone conduction earphone lighting.Certainly, in other embodiments, first section 123a and are patched Tight fit between one hole section 1111a, and second to patch section 123b and the second hole section 1111b can be other kinds of secure fit Such as it is clasped.

Refering to Figure 11, optionally, first patches the shape of section 123a both sides and the first hole section 1111a contact surfaces contacted It is different.First patches section 123a both sides shape difference, and accordingly the first hole section 1111a patches what section 123a was contacted with first 1111a1,1111a2 are also different for two sides.For example, the curved setting in the first hole section 1111a two sides, medial surface 1111a2 Radius of curvature be more than lateral surface 1111a1 radius of curvature, namely medial surface 1111a2 radian change is relatively slow, and outer Side 1111a1 radian change is relatively large, and first patches section corresponding setting in 123a two sides.Certainly, in other embodiment In, the first hole section 1111a curved setting in two sides, medial surface 1111a2 radius of curvature is less than lateral surface 1111a1's Radius of curvature, namely medial surface 1111a2 radian change are relatively large, and the change of lateral surface 1111a1 radian is relatively small. First hole section 1111a two sides are medial surface 1111a2 close to human body head when wearing, and are outer away from human body head Side 1111a1.First patches the shape difference of section 123a both sides and the first hole section 1111a contact surfaces contacted so that first connects Insert section 123a and be unable to anti-plug, and two Plug Divisions 123

are hung from mixed insertion after also causing, play effective fool proof effect, facilitate group Dress.

Refering to Fig. 9 and Figure 10, optionally, first, which patches section 123a and second, patches section 123b bottom surface and stepped sets Put and patch section 123a first and the second junction for patching section 123b is provided with the first wedge-shaped changeover portion 123c, and the first hole Section 1111a and the second hole section 1111b junction is provided with the second wedge-shaped changeover portion corresponding with the first wedge-shaped changeover portion 123c 1111c。

In the present embodiment, first section 123a is patched and the second bottom surface for patching section 123b refers to when wearing close to human ear The one side of root.Top surface is then the one side away from people's the ear portion.

In the present embodiment, first patch section 123a thickness and be greater than the second thickness for patching section 123b and i.e. stepped set Put, there is thickness difference in both junctions, and set the first wedge-shaped changeover portion 123c, it is corresponding in the first hole section 1111a and Second hole section 1111b junction sets the second wedge-shaped changeover portion 1111c being adapted with the first wedge-shaped changeover portion 123c, the One patches section 123a and second when patching a section 123b and being sequentially inserted into the first hole section 1111a and the second hole section 1111b, the first wedge-shaped mistake Cross section 123c and the second wedge-shaped changeover portion 1111c to abut against, second can be facilitated to patch section 123b and first and patch section 123a's Insertion, and play a part of buffering transition, spacing and further fixation.

Refering to Fig. 9, Figure 12 and Figure 13, optionally, rear hanging component 12 further comprises being wrapped by the second resilient coating 122 The the second wire group 124 covered, wherein the both ends of the second wire group 124 are exposed from the second resilient coating 122, the top of Plug Division 123 Face is provided with the groove 1232 of sunkening cord of the exposed parts for accommodating the second wire group 124.In the present embodiment, the second wire group 124, for connecting the element in two ear-hang components 11 such as connecting battery and control circuit component 14.Setting is sunken cord groove 1232, the second wire group 124 on the one hand effectively can be arranged and fixed, on the other hand can reduce volume.In other embodiment In, groove 1232 of sunkening cord can also be not provided with, and by other means enter the second wire group 124 such as glue or double faced adhesive tape Row is fixed, or the top surface of Plug Division 123 is provided with the projection (not shown) that two rows are set up in parallel, and can be held between two row's projections Receive the second wire group 124.

Refering to Fig. 2, optionally, bone conduction earphone further comprises battery component 13 and control circuit component 14, wherein Battery component 13 is arranged at the first accommodation space 116 of one of two ear-hang components 11, and control circuit component 14 is arranged at In first accommodation space 116 of the other of two ear-hang components 11.

Refering to Figure 14 and Figure 15, optionally, the 3rd housing of the ear-hang component 11 for accommodating control circuit component 14 Button perforate 1141 and the storage tank 1142 connected with button perforate 1141 are provided with 114, control circuit component 14 includes electricity Road plate 141, the switch 142 being fixed on circuit board 141, waterproof liner 143 and button 144, wherein button 144 be arranged at by In key perforate 1141 and exposed through button perforate 1141, waterproof liner 143 includes liner plate main body 143a and with injection molding manner bag The 3rd resilient coating 143b overlayed on liner plate main body 143a, waterproof liner 143 is arranged in storage tank 1142 and the 3rd elasticity Coating 143b abuts with the sidewall elastomer of storage tank 1142, and button 144 and switch 142 are respectively arranged at the two of waterproof liner 143 Side and abutted respectively with waterproof liner 143.In this embodiment, the 3rd resilient coating 143b coate liner plate main body 143a one side And liner plate main body 143a edge, at least covered section edge, can also coat whole edges certainly.In other embodiment In, the 3rd resilient coating 143b can coat liner plate main body 143a completely, that is, coat liner plate main body 143a two sides.

In the present embodiment, the switch 142 on circuit board 141 be mainly used for switching on and shutting down, volume adjusting or other cut Change function etc..

With continued reference to Figure 14 and Figure 15, the 3rd resilient coating 143b is coated with injection molding manner in the main body of waterproof liner 143, So that the 3rd resilient coating 143b is not easy to come off from the main body of waterproof liner 143, and the 3rd resilient coating 143b and proof liner Compactness between plate main body 143a is more preferable, improves existing bone conduction earphone water resistance, ensures the validity of waterproof.At this In embodiment, liner plate main body 143a can be plastics, and the 3rd resilient coating 143b can be silica gel, latex, rubber or be conjunction into thing.

Optionally, waterproof liner 143 is provided with the locating slot for accommodating switch 142 close to the side of switch 142 1431。

In the present embodiment, the method for assembly control circuit component 14 for example first by button 144, waterproof liner 143 according to it is secondary to be placed on the 3rd housing 114, and button 144 set it is exposed through button perforate 1141, then circuit board 141 pass through switch 142 And the locating slot 1431 of waterproof liner 143 abuts with waterproof liner 143.By

setting locating slot 1431, the essence of switch 142 can be made Location fit accurately is carried out with button 144, so as to pass through effectively Operation switch 142 of button 144.

Refering to Figure 16 and Figure 17, optionally, control circuit component 14 further comprises the day being arranged on circuit board 141 Line 145, antenna 145 include antenna body 145a spaced with circuit board 141 and are connected antenna body 145a and circuit The grounding parts 145b and current feed department 145c of plate 141, wherein when being looked up perpendicular to the side of circuit board 141, antenna body 145a is bent from grounding parts 145b to the side of circuit board 141 to be extended In the present embodiment, antenna body 145a is to circuit board 141 side bending, the length of antenna 145, Enhanced Radiation Reduced Blast efficiency can be increased in the confined space.In the present embodiment, day Line 145 is generally used for what is communicated wirelessly, such as bluetooth communication.In other embodiments, WiFi communication, honeybee be can also be Nest data communication, NFC etc..

Optionally, antenna body 145a includes parallel portion 145a1 and kink 145a2, perpendicular to circuit board 141 Side looks up, and parallel portion 145a1 width is more than kink 145a2 width, parallel portion 145a1 one end connection grounding parts 145b and current feed department 145c, it is in rank that the other end, which connects kink 145a2, parallel portion 145a1 and kink 145a2 in junction, Scalariform is set, and kink 145a2 is bent from junction to the side of circuit board 141.

Optionally, control circuit component 14 further comprises the grounded parts 146 being arranged on circuit board 141, wherein Antenna body 145a bends extension to the side of the remote grounded parts 146 of circuit board 141.In the present embodiment, grounded parts 146 be the switch 142 on USB interface and/or circuit, or other grounded parts 146.Typically, such as USB of grounded parts 146 Interface, certain interference can be all caused to antenna 145, in the present embodiment, antenna body 145a connects to the remote of circuit board 141 The side bending extension of ground part 146, can improve interference of the grounded parts 146 to the signal of antenna 145 in the confined space, protect Demonstrate,prove signal quality.In the present embodiment, USB interface can be used in bone conduction earphone and external device such as mobile terminal transmission number According to, it can also be used to charged for battery component 13.

Optionally, bearing of trend of the antenna body 145a width along antenna body 145a tapers into.It is such as specific Ground, the parallel portion 145a1 width width that passes through is constant, kink 145a2 width gradually along bearing of trend by Gradual change is small.Certainly in other embodiments, parallel portion 145a1 width passes

through and can tapered into, but parallel Width of the width of portion's 145a1 other ends still greater than kink 145a2.

Optionally, bearing of trend of the antenna body 145a bending angle along antenna body 145a becomes larger.Such as Bending angle becomes larger, usually in order to which remote grounded parts 146 is such as USB, so as to ensure that the radiation of antenna 145 is imitated Rate.Optionally, there is bending pin 145a3, bending angle herein in the one end of kink 145a2 away from parallel portion 145a1 Maximum, on the other hand it is to lift radiation efficiency on the one hand in order to meet the needs of the size of antenna 145.

Embodiment of the present utility model is the foregoing is only, not thereby limits the scope of the claims of the present utility model, it is all It is the equivalent structure or equivalent flow conversion made using the utility model specification and accompanying drawing content, or directly or indirectly uses In other related technical areas, similarly it is included in scope of patent protection of the present utility model.

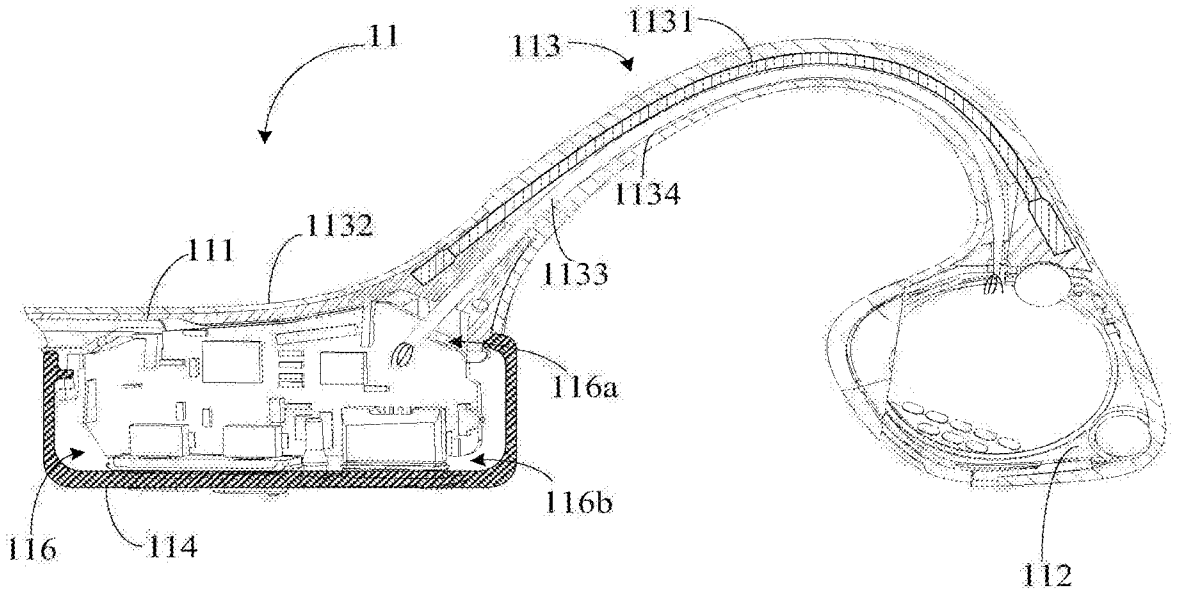


图1

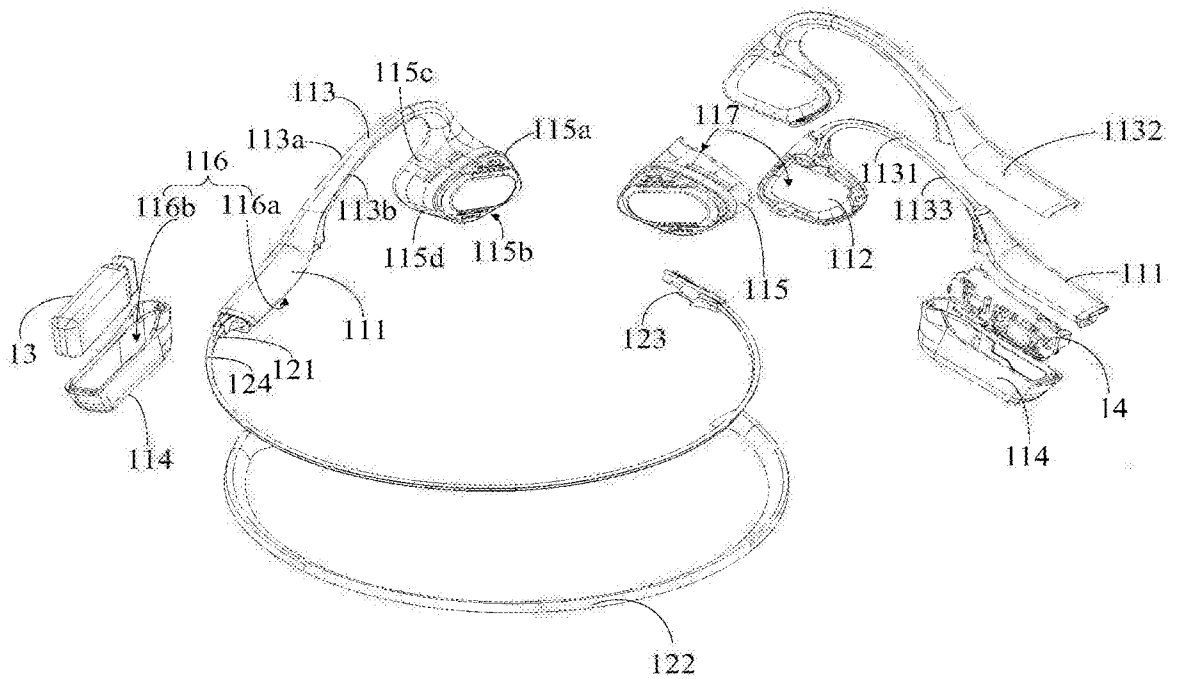


图2

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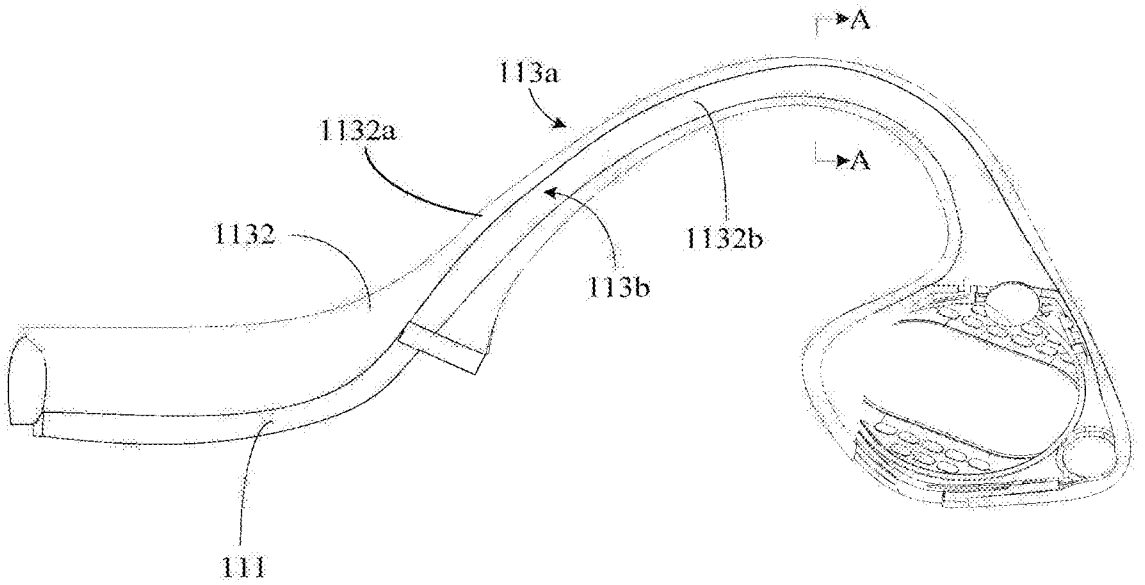


图3

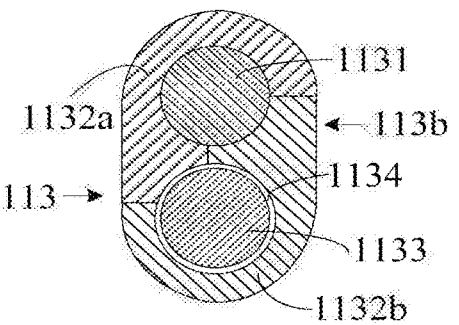


图4

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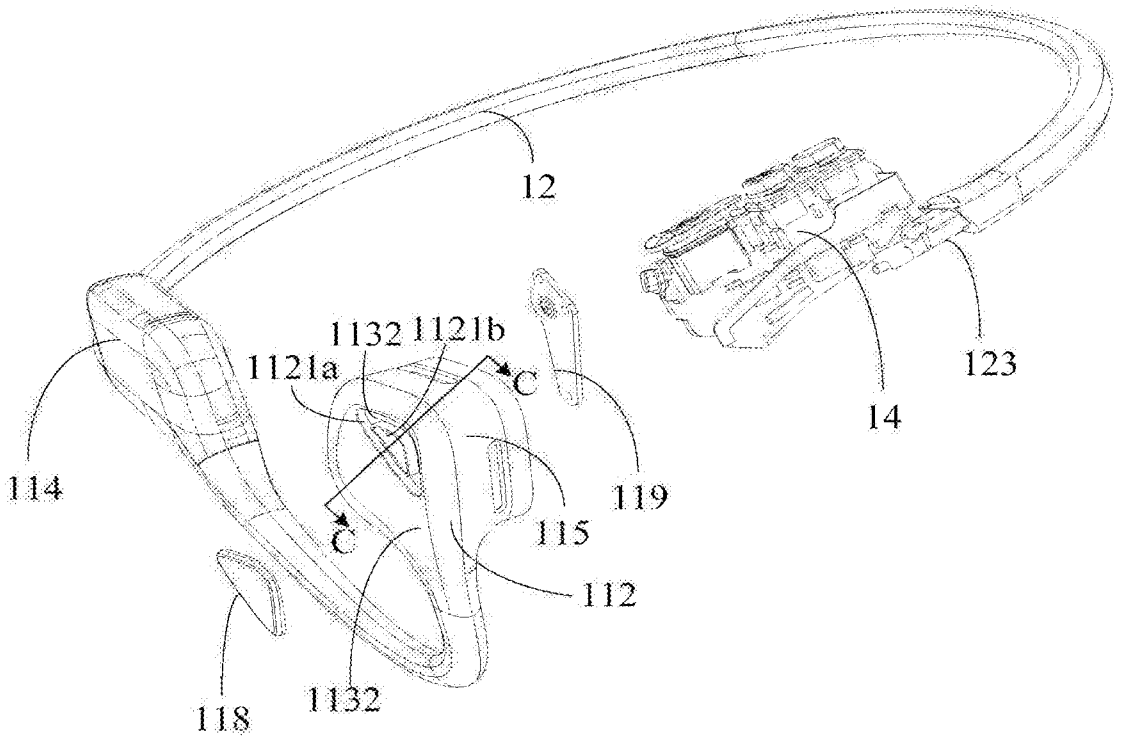


图5

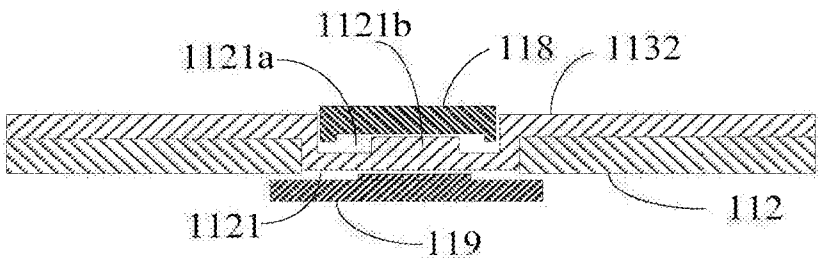


图6

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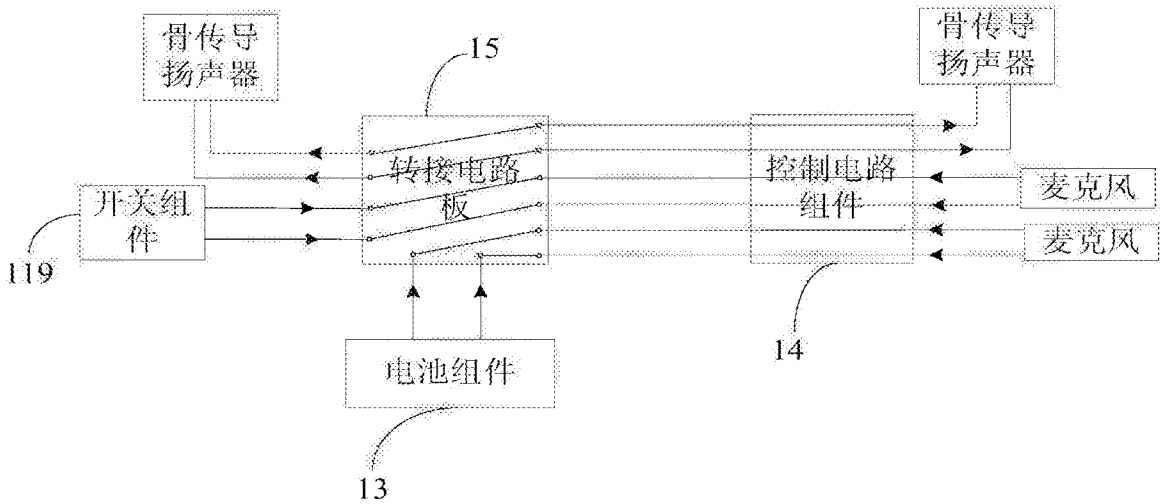


图7

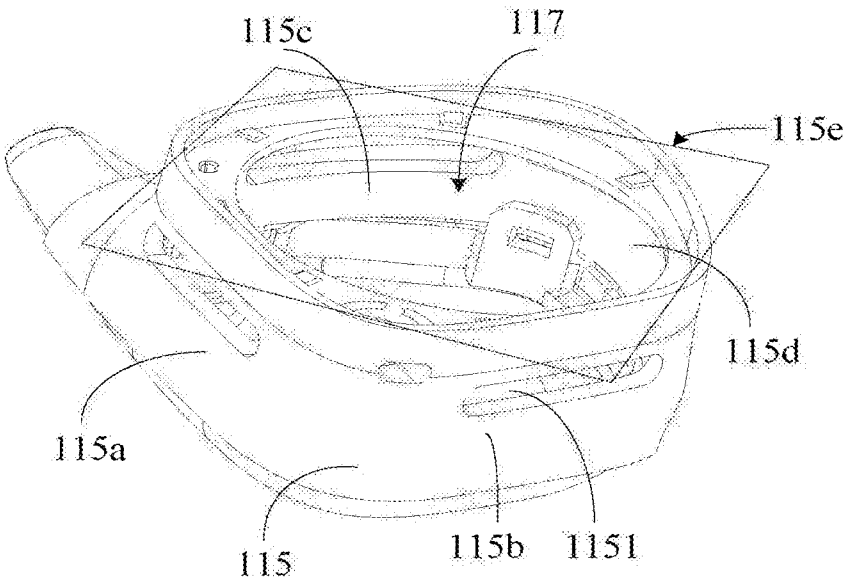


图8

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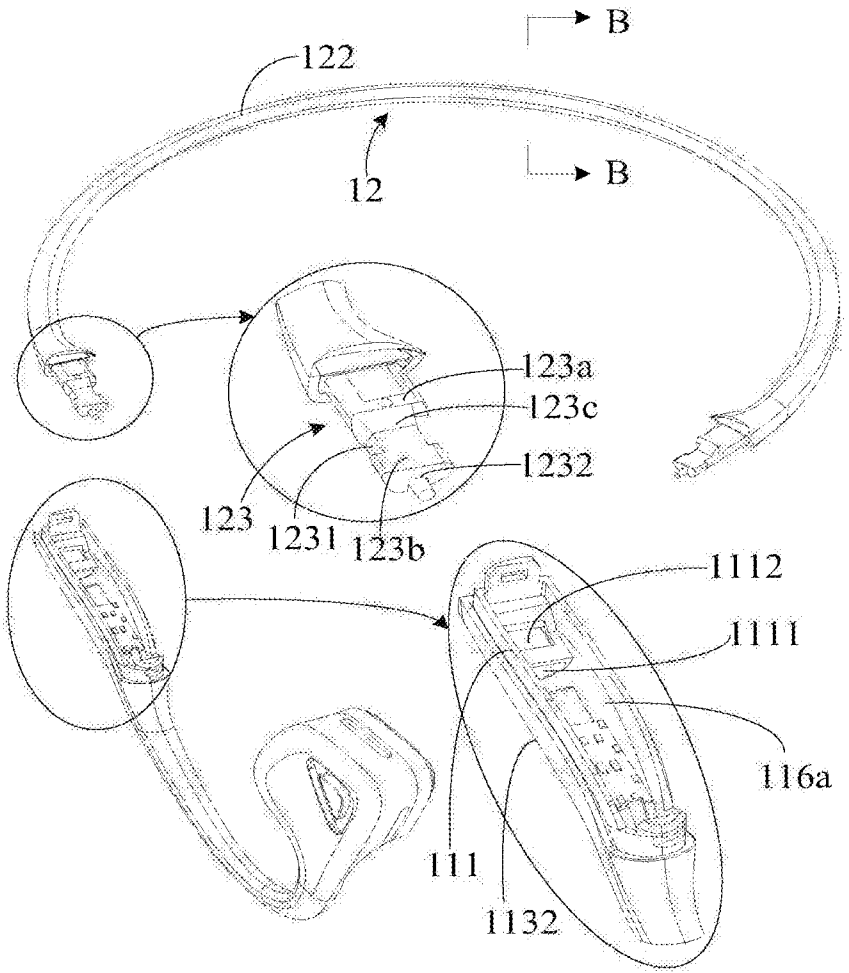


图9

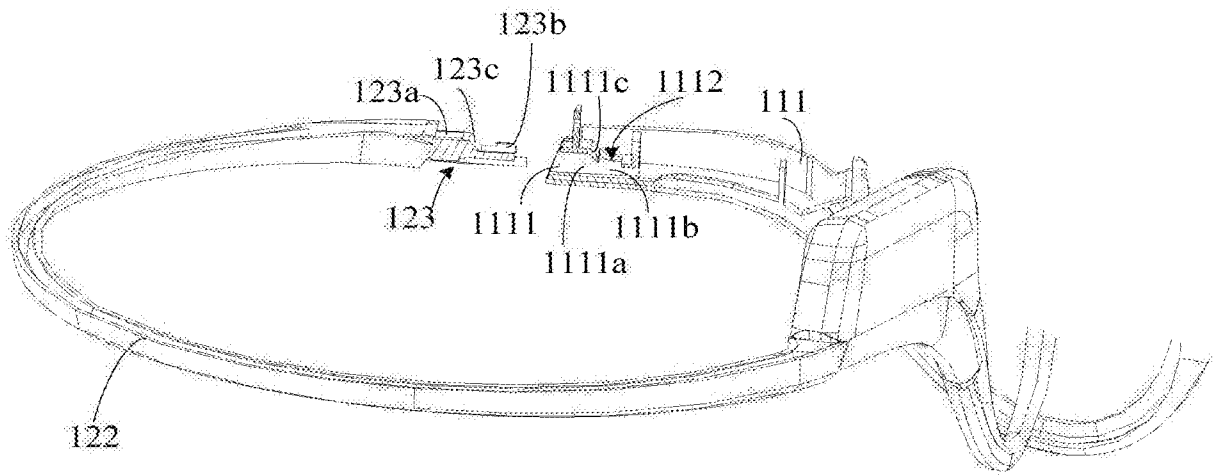


图10

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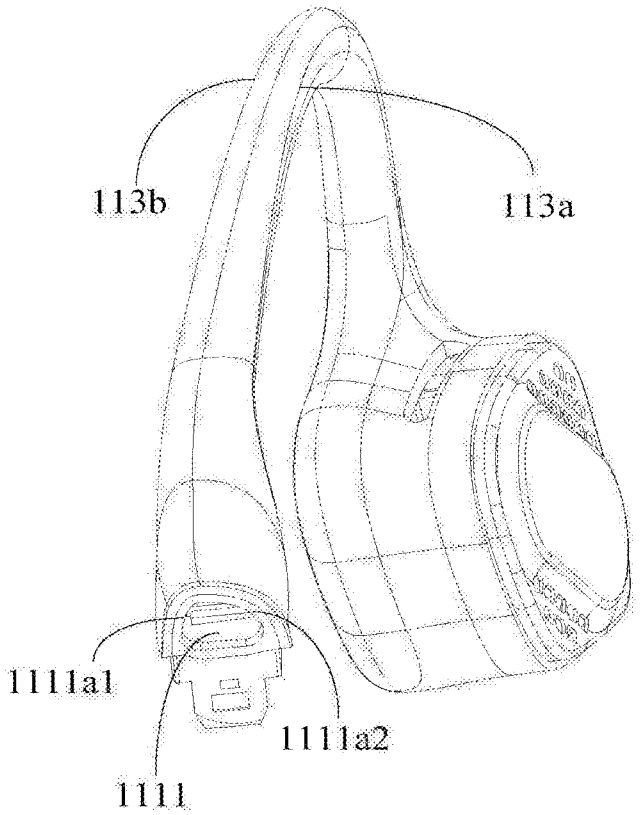


图11

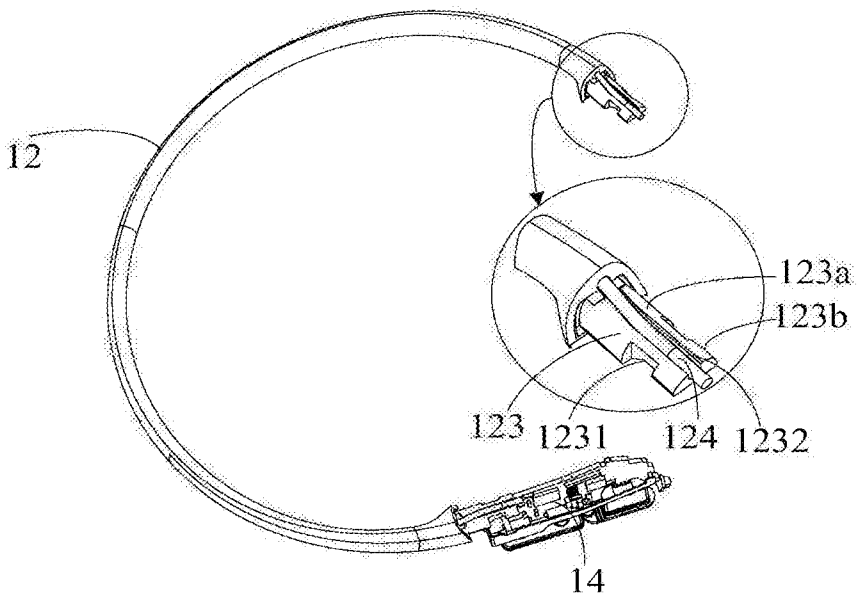


图12

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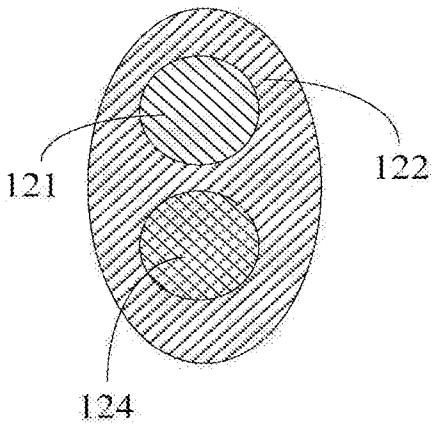


图13

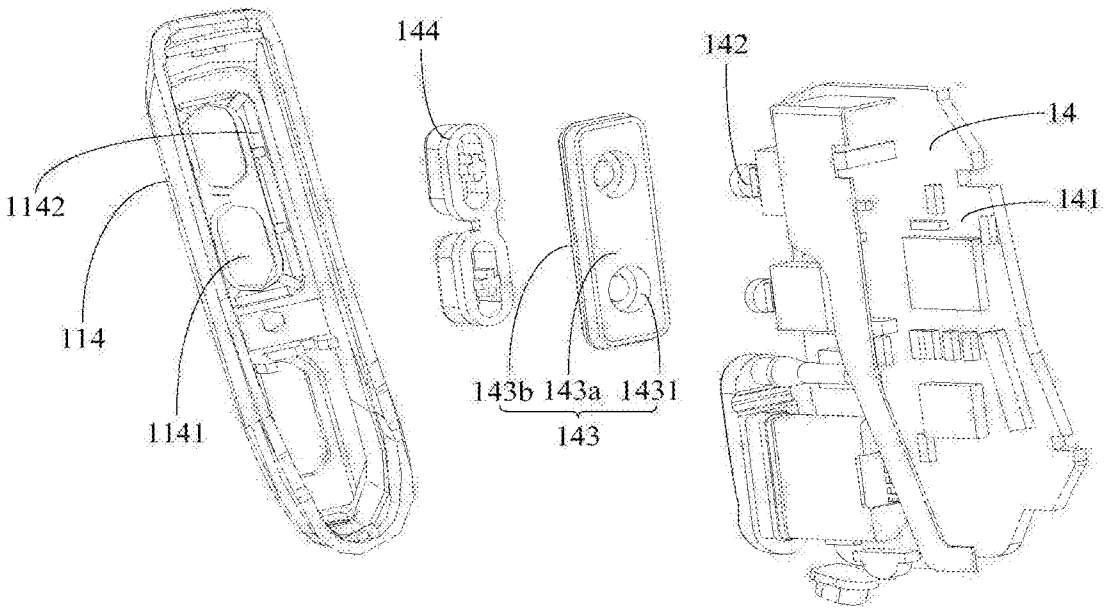


图14

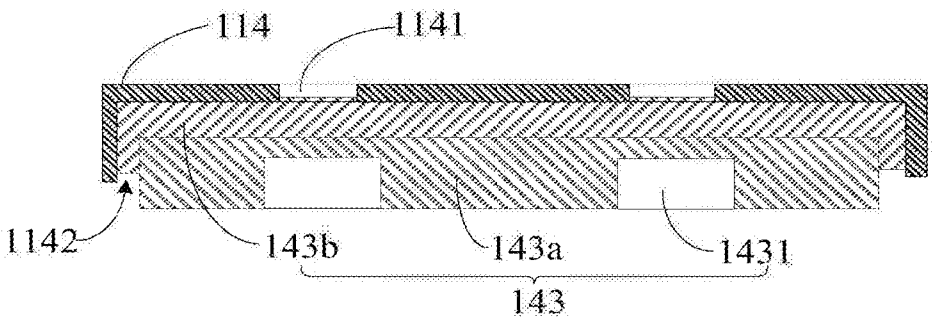


图15

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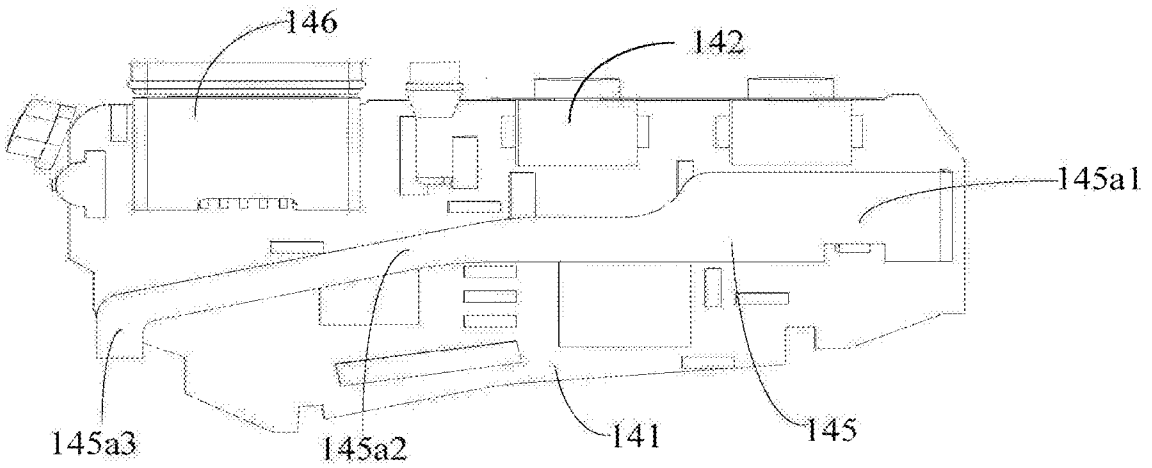


图16

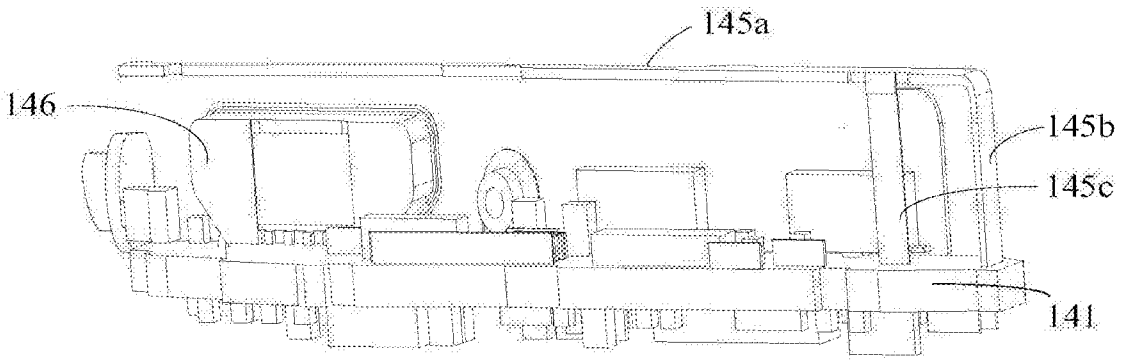


图17

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(ESM)同样的发明创造已同日申请发明专利

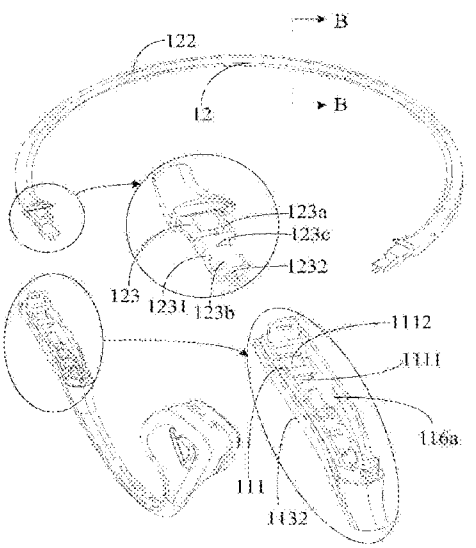
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(54)实用新型名称

一种骨传导耳机

(57)摘要

本实用新型实施例提供一种骨传导耳机包括两个耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，所述骨传导耳机进一步包括后挂组件，所述后挂组件两端设置有接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。通过上述方式，本实用新型能够使得骨传导耳机结构更简便。



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1.一种骨传导耳机，其特征在于，所述骨传导耳机包括两个耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，所述骨传导耳机进一步包括后挂组件，所述后挂组件两端设置有接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

2.根据权利要求1所述的骨传导耳机，其特征在于，所述第一壳体的端部设置有用于允许所述接插部插入的接插孔以及在所述接插部的插入方向的垂直方向连通所述接插孔与外部的开孔，以允许从外部经所述开孔向所述接插孔内施加胶水或安装卡止件，以使得所述接插部在所述胶水或卡止件的作用下固定在所述接插孔内。

3.根据权利要求2所述的骨传导耳机，其特征在于，所述接插部的侧壁上设置有开槽，所述开槽经所述开孔外露，并用于接收所述胶水或卡止件。

4.根据权利要求3所述的骨传导耳机，其特征在于，所述连接部件包括两端分别连接所述第一壳体和所述第二壳体的第一弹性金属丝以及包覆在所述第一弹性金属丝上的第一弹性覆层，所述后挂组件包括第二弹性金属丝以及包覆在所述第二弹性金属丝上的第二弹性覆层，所述接插部设置在第二弹性金属丝两端。

5.根据权利要求4所述的骨传导耳机，其特征在于，所述接插部包括与所述第二弹性金属丝连接的第一接插段以及与所述第一接插段连接且远离所述第二弹性金属丝设置的第二接插段，所述接插孔沿所述接插部的插入方向划分为用于接收所述第一接插段的第一孔段和用于接收所述第二接插段的第二孔段，其中所述第一孔段的尺寸设置成允许所述第二接插段沿所述插入方向在所述第一孔段内自由移动，且使得所述第一接插段与所述第一孔段之间紧配合。

6.根据权利要求5所述的骨传导耳机，其特征在于，所述第二孔段的尺寸设置成使得所述第二接插段与所述第一孔段之间紧配合；和/或，

所述第一接插段两侧与所述第一孔段接触的接触面的形状不同。

7.根据权利要求5所述的骨传导耳机，其特征在于，所述开槽设置于所述第二接插段上。

8.根据权利要求5所述的骨传导耳机，其特征在于，所述第一接插段和所述第二接插段的底面呈阶梯状设置且在所述第一接插段和所述第二接插段的连接处设置有第一楔形过渡段，并且所述第一孔段和所述第二孔段的连接处设置有与所述第一楔形过渡段对应的第二楔形过渡段。

9.根据权利要求4所述的骨传导耳机，其特征在于，所述后挂组件进一步包括由所述第二弹性覆层包覆的第二导线组，其中所述第二导线组的两端从所述第二弹性覆层外露，所述接插部的顶面设置有用于容纳所述第二导线组的外露部分的埋线槽。

10.根据权利要求4所述的骨传导耳机，其特征在于，所述第一壳体和第二壳体分别以注塑方式与所述第一弹性金属丝的两端固定连接，所述第一弹性覆层以注塑方式固定包覆于所述第一弹性金属丝上，所述接插部以注塑方式固定于所述第二弹性金属丝的两端。

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一种骨传导耳机

技术领域

[0001] 本实用新型涉及耳机领域，特别是涉及一种骨传导耳机。

背景技术

[0002] 骨传导是一种声音传导方式，即将声音转化为不同频率的机械振动，通过人的颅骨、骨迷路、内耳淋巴液传递、螺旋器、听神经、听觉中枢来传递声波。骨传导耳机利用骨传导技术受话，紧贴骨头，声波直接通过骨头传至听神经。因此可以开放双耳，不伤害鼓膜，也因此受到广大消费者的喜爱。但是现有的骨传导耳机各部分一般都是通过螺丝等进行固定连接，尤其是现有的骨传导耳机的后挂与耳挂需要通过螺丝连接，由于螺丝及螺丝孔的存在使得耳机的整体尺寸无法缩小、组装不方便等问题。

实用新型内容

[0003] 本实用新型主要解决的技术问题是提供一种骨传导耳机，能够有效改善现有骨传导耳机后挂与耳挂通过螺丝和螺丝孔连接所带来的耳机尺寸无法缩小等问题。

[0004] 为解决上述技术问题，本实用新型实施例提供一种骨传导耳机包括两个耳挂组件，所述耳挂组件包括第一壳体、第二壳体以及连接所述第一壳体和第二壳体的连接部件，所述骨传导耳机进一步包括后挂组件，所述后挂组件两端设置有接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，并固定连接。

[0005] 与现有技术相比，本实用新型的有益效果是：本实用新型通过在后挂组件两端设置接插部，所述接插部分别与所述两个耳挂组件的第一壳体接插配合，取消了现有骨传导耳机的螺丝配合固定的方式，能够有效减小骨传导耳机的后挂与耳挂连接位置的尺寸，以此可以减小耳机尺寸，且便于组装。

附图说明

[0006] 图1是本实用新型骨传导耳机实施例中耳挂组件的结构示意图；

[0007] 图2是本实用新型骨传导耳机实施例中骨传导耳机整体结构拆解示意图；

[0008] 图3是本实用新型骨传导耳机实施例中耳挂组件的另一结构示意图；

[0009] 图4是图3中A-A的截面结构示意图；

[0010] 图5是本实用新型骨传导耳机实施例中骨传导耳机部分结构拆解示意图；

[0011] 图6是图5中C-C的截面结构示意图；

[0012] 图7是本实用新型骨传导耳机实施例中电路示意图；

[0013] 图8是本实用新型骨传导耳机实施例中第四壳体的结构示意图；

[0014] 图9是本实用新型骨传导耳机实施例中骨传导耳机接插部与接插孔结构放大示意图；

[0015] 图10是本实用新型骨传导耳机实施例中接插部与接插孔截面结构示意图；

[0016] 图11是本实用新型骨传导耳机实施例中接插孔结构示意图；

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[0017] 图12是本实用新型骨传导耳机实施例中接插部结构示意图；

[0018] 图13是图9的B-B的截面结构示意图；

[0019] 图14是本实用新型骨传导耳机实施例中骨传导耳机另一部分结构拆解示意图；

[0020] 图15是图14的部分结构截面示意图；

[0021] 图16是本实用新型骨传导耳机实施例中控制电路组件结构示意图；

[0022] 图17是本实用新型骨传导耳机实施例中控制电路组件另一结构示意图。

具体实施方式

[0023] 参阅图1和图2，本实用新型骨传导耳机实施例包括耳挂组件11，耳挂组件11包括第一壳体111、第二壳体112以及连接第一壳体111和第二壳体112的连接部件113，其中连接部件113包括两端分别连接第一壳体111和第二壳体112的第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132。

[0024] 一般，骨传导耳机还包括骨传导扬声器、电池、控制电路等元件，例如骨传导扬声器用于以骨传导的方式通过振动向用户输出声音。电池用于给骨传导耳机各元件供电。控制电路用于控制骨传导耳机例如实现调节音量、开关机、播放音频以及蓝牙通讯等功能。

[0025] 耳挂组件11一般用于用户在佩戴骨传导耳机时挂于其耳部，如此可以使骨传导耳机较稳固地佩戴于用户的耳部。耳挂组件11需要具备良好的抗压以及抗变形能力，以便在用户在使用时不容易将骨传导耳机损坏或者致其变形。

[0026] 在本实施例中，连接部件113可直接接触耳部并通过人耳根部支承骨传导耳机，连接部件113包括第一弹性金属丝1131以及包覆在第一弹性金属丝1131上的第一弹性覆层1132，通过第一弹性金属丝1131连接第一壳体111与第二壳体112，能够有效增强骨传导耳机的弯折性能以及结构稳定性，使耳挂组件11在受到弯折时能够有效地进行弹性回复而恢复原状，不易变形。此外采用第一弹性金属丝1131能够改善传统骨传导耳机采用塑料作为耳挂组件的材料所导致的易损坏等问题。可选的是，连接部件113可以包括多根第一弹性金属丝1131，例如可以设置多根细小的第一弹性金属丝1131能够进一步提高耳挂组件11的弯折可靠性，例如设置3根第一弹性金属丝1131，每根第一弹性金属丝1131的直径0.3mm，此时3根第一弹性金属丝的材料可以相同也可以部分相同，或者全部不同，当然每根第一弹性金属丝1131的直径也可以相同、部分相同或者全部不同。

[0027] 在本实施例中，可选的是，第一弹性金属丝1131可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。可选的是，第一弹性金属丝1131为钛合金丝，或者至少由钛合金材料制成，例如直径为0.8-1.5mm的钛合金丝，可选为1.0-1.25mm。

[0028] 在本实施例中，第一弹性金属丝1131外包覆第一弹性覆层1132，第一弹性覆层1132直接与耳部接触，由于第一弹性覆层1132的弹性作用能够使得用户可以舒适地佩戴骨传导耳机。此外，第一弹性覆层1132由于其弹性作用的存在能够更有力地包覆第一弹性金属丝1131，即使在经过多次弯折后仍能有效包覆第一弹性金属丝1131，保证骨传导耳机结构的有效性。可选的是，第一弹性覆层1132为硅胶层，当然在其他实施例中，第一弹性覆层1132还可以是乳胶层或者橡胶层，或者其他有弹性的塑料层，或者为包含硅胶的复合材料

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层。

[0029] 可选的是，第一壳体111和第二壳体112分别以注塑方式与第一弹性金属丝1131的两端固定连接，第一弹性覆层1132以注塑方式固定包覆于第一弹性金属丝1131上。可选的是，第一壳体111以及第二壳体112为塑料壳体，以注塑成型的方式固定在第一弹性金属丝1131的两端，以及第一弹性覆层1132是一体成型包覆第一弹性金属丝1131上，如此使得第一壳体111、第二壳体112与第一弹性金属丝1131之间的连接更稳固，且使得骨传导耳机的一体感与质感更强，使骨传导耳机的结构更紧凑更轻便。在本实施例中，注塑方式可以是注塑成型、热塑成型、压塑成型等中的一种，但不限于此。

[0030] 参阅图3和图4，可选的是，第一弹性覆层1132由不同颜色的两个子弹性覆层1132a、1132b拼合而成，其中两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的相对设置的两个侧面113a、113b上，其中拼合缝在同一侧面上例如在外侧面113a上的投影彼此错开。例如在进行注塑成型时，采用至少两套模具对第一弹性覆层1132的两个子弹性覆层1132a、1132b分别进行成型，由此可形成不同配比的两种颜色例如为淡灰色与深灰色或者其他颜色的组合，且拼合缝位于连接部件113相对设置的两侧面113a、113b上，且在同一侧面上投影彼此错开，使得骨传导耳机的视觉效果更佳，进一步由于错开包覆第一弹性金属丝1131使得包覆效果更好。当然第一弹性覆层1132也可以由同颜色的两个子弹性覆层拼合而成。通过两次注塑成型分别在连接部件113的两侧面113a、113b上形成两个子弹性覆层1132a、1132b，能够改善一次注塑成型或者上下分开注塑成型时由于注塑压力的存在容易导致第一弹性覆层1132内的元件例如第一弹性金属丝1131产生移位降低连接部件113的成型质量。当然，在其他实施例中，第一弹性覆层1132可以直接形成一个覆层，或者形成数量多于两个的子弹性覆层。

[0031] 在本实施例中，连接部件113的两侧面包括相对设置内侧面113b与外侧面113a，是指在佩戴时耳挂组件11挂于人耳，连接部件113朝向人头部的一侧为内侧面113b，朝向人耳的一侧为外侧面113a。

[0032] 继续参阅图3和图4，可选的是，两个子弹性覆层1132a、1132b的拼合缝分别位于连接部件113的内侧面113b和外侧面113a上，且位于连接部件113的外侧面113a上的拼合缝的投影相较于位于连接部件113的内侧面113b上的拼合缝的投影更靠近连接部件113与人耳的接触位置。由此可知道，一条拼合缝位于外侧面113a的靠近接触人耳的位置，而另一条拼合缝位于内侧面113b以使得外侧面113a上几乎显示同一种颜色的子弹性覆层1132a或者1132b，例如外侧面113a几乎显示淡灰色，使得骨传导耳机一体感更强，更加美观。

[0033] 可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b在同一侧面例如113a或者113b上的面积彼此不同。在其他实施例中，拼合缝可以设置成使得两个子弹性覆层1132a、1132b在同一侧面上的面积相同或者大体相同。

[0034] 参阅图2至图4，可选的是，拼合缝设置成使得两个子弹性覆层1132a、1132b的颜色相对较浅的子弹性覆层1132a在外侧面113a上占据面积相对较大。也即，浅颜色的子弹性覆层1132a更多地位于外侧面113a，深颜色的子弹性覆层1132b更多地位于内侧面113b，如此使得连接件113的表面更具协调性，在保证结构性能的同时增强骨传导耳机的美学性能。

[0035] 继续参阅图1，可选的是，第一弹性金属丝1131的两端呈扁平状设置并分别嵌入第一壳体111和第二壳体112。也即在第一壳体111与第二壳体112以注塑的方式形成且固定于

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第一弹性金属丝1131呈扁平状设置的两端，如此可以增大第一弹性金属丝1131与第一壳体111、第二壳体112的接触面积，使得第一弹性金属丝1131与第一壳体111、第二壳体112更稳定地相互固定。可选的是，第一弹性金属丝1131呈扁平设置的两端的宽度大于连接该呈扁平设置的两端的连接部分的宽度，如此在成型后起到一个限位的作用，防止将第一弹性金属丝1131从第一壳体111、第二壳体112中拉出或者脱落。可选的是，第一弹性金属丝1131的两端呈螺纹状设置。在成型时，部分壳体可以成型于螺纹中，以起到固定的作用。当然，第一弹性金属丝1131的两端可以分别呈扁平状以及螺纹状设置。在其他实施例中，第一弹性金属丝1131两端还可以内凹以形成凹陷部，第一壳体111与第二壳体112在成型时，部分位于凹陷部内，以起到固定作用。

[0036] 参阅图1和图2，可选的是，第一弹性覆层1132进一步包覆第一壳体111和第二壳体112的至少部分外表面，例如全部外表面。即第一弹性覆层1132以注塑成型的方式包覆第一弹性金属丝1131、第一壳体111的至少部分外表面、第二壳体112的至少部分外表面，如此使得骨传导耳机的质感以及一体感更强，而且第一弹性覆层1132的存在，可以进一步保护壳体以及壳体内部的元件，使得骨传导耳机更耐磨损。

[0037] 参阅图5和图6，可选的是，第二壳体112上形成有通孔1121。即通孔1121贯穿第二壳体112的内侧面与外侧面。第一弹性覆层1132覆盖通孔1121并进一步在通孔1121上方且远离第二壳体112(即远离第二壳体112的内侧面)的一侧形成有按键容置部1121a。按键容置部1121a是由第一弹性覆层1132在注塑过程中覆盖通孔1121而形成，按键容置部1121a内由于第一弹性覆层1132的存在是可以隔绝水份、尘土等进入第二壳体内112。耳挂组件11进一步包括按键118和开关组件119，其中按键118设置于按键容置部1121a内。开关组件119设置于第二壳体112的远离第一弹性覆层1132的一侧，即第二壳体112的内侧面，并与按键118下方的第一弹性覆层1132抵接。可选的是，按键容置部1121a内设置有一凸台1121b，按键118以例如黏贴的方式固定在凸台1121b上。在本实施例中，由于第一弹性覆层1132以注塑方式固定包覆在第二壳体112上，且覆盖通孔1121，具有更好防水效果。可选的是，凸台1121b是在第一弹性覆层1132覆盖通孔1121时由第一弹性覆层1132一体成型而形成的。

[0038] 在本实施例中，第二壳体112上的开关组件119主要是用于控制骨传导耳机的功能开关，例如音乐的播放与暂停、语音的接听与挂断、连通无线信号以连接移动设备例如蓝牙通讯，或者骨传导耳机工作模式的选择等，不限于此。

[0039] 参阅图1、图2、图4和图7，可选的是，第一弹性覆层1132的内部进一步设置有用于连通第一壳体111和第二壳体112的引线通道1134，耳挂组件11进一步包括从第一壳体111经引线通道1134延伸至第二壳体112的第一导线组1133，引线通道1134的径向尺寸设置成允许第一导线组1133沿引线通道1134移动。

[0040] 通过设置引线通道1134，例如在后期组装时可以先将第一导线组1133一端连接(例如以板载的方式)第二壳体112内的元件例如骨传导扬声器，再将第一导线组1133另一端穿过引线通道1134以连接第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15等，如此可以减少组装工艺，而且能够改善现有骨传导耳机在第一弹性覆层1132在注塑成型时埋入第一导线组1133所带来的接线困难且不利于后期维修等问题。当然，在后期组装时也可以先将第一导线组1133一端连接(例如以板载的方式)第一壳体111内的元件例如电池组件13、控制电路组件14或者转接电路板15，再将第一导线组1133另一

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端穿过引线通道1134以连接第二壳体112内的元件例如骨传导扬声器等。

[0041] 在本实施例中，引线通道1134具体的成型方式例如包括首先提供一个第一弹性金属丝1131连接的第一壳体111与第二壳体112的组件，进一步在第二壳体112与第一壳体111之间以可拆卸的方式设置附加金属丝(图未示)，再进一步在第一弹性金属丝1131、附加金属丝以及第一壳体111和第二壳体112的部分外表面以注塑方式形成第一弹性覆层1132，成型后抽取附加金属丝以形成引线通道1134。在其他实施例中，例如第一弹性覆层1132注塑成型时，埋入易融性材料，在第一弹性覆层1132注塑成型时，该易融性材料融化而流出，形成引线通道1134。又例如引线通道1134可以在第一弹性覆层1132成型后，通过穿针的方式形成通道，再通过热熔的方式扩大通道形成引线通道1134。

[0042] 继续参阅图1和图4，在本实施例中，可选的是，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置。在本实施例中，第一引线通道1134与第一弹性金属丝1131间隔独立设置。在其他实施例中，第一引线通道1134可以与第一弹性金属丝1131合并设置，即第一导线组1133在第一引线通道1134内可接触第一弹性金属丝1131。在本实施例中，引线通道1134设置于第一弹性金属丝1131的下侧，以在使用时相较于第一弹性金属丝1131更靠近连接部件113与人耳的接触位置，由于引线通道1134的存在，可以使得靠近人耳的第一弹性覆层1132更具弹性更加柔和，佩戴更加舒适。在其他实施例中，当然第一引线通道1134也可以设置在第一弹性金属丝1131的上侧，在使用时第一弹性金属丝1131更靠近人耳。

[0043] 参阅图1、图2和图8，可选的是，耳挂组件11包括第三壳体114和第四壳体115。其中第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116。第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117。可选的是，第四壳体115与第三壳体114为塑料壳体。

[0044] 可选的是，第二壳体112与第四壳体115通过第一卡扣组件(未标注)连接，第一卡合组件包括第一卡合部以及第一扣合部，第一卡合部设置于第四壳体115上，第一扣合部设置于第二壳体112上，第二壳体112与第四壳体115配合时，第四壳体115上的第一卡合部卡入第二壳体112的第一扣合部，以将第二壳体112与第四壳体115固定在一起。可选的是，第二壳体112与第四壳体115通过至少一组第一卡扣组件例如4组第一卡扣组件进行连接。当然第二壳体112与第四壳体115也可以通过胶水粘合，或者通过第一卡合组件与胶水同时作用进行固定，或者通过螺丝等紧固件连接固定。

[0045] 可选的是，第三壳体114与第一壳体111通过第二卡扣组件(未标注)连接，第二卡扣组件包括第二卡合部以及第二扣合部，第二卡合部设置在第三壳体114上，第二扣合部设置在第一壳体111上，在第一壳体111与第三壳体114配合时，第三壳体114的第二卡合部卡入第一壳体111的第二扣合部，以将第一壳体111与第三壳体114固定在一起。

[0046] 在本实施例中，耳挂组件11的第三壳体114与第一壳体111配合，以形成用于收容电池组件13或控制电路组件14的第一容置空间116，第四壳体115与第二壳体112配合，以形成用于收容骨传导扬声器的第二容置空间117，第一导线组1133可以移动穿过引线通道1134用于电连接骨传导扬声器与电池组件13或控制电路组件14。在本实施例中，电池组件13例如包括电池以及电池管理电路，电池通过电池管理电路为骨传导耳机其他部件进行供电，例如电池管理电路包括充电电路，过流保护电路、过放保护电路、过压保护电路等。例如

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电池为可充电电池，例如为锂电池。参阅图7，可选的是，骨传导耳机还进一步包括例如转接电路板15，设置于第一容置空间116内，电池组件14通过转接电路板15分成多个接线焊点，以相对应连接骨传导耳机的两个骨传导扬声器、控制电路组件14、麦克风、以及开关组件119等，上述元件相关导线与上述接线焊点连接并按图7方式导通，便于接线和组装。例如电池组件14通过正负极的两个接线焊点连接转接电路板15，转接电路板15分出10个接线焊点，以连接骨传导耳机的其他部件。

[0047] 参阅图1和图2，可选的是，第一壳体111内设置有第一子容置空间116a，第三壳体114内设置有第二子容置空间116b，并在第三壳体114与第一壳体111配合时与第一子容置空间116a共同形成第一容置空间116，例如通过第一卡扣组件进行固定连接。其中第二子容置空间116b的体积大于第一子容置空间116a。例如第二子容置空间116b的体积是第一子容置空间116a的2-5倍，例如为3-4倍，例如为3.2倍，或例如为2.5倍。

[0048] 在组装电池组件13或者控制电路组件14，例如先将电池组件13或者控制电路组件14放置在第一子容置空间116a内，例如电池通过胶材或者双面胶粘贴于第一子容置空间116a内，或者控制电路组件14通过卡合结构固定于第一子容置空间116a内，使得电池组件13或者控制电路组件14大部分外露，便于组装和接线等工艺，再将第三壳体114通过第二卡扣组件与第一壳体111盖合，第一子容置空间116a与第二子容置空间116b形成第一容置空间116，如此改善了传统骨传导耳机需要将电池或者控制电路板装配并容纳在与耳挂一体成型的壳体内并进一步利用硅胶条贴于电池控制电路板外部部分进行包覆所导致的组装工序复杂的问题，简化结构以及组装工序。

[0049] 参阅图2和图8，可选的是，第四壳体115呈棱柱状设置，其中在第四壳体115的至少一侧面上设置有条形引音孔1151，其中条形引音孔1151的长度方向与第四壳体115的底面平行或者大致平行设置，且条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二。在本实施例中，条形引音孔相对平行的底面115e是指在佩戴时第四壳体115朝向人体脸部的一面的开口边缘所定义的平面。

[0050] 一般，骨传导扬声器在振动的过程中会向周边的环境传递声音，除了佩戴者外，环境中的他人也能够听到扬声器的声音，例如骨传导扬声器的振动引起了第二容置空间117内空气的振动以及引起第四壳体115等的振动，从而出现漏音现象，会影响骨传导耳机的音质。引音孔1151是将第二容置空间117内的声波引导传播至空间外，与漏音声波同在空气中传播发生干涉，从而降低漏音声波的振幅，减小漏音。

[0051] 继续参阅图8，为了进一步改善漏音现象，本实施例通过在第四壳体115的至少一侧面设置条形引音孔1151，并适当设置其尺寸和方向改善了传统骨传导耳机带来的漏音现象仍比较严重的问题。进一步地，条形引音孔1151的长度方向与第四壳体115的底面平行设置，不仅可以保证美观，而且经平行引导的声波强度的均匀性，从而保证干涉效果。在本实施例中，条形引音孔1151的长度不小于其所在的侧面的宽度的三分之二，能够有效引导第二容置空间117内的声波。可选为，条形引音孔1151的长度为其所在的侧面的宽度的四分之三。当然，在其他实施例中，其中在第四壳体115的至少一侧面上并列设置有至少两条条形引音孔1151，例如在至少一侧面上设置两条平行的条形引音孔1151，且与第四壳体115的底面115e平行。

[0052] 可选的是，第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上不设置条形

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引音孔1151。当然，在其他实施例中，也可以在第四壳体115在骨传导耳机使用时靠近人耳的侧面115d上设置引音孔，可以是点式引音孔，或者条形引音孔1151。

[0053] 继续参阅图2和图8，可选的是，第四壳体115呈四棱柱状设置，其中在第四壳体115与连接部件113相邻设置的两个侧面115a、115c上设置有条形引音孔1151，进一步剩余的两个侧面115b、115d中的在骨传导耳机使用时远离人耳的侧面115b同样设置条形引音孔1151，且剩余的两个侧面115b、115d中的在骨传导耳机使用时靠近人耳的侧面115b上不设置条形引音孔1151。也即在三个侧面115a、115b、115c上设置三个条形引音孔1151，在骨传导耳机使用时靠近人耳的侧面115d不设置条形引音孔1151，如此可以进一步减少漏音现象，保证骨传导耳机的音质。

[0054] 在本实施例中，第四壳体115呈四棱柱状设置，例如包括正四棱柱以及类四棱柱状。例如具体地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的任一个侧面的长度均大于剩余的两个侧面115b、115d的任一个侧面的长度，进一步地，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c的长度不相等或者相等。在其他实施例中，第四壳体115呈四棱柱状设置，其四个侧面的长度均可相等。

[0055] 在本实施例中，可选的是，第四壳体115的与连接部件113相邻设置的两个侧面115a、115c之间的夹角为90°-150°，可选为100°-130°，可选为110°-120°。

[0056] 可选的是，第四壳体115内进一步设置有覆盖条形引音孔1151的防水防尘滤网，例如防水透气膜(图未示)。设置防水防尘滤网，可以防止骨传导耳机外的灰尘以及防水骨传导耳机进水进入损坏骨传导扬声器。

[0057] 在本实施例中，第二壳体112与第四壳体115上分别设置有一麦克风孔(图未示)，具体的，第一麦克风孔设置在第四壳体115不直接与连接部件113连接的剩余两侧面115b、115d的连接处，第二麦克风孔设置在第二壳体112的外侧面且靠近第四壳体115与连接部件113的连接处。通过在两个错开设置的麦克风孔内设置两个麦克风，能够增强语音输入质量，且起到有效的降噪作用，由此提高语音输入的清晰度。

[0058] 参阅图2以及图9，在本实施例中，耳挂组件11的数量为两个，骨传导耳机进一步包括后挂组件12。后挂组件12包括第二弹性金属丝121、包覆在第二弹性金属丝121上的第二弹性覆层122以及设置于第二弹性金属丝121两端的接插部123。接插部123分别与两个耳挂组件11的第一壳体111接插配合，并固定连接。可选的是，接插部123以注塑方式固定于第二弹性金属丝121的两端，如此可以使接插部123更稳固地固定于第二弹性金属丝121的两端。可选的是，第二弹性金属丝121可以为金属单质，也可以为包括多种金属材料的合金材料，例如弹簧钢、铝合金、镁合金、钛合金、镍合金、钛镍合金、镁锂合金、铬钼钢等，也可以是包括金属材料与非金属材料的复合材料。在本实施例中，第二弹性金属丝121为钛合金丝，或者至少由钛合金材料制成。在本实施例中，第二弹性覆层122为硅胶层。在其他实施例方式中，第二弹性覆层122也可以为橡胶层或者乳胶层，或者是包括硅胶的复合材料层。

[0059] 通过后挂组件12的接插部123与两个耳挂组件11的第一壳体111进行接插配合，改善了现有的骨传导耳机采用螺丝等固定方式带来的耳机尺寸较大等问题，从而简化结构，减轻骨传导耳机的重量，方便后期接线且能降低成本。

[0060] 参阅图9和图10，可选的是，第一壳体111的端部设置有用于允许接插部123插入的接插孔1111以及在接插部123的插入方向的垂直方向连通接插孔1111与外部的开孔1112，

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以允许从外部经开孔1112向接插孔1111内施加胶水或安装卡止件(图未示),以使得接插部123在胶水或卡止件的作用下固定在接插孔1111内。在本实施中,开孔1112位于所述第一子容置空间116a内。在其他实施例中,第一壳体111的端部设置有用于允许接插部123插入的接插孔1111,接插部123上具有一凹部,接插孔1111内具有一弹性凸部,接插部123插入接插孔1111时,弹性凸部卡入凹部,以将接插部123与接插孔1111配合固定。例如接插部123插入接插孔1111时,弹性凸部先被挤压,后在弹性恢复力的作用下卡入凹部内。可选的是,接插部123插入接插孔1111的深度为6-11mm,可选为8-10mm。

[0061] 继续参阅图9和图10,可选的是,接插部123的侧壁上设置有开槽1231。开槽1231经开孔1112外露或者部分外露,并用于接收胶水或卡止件。可选的是,接插部123的至少一个侧壁上设置有开槽1231,例如两个侧壁上均设置有开槽1231。在其他实施例中,可以同时使用胶水和卡止件,例如先使用卡止件固定,再施加胶水进一步固定。在本实施例中,卡止件例如是楔子或者销钉、或者具有一定弹性的固定件插入开槽1231进行过盈配合。

[0062] 参阅图2、图9和图10,可选的是,接插部123包括与第二弹性金属丝121连接的第一接插段123a以及与第一接插段123a连接且远离第二弹性金属丝121设置的第二接插段123b。接插孔1111沿接插部123的插入方向划分为用于接收第一接插段123a的第一孔段1111a和用于接收第二接插段123b的第二孔段1111b。其中第一孔段1111a的尺寸设置成允许第二接插段123b沿插入方向在第一孔段1111a内自由移动,且使得第一接插段123a与第一孔段1111a之间紧配合。通过两段接插段与两端孔段的分别配合固定,可以使得接插部123更稳固地固定在第一壳体111内,增强骨传导耳机的结构稳定性。

[0063] 继续参阅图9和图10,可选的是,开槽1231进一步设置在第二接插段123b的侧壁。开孔1112连通接插孔1111的第二孔段1111b。在本实施例中,在接插部123第二接插段123b依次通过第一孔段1111a以及第二孔段1111b,以使第一接插段123a与第一孔段1111a紧配合,第二接插段123b的开槽1231经开孔1112外露,以用于接收胶水或者卡止件。通过第一接插段123a与第一孔段1111a的紧配合以及第二接插孔1111与第二孔段1111b的进一步配合固定,能够有效地将后挂与耳挂固定连接。在其他实施例中,开槽1231可以设置在第一接插段123a的侧壁上。开孔1112连通接插孔1111的第二孔段1111b。

[0064] 可选的是,第二孔段1111b的尺寸设置成使得第二接插段123b与第二孔段1111b之间紧配合。如此通过第一接插段123a与第一孔段1111a的紧配合、第二接插孔1111与第二孔段1111b的紧配合以及施加的胶水或者卡止件进行固定,进一步有效地将后挂与耳挂固定连接,且能够简化结构,使骨传导耳机轻便化。当然,在其他实施例中,第一接插段123a与第一孔段1111a之间紧配合,而第二接插段123b与第二孔段1111b可以是其他类型的固定配合例如卡扣配合。

[0065] 参阅图11,可选的是,第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同。第一接插段123a的两侧形状不同,相对应地第一孔段1111a与第一接插段123a接触的两侧面1111a1、1111a2也不同。例如,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径大于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较缓,而外侧面1111a1的弧度变化相对较大,第一接插段123a两侧面相对应设置。当然,在其他实施例中,第一孔段1111a的两侧面均呈弧形设置,内侧面1111a2的曲率半径小于外侧面1111a1的曲率半径,也即内侧面1111a2的弧度变化相对较大,而外侧面1111a1的弧度变化相对较小。

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第一孔段1111a的两侧面在佩戴时靠近人体头部的为内侧面1111a2，远离人体头部即为外侧面1111a1。第一接插段123a两侧与第一孔段1111a接触的接触面的形状不同，使得第一接插段123a不能反插，且也使得后挂两个接插部123不能混插，起到有效的防呆效果，方便组装。

[0066] 参阅图9和图10，可选的是，第一接插段123a和第二接插段123b的底面呈阶梯状设置且在第一接插段123a和第二接插段123b的连接处设置有第一楔形过渡段123c，并第一孔段1111a和第二孔段1111b的连接处设置有与第一楔形过渡段123c对应的第二楔形过渡段1111c。

[0067] 在本实施例中，第一接插段123a与第二接插段123b的底面是指在佩戴时靠近人耳根部的一面。顶面则为远离人耳根部的一面。

[0068] 在本实施例中，第一接插段123a厚度要大于第二接插段123b的厚度即呈阶梯状设置，两者的连接处存在厚度差，且设置第一楔形过渡段123c，相对应的在第一孔段1111a和第二孔段1111b的连接处设置与第一楔形过渡段123c相适应的第二楔形过渡段1111c，在第一接插段123a与第二接插段123b依次插入第一孔段1111a与第二孔段1111b时，第一楔形过渡段123c与第二楔形过渡段1111c相抵接，能够方便第二接插段123b与第一接插段123a的插入，且起到缓冲过渡、限位以及进一步固定的作用。

[0069] 参阅图9、图12以及图13，可选的是，后挂组件12进一步包括由第二弹性覆层122包覆的第二导线组124，其中第二导线组124的两端从第二弹性覆层122外露，接插部123的顶面设置有用于容纳第二导线组124的外露部分的埋线槽1232。在本实施例中，第二导线组124，用于连接两个耳挂组件11内的元件例如连接电池以及控制电路组件14等。设置埋线槽1232，一方面可以有效布置和固定第二导线组124，另一方面可以减少体积。在其他实施例中，也可以不设置埋线槽1232，而通过其他方式例如胶水或者双面胶等将第二导线组124进行固定，或者在接插部123顶面设置有两排并列设置的凸块(图未示)，两排凸块之间可以容纳第二导线组124。

[0070] 参阅图2，可选的是，骨传导耳机进一步包括电池组件13和控制电路组件14，其中电池组件13设置于两个耳挂组件11中的一者的第一容置空间116，控制电路组件14设置于两个耳挂组件11中的另一者的第一容置空间116内。

[0071] 参阅图14和图15，可选的是，用于容纳控制电路组件14的耳挂组件11的第三壳体114上设置有按键开孔1141和与按键开孔1141连通的容置槽1142，控制电路组件14包括电路板141、固定于电路板141上的开关142、防水衬板143以及按键144，其中按键144设置于按键开孔1141内且经按键开孔1141外露，防水衬板143包括衬板主体143a以及以注塑方式包覆在衬板主体143a上的第三弹性覆层143b，防水衬板143设置于容置槽1142内且第三弹性覆层143b与容置槽1142的侧壁弹性抵接，按键144和开关142分别设置于防水衬板143的两侧且分别与防水衬板143抵接。在本实施中，第三弹性覆层143b包覆衬板主体143a的一侧面以及衬板主体143a的边缘，当然至少包覆部分边缘，也可以包覆全部边缘。在其他实施例中，第三弹性覆层143b可以完全包覆衬板主体143a，即包覆衬板主体143a的两侧面。

[0072] 在本实施例中，电路板141上的开关142主要是用于开关机、音量调节、或者其他切换功能等。

[0073] 继续参阅图14和图15，防水衬板143主体上以注塑方式包覆有第三弹性覆层143b，

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以使第三弹性覆层143b不容易从防水衬板143主体上脱落，且第三弹性覆层143b与防水衬板主体143a之间的致密性更好，改善了现有骨传导耳机防水性能，保证防水的有效性。在本实施例中，衬板主体143a可以为塑料，第三弹性覆层143b可以为硅胶、乳胶、橡胶或者为合成物。

[0074] 可选的是，防水衬板143靠近开关142的一侧设置有用于容纳开关142的定位槽1431。

[0075] 在本实施例中，组装控制电路组件14的方法例如首先将按键144、防水衬板143依次安置在第三壳体114上，且按键144设经按键开孔1141外露，接着电路板141通过开关142以及防水衬板143的定位槽1431与防水衬板143抵接。通过设置定位槽1431，能使开关142精准地与按键144进行定位配合，从而能够通过按键144有效地操作开关142。

[0076] 参阅图16和图17，可选的是，控制电路组件14进一步包括设置于电路板141上的天线145，天线145包括与电路板141间隔设置的天线主体145a以及连接天线主体145a与电路板141的接地部145b和馈电部145c，其中在垂直于电路板141的方向上观察时，天线主体145a从接地部145b向电路板141的一侧弯折延伸。在本实施例中，天线主体145a向电路板141的一侧弯折，能够在有限空间内增大天线145的长度，增大辐射效率。在本实施例中，天线145一般是用于进行无线通讯的，例如蓝牙通讯。在其他实施例中，还可以是WiFi通讯、蜂窝数据通讯，NFC近场通讯等。

[0077] 可选的是，天线主体145a包括平行部145a1与弯折部145a2，在垂直于电路板141的方向上观察，平行部145a1的宽度大于弯折部145a2的宽度，平行部145a1一端连接接地部145b以及馈电部145c，另一端连接弯折部145a2，平行部145a1与弯折部145a2在连接处呈阶梯状设置，弯折部145a2从连接处向电路板141的一侧弯折。

[0078] 可选的是，控制电路组件14进一步包括设置于电路板141上的接地部件146，其中天线主体145a向电路板141的远离接地部件146的一侧弯折延伸。在本实施例中，接地部件146为USB接口和/或电路上的开关142，或者其他接地部件146。一般，接地部件146例如USB接口，都会对天线145造成一定的干扰，在本实施例中，天线主体145a向电路板141的远离接地部件146的一侧弯折延伸，能够在有限空间内改善接地部件146对天线145信号的干扰，保证信号质量。在本实施例中，USB接口可用于在骨传导耳机与外界设备例如移动终端传输数据，也可用于为电池组件13充电。

[0079] 可选的是，天线主体145a的宽度沿天线主体145a的延伸方向逐渐变小。例如具体地，平行部145a1的宽度从一端到另一端宽度不变，弯折部145a2的宽度逐渐沿延伸方向逐渐变小。当然在其他实施例中，平行部145a1的宽度从一端到另一端可以逐渐变小，但平行部145a1另一端的宽度仍大于弯折部145a2的宽度。

[0080] 可选的是，天线主体145a的弯折角度沿天线主体145a的延伸方向逐渐变大。例如弯折角度逐渐变大，一般是为了远离接地部件146例如USB等，从而保证天线145的辐射效率。可选的是，在弯折部145a2远离平行部145a1的一端具有弯折脚145a3，此处的弯折角度最大，一方面为了满足天线145尺寸的需要，另一方面是为了提升辐射效率。

[0081] 以上所述仅为本实用新型的实施方式，并非因此限制本实用新型的专利范围，凡是利用本实用新型说明书及附图内容所作的等效结构或等效流程变换，或直接或间接运用在其他相关的技术领域，均同理包括在本实用新型的专利保护范围内。

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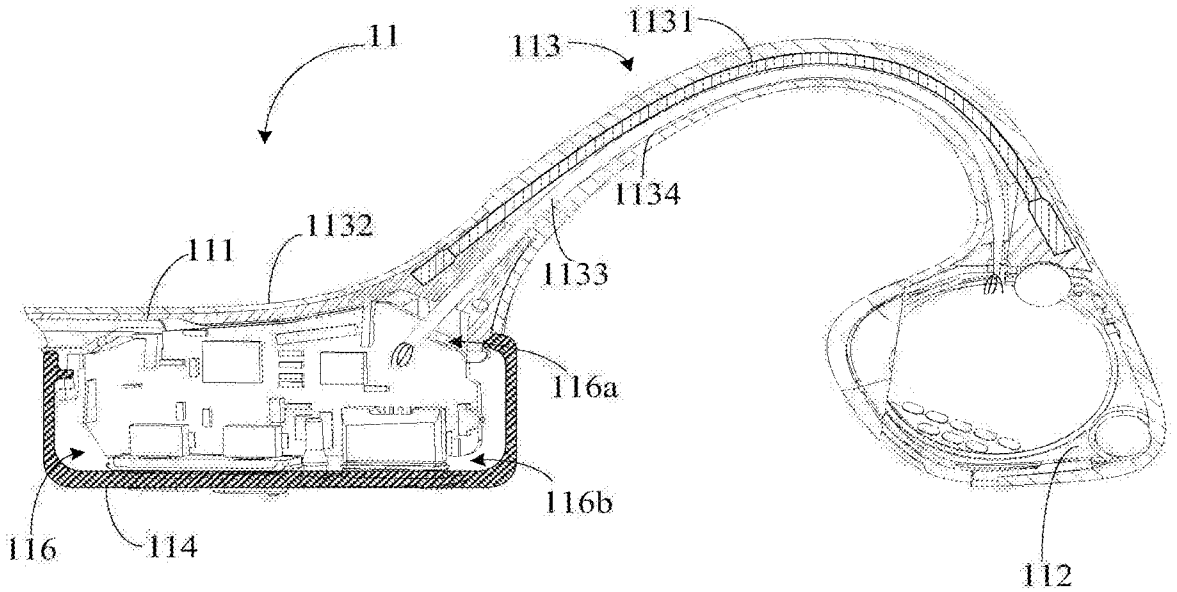


图1

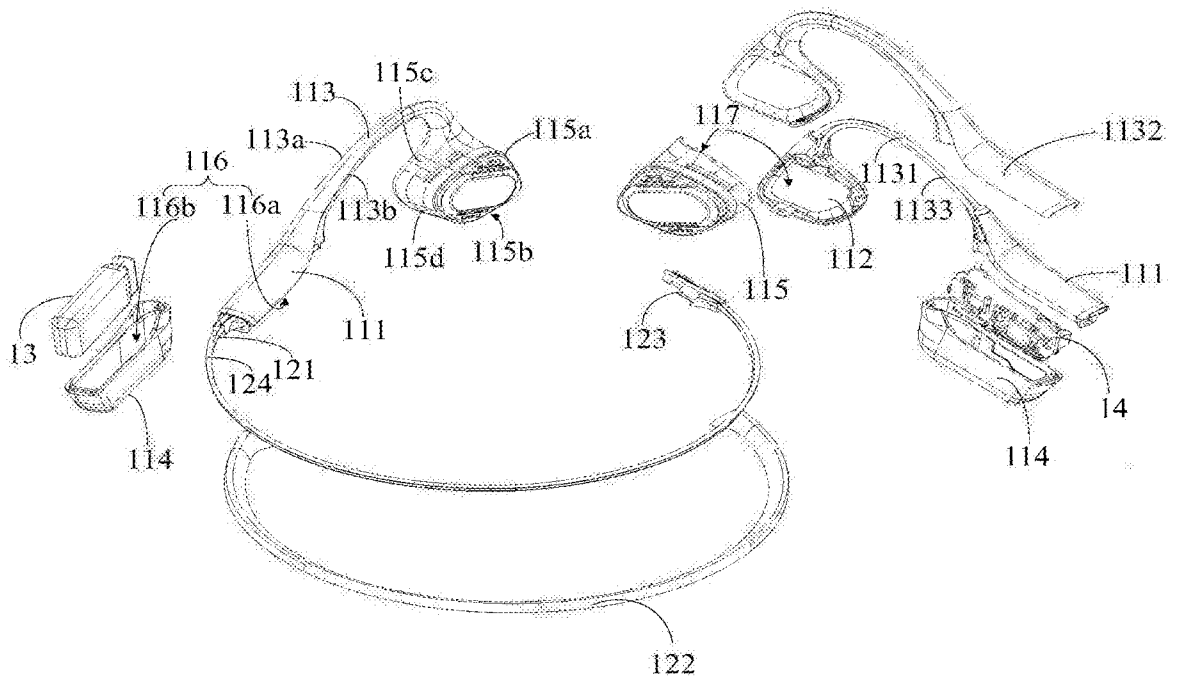


图2

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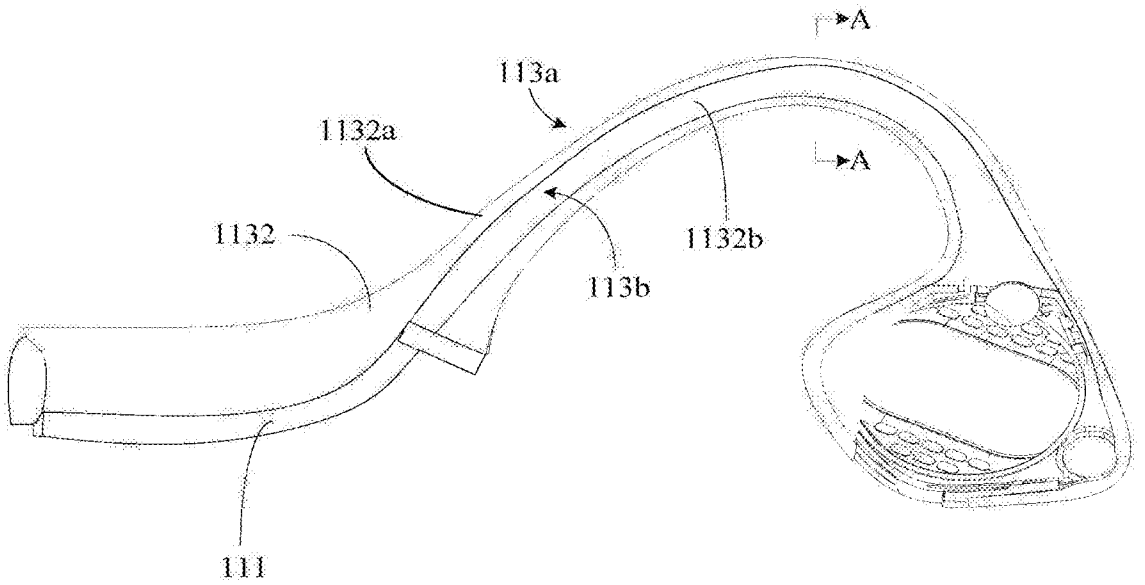


图3

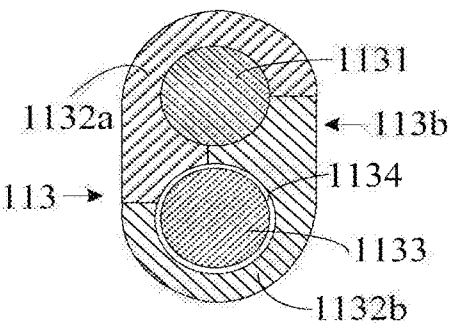


图4

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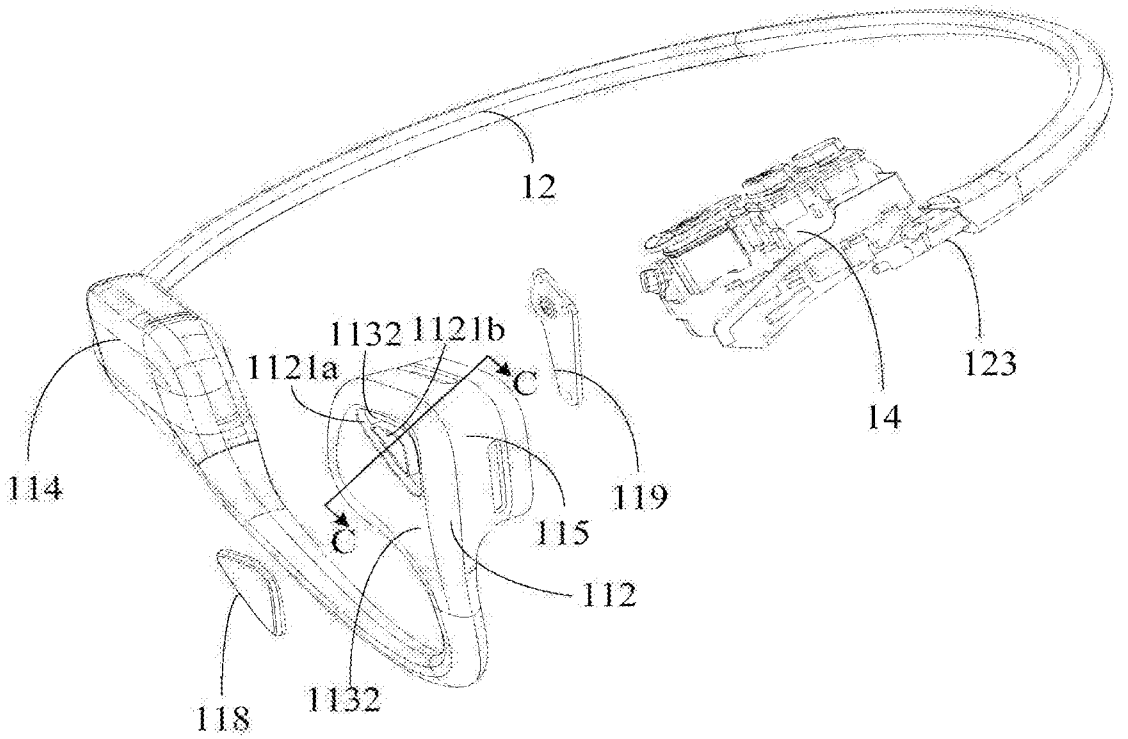


图5

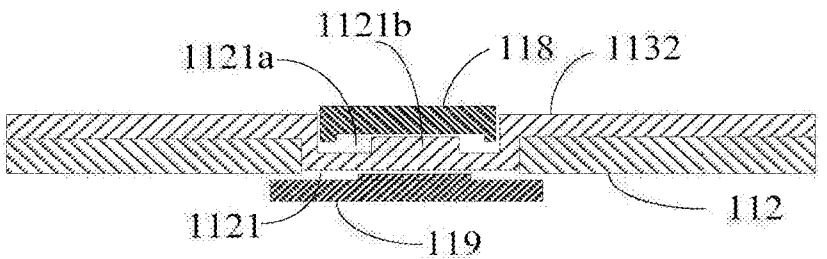


图6

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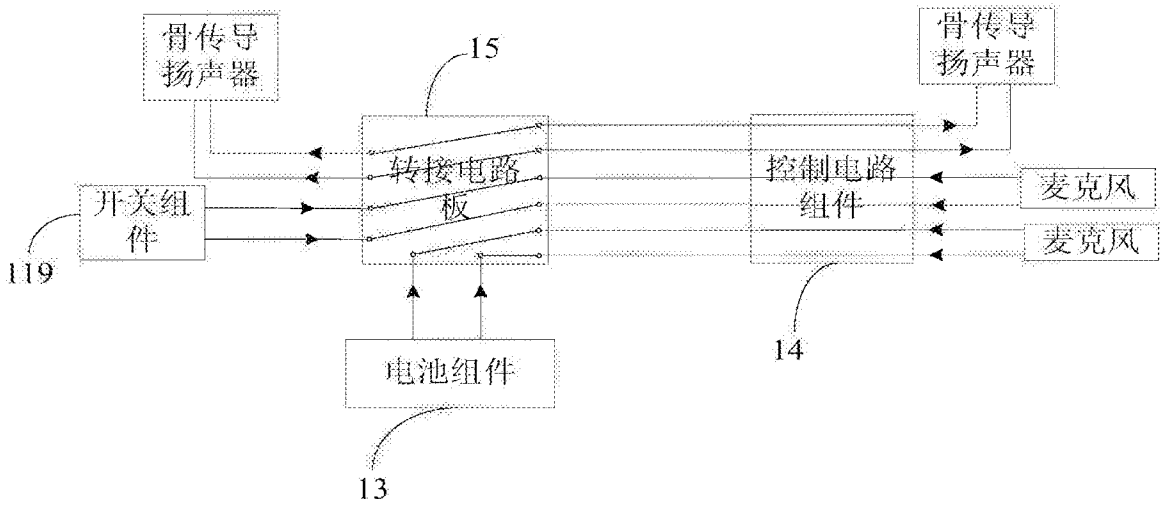


图7

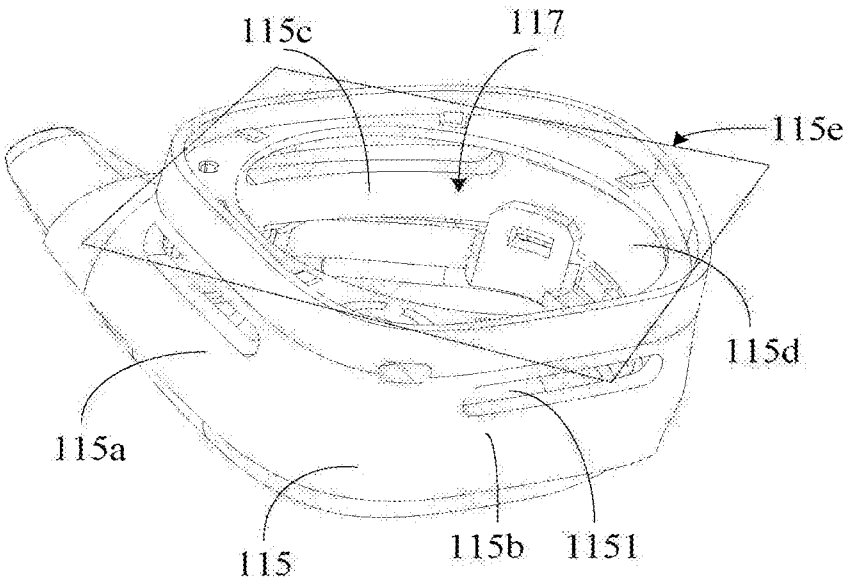


图8

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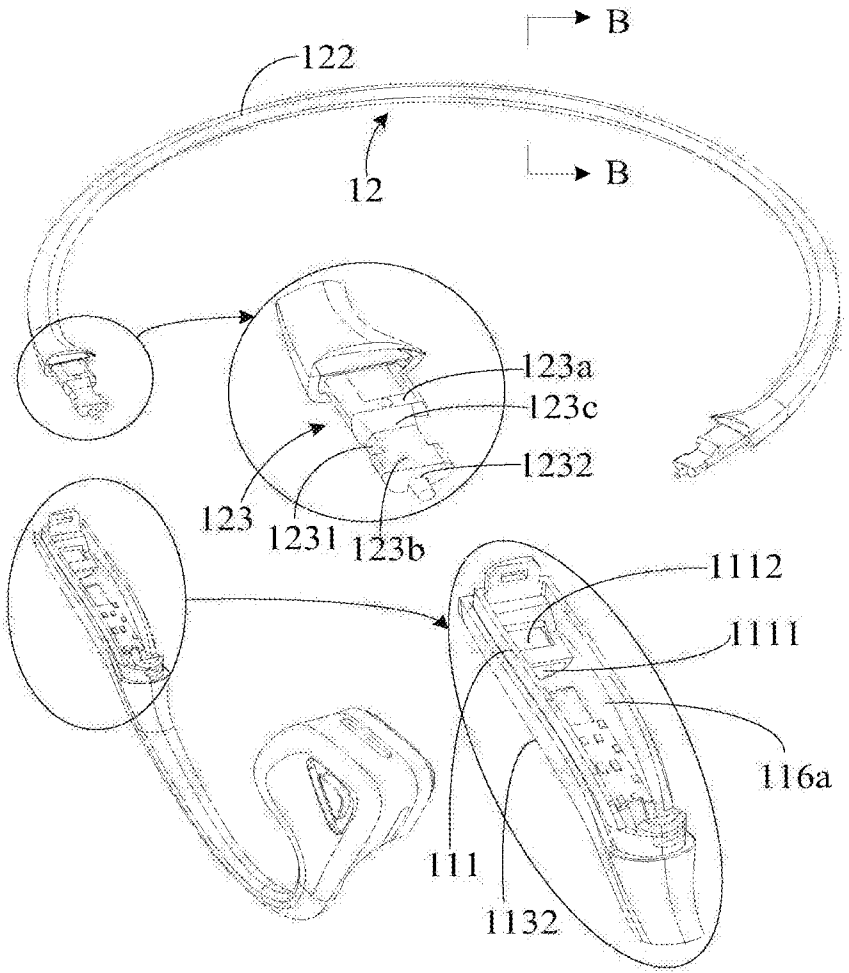


图9

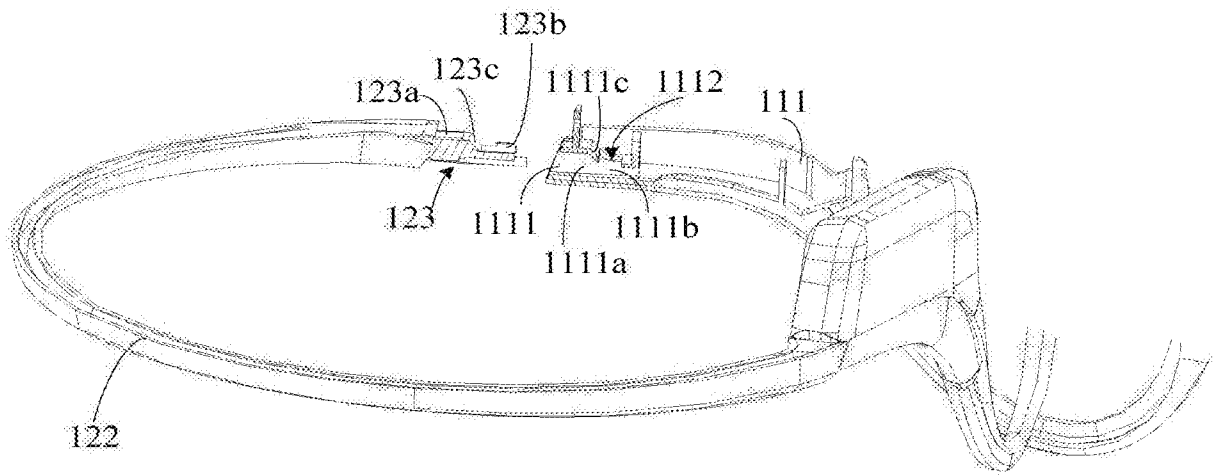


图10

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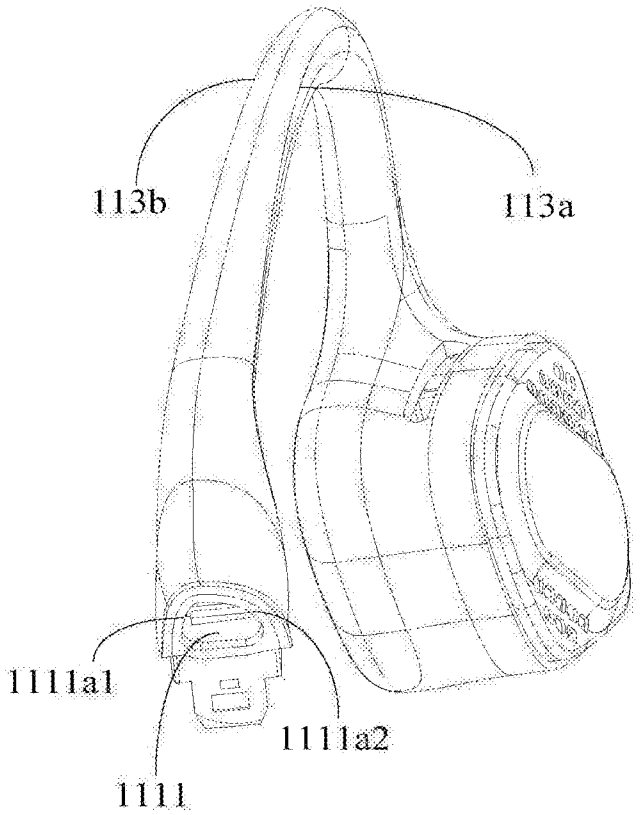


图11

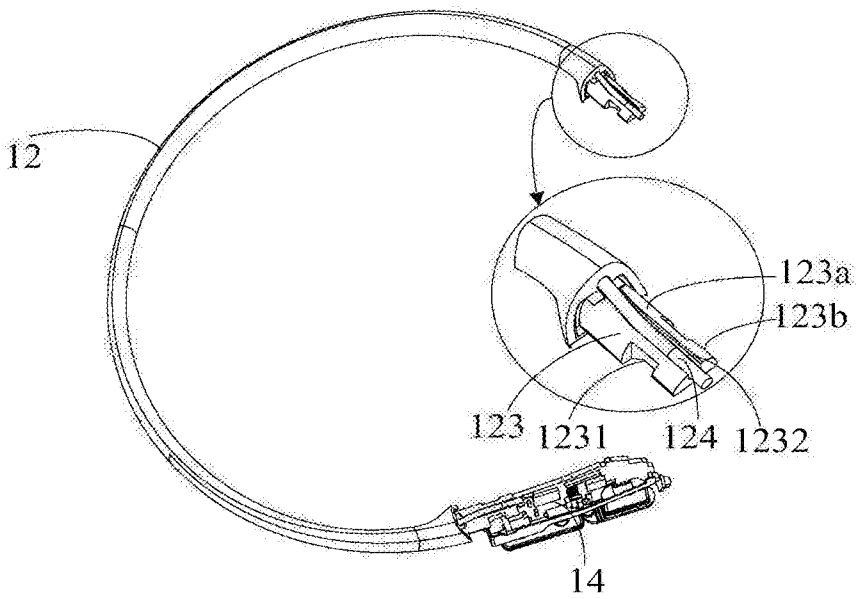


图12

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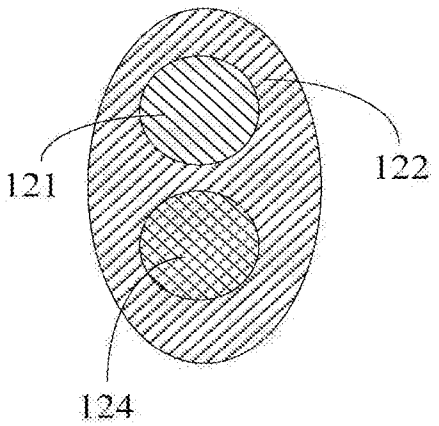


图13

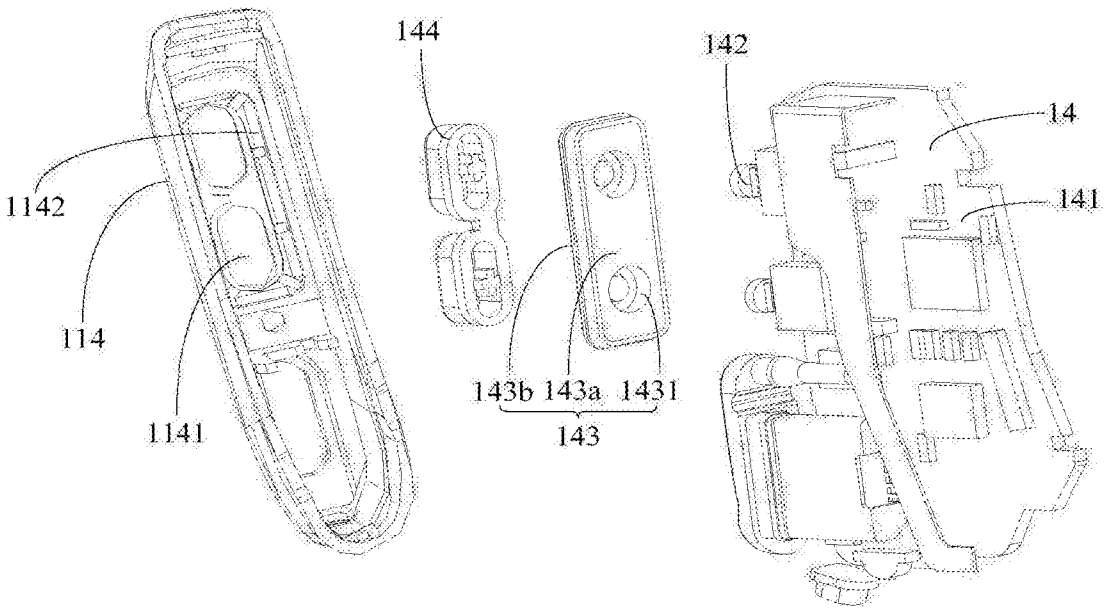


图14

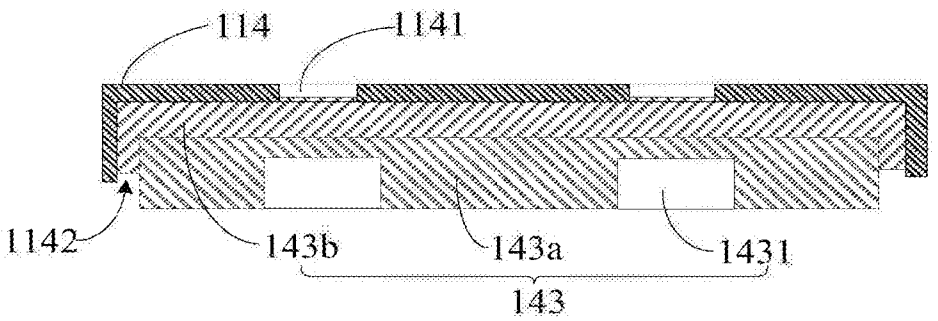


图15

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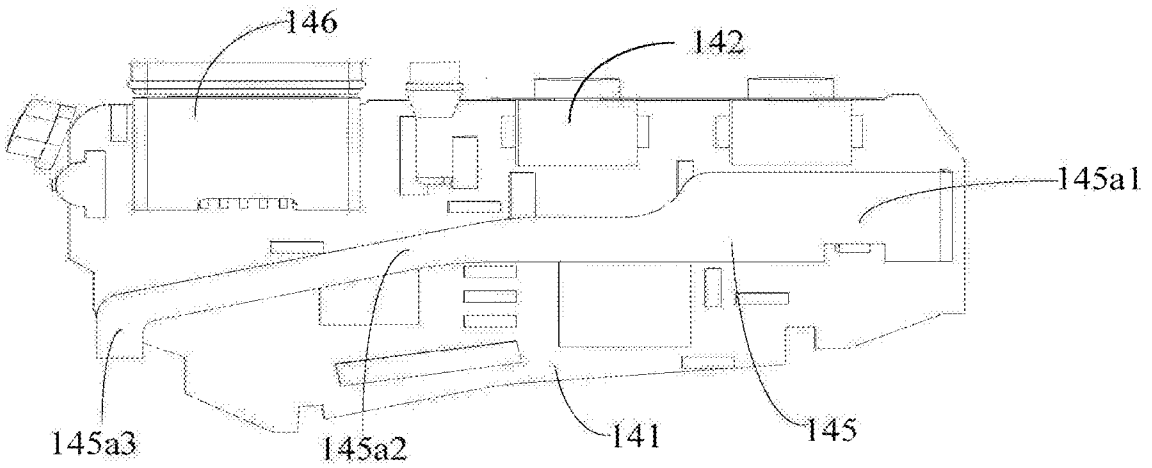


图16

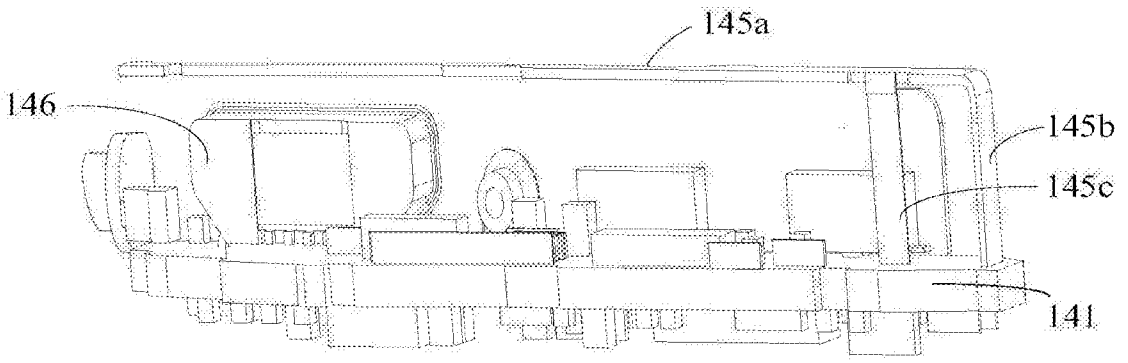


图17

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Protective device and hanging-on-neck type earphone

Abstract

The utility model belongs to ear speaker device technical field more particularly to a kind of protective device and hanging-on-neck type earphone.The protective device is for preventing the motor in earphone stuck; it is connected with vibrating mass on the output shaft of the motor; the protective device includes vibrationproof gum cover and protective shell; the vibrationproof gum cover is sheathed on the motor, the host cavity for accommodating the vibrating mass and the vibrationproof gum cover is equipped in the protective shell, the inner wall of the host cavity is equipped with the anti-jamming position of bone of the end face for abutting output shaft of the vibrationproof gum cover close to the motor.The protective device of the utility model have it is simple in structure, vibration proof and anti-seize effect are good, and reasonable design, service life is long, at low cost, cost-effective.

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China

Other languages: Chinese

Inventor: 黄远文, 吴海生, 余新, 彭久高, 卿瑞文

Worldwide applications

2017 **CN**

Application CN201721763815.0U events

2017-12-14	Application filed by 深圳市冠旭电子股份有限公司
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Description

Protective device and hanging-on-neck type earphone

Technical field

The utility model belongs to ear speaker device technical field more particularly to a kind of protective device and hanging-on-neck type earphone.

Background technology

Currently, wireless device increasingly has been favored by people, especially wireless Bluetooth headsets, while wireless Bluetooth headsets Function it is also stronger and stronger.In routine use, it sometimes appear that the phenomenon that wireless headset falls off from ear, what is fallen off is wireless Earphone may fall to be damaged on the ground, and hanging-on-neck type earphone can solve the problems, such as to fall off.It is outstanding in the headset body of hanging-on-neck type earphone In the case of hanging neck but earplug not being filled in the ear of user, user can not receive the hand being connected with hanging-on-neck type earphone The equipment such as machine receive the sound prompting of information or

Claims (10)

Hide Dependent

1 a kind of protective device is connected with vibrating mass for preventing the motor in earphone stuck on the output shaft of the motor, special Sign is : The protective device includes vibrationproof gum cover and protective shell, and the vibrationproof gum cover is sheathed on the motor, the protection The host cavity for accommodating the vibrating mass and the vibrationproof gum cover is equipped in shell, the inner wall of the host cavity is equipped with for abutting The anti-jamming position of bone of the end face of output shaft of the vibrationproof gum cover close to the motor.

2. protective device according to claim 1, it is characterised in that : The vibrationproof gum cover is vibrationproof silica gel sheath.

3. protective device according to claim 1, it is characterised in that : The protective shell is hard protective shell.

phone, it is possible to which because the prompt of earphone is not in time, and it is important to miss some Information.In order to solve the problems, such as information reminding not in time, most hanging-on-neck type earphone can be equipped with motor inside headset body And vibrating mass.When the equipment such as mobile phone receive information etc., motor drives vibrating mass vibration, the vibration of vibrating mass to pass through headset body The neck for passing to user, to play the role of prompting user, and the mode of this vibration will not be due to ambient sound be noisy Miss important information.

But motor and vibrating mass are placed in headset body simultaneously, and the vibration of vibrating mass can also cause the vibration of motor, cause The position of motor shifts, so that vibrating mass or output shaft generate interference with other component, causes motor stuck.Together When headset body generally use silica gel material, headset body have good deformability, this be conducive to wear and extract earphone Ontology, but the deformation of headset body also can cause motor and vibrating mass to be subjected to displacement, it is stuck so as to cause motor.

Utility model content

The purpose of this utility model is to provide a kind of protective device and hanging-on-neck type earphones, it is intended to solve in the prior art The vibration of motor and stuck technical problem.

To achieve the above object, the technical solution adopted in the utility model is：A kind of protective device, for preventing in earphone Motor it is stuck, be connected with vibrating mass on the output shaft of the motor, the protective device includes vibrationproof gum cover and protective shell, described Vibrationproof gum cover is sheathed on the motor, and the receipts for accommodating the vibrating mass and the vibrationproof gum cover are equipped in the protective shell The inner wall of vessel, the host cavity is equipped with the anti-sticking of the end face for abutting output shaft of the vibrationproof gum cover close to the motor Sequestrum position.

Further, the vibrationproof gum cover is vibrationproof silica gel sheath.

Further, the protective shell is hard protective shell.

Further, the vibrationproof gum cover offers the through-hole that the output shaft for the motor is worn, the through-hole it is straight Diameter is less than the diameter of the shell of the motor.

Further, the protective shell offers on the end face of the power connection end of the motor wears for the power connection end Notch.

4. protective device according to claim 1, it is characterised in that：The vibrationproof gum cover is offered for the defeated of the motor The through-hole that shaft is worn, the diameter of the through-hole are less than the diameter of the shell of the motor.

5. protective device according to claim 4, it is characterised in that：Power connection end of the protective shell close to the motor The notch worn for the power connection end is offered on end face.

6. protective device according to claim 1, it is characterised in that：The inner wall of the protective shell be equipped with semicircle cambered surface and with The tangent plane in the end of the semicircle cambered surface, the semicircle cambered surface and the outer wall of the vibrationproof gum cover abut against.

7. protective device according to claim 6, it is characterised in that：The outer wall of the vibrationproof gum cover is equipped with towards described flat The boss that the direction in face extends and abutted against with the plane.

8. protective device according to claim 7, it is characterised in that：The boss is located at the length side of the vibrationproof gum cover To both ends between.

9. according to claim 1~8 any one of them protective device, it is characterised in that：The outer wall of the protective shell is equipped with Convenient for the fixed ear of the fixation protective shell.

10. a kind of hanging-on-neck type earphone, including headset body, the motor for being fixed on headset body, it is characterised in that：Further include such as power Profit requires 1~9 any one of them protective device, the motor to be set in the protective device.

Further, the inner wall of the protective shell be equipped with semicircle cambered surface and with tangent flat in the end of the semicircle cambered surface Face, the semicircle cambered surface and the outer wall of the vibration gum cover abut against.

Further, the outer wall of the vibrationproof gum cover, which is equipped with, extends towards the direction of the plane and offsets with the plane The boss connect.

Further, the boss is located between the both ends of the length direction of the vibrationproof gum cover.

Further, the outer wall of the protective case is equipped with convenient for the fixed ear of the fixed protective case.

The beneficial effects of the utility model : The protective device of the utility model, vibrationproof gum cover are sheathed on motor, work as vibration When block causes headset body to be vibrated, the vibration that the vibration of headset body passes to motor can be absorbed by vibrationproof gum cover, to Motor will not be caused to vibrate.Vibrationproof gum cover and vibrating mass are all located in the host cavity of protective case, when headset body is because wearing With take be deformed when, protective case protects vibrationproof gum cover and vibrating mass not to be deformed, while being set in the host cavity of protective case There is position of bone mechanism, the axial displacement for limiting vibrationproof gum cover and motor, to ensure that the position of motor and vibrating mass will not It changes.The protective device of the utility model, vibration proof and anti-seize effect are good, and simple in structure, and reasonable design uses the longevity Life length, it is at low cost, it is cost-effective.

The utility model use another technical solution be : A kind of hanging-on-neck type earphone, including above-mentioned protective device.

The hanging-on-neck type earphone of the utility model, due to the use of above-mentioned protective device so that the motor in hanging-on-neck type earphone It will not cause the stuck of motor because of the vibration of itself of motor, the movement of motor and vibrating mass not occur yet, cause to vibrate mould Block failure, so that earphone failure, the service life of shortening earphone, above-mentioned protective device structure is simple, can be easily mounted to in the hanging-on-neck type earphone of the utility model, the cost of hanging-on-neck type earphone will not be increased, improve cost performance.

Description of the drawings

It, below will be to embodiment or the prior art in order to illustrate more clearly of the technical scheme in the embodiment of the utility model Attached drawing needed in description is briefly described, it should be apparent that, the accompanying drawings in the following description is only that this practicality is new Some