US 20240348965A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0348965 A1**

Tang et al. (43) **Pub. Date: Oct. 17, 2024**

(54) **HEADBAND AND HEADPHONES**

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(21) Appl. No.: **18/634,095**

(22) Filed: **Apr. 12, 2024**

(30) **Foreign Application Priority Data**

Apr. 17, 2023 (CN) 202320855761.X

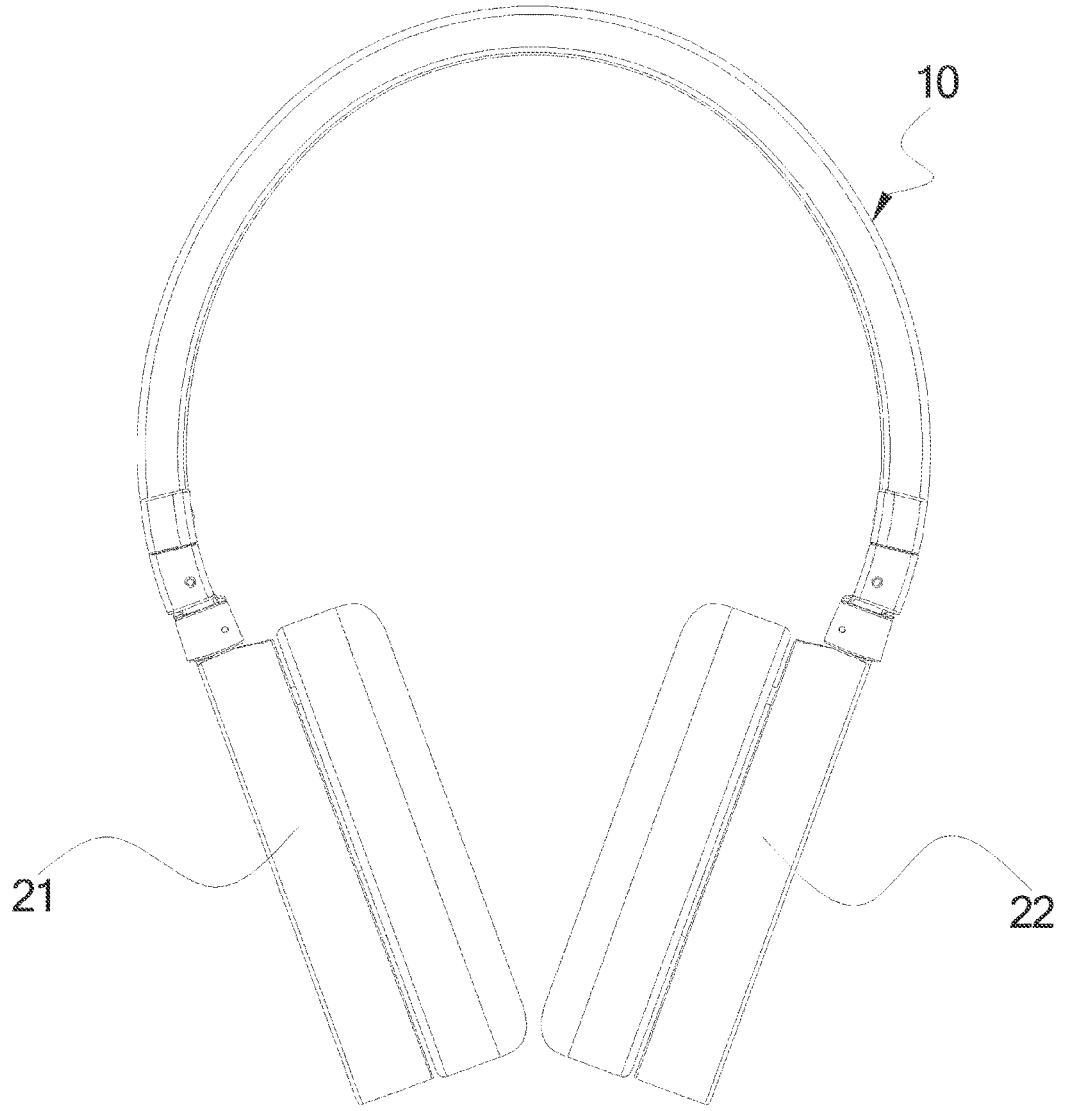
Publication Classification

(51) **Int. Cl.**
H04R 1/10 (2006.01)

(52) **U.S. Cl.**
CPC ***H04R 1/105*** (2013.01); ***H04R 1/1008*** (2013.01)

(57) **ABSTRACT**

This application discloses a headband and headphones, and the headband includes an integrally arc-shaped frame. The frame comprises: multiple joint structures arranged along the extension direction of the frame; multiple pivot axles, where two adjacent joint structures are rotatably connected by at least one pivot axle. In an example, an axial direction of the pivot axle is parallel to the axial direction of the frame, allowing the two adjacent joint structures to rotate relative to each other around the axis of the pivot axle, and enabling the frame to switch between a folded state and an unfolded state. The multiple joint structures include at least one joint structure (e.g., a first joint structure), which includes a plastic part and a spring clip that are integrally injection-molded together. The example headband can reduce storage space and increase portability, while enhancing the stability and reliability of the headband.



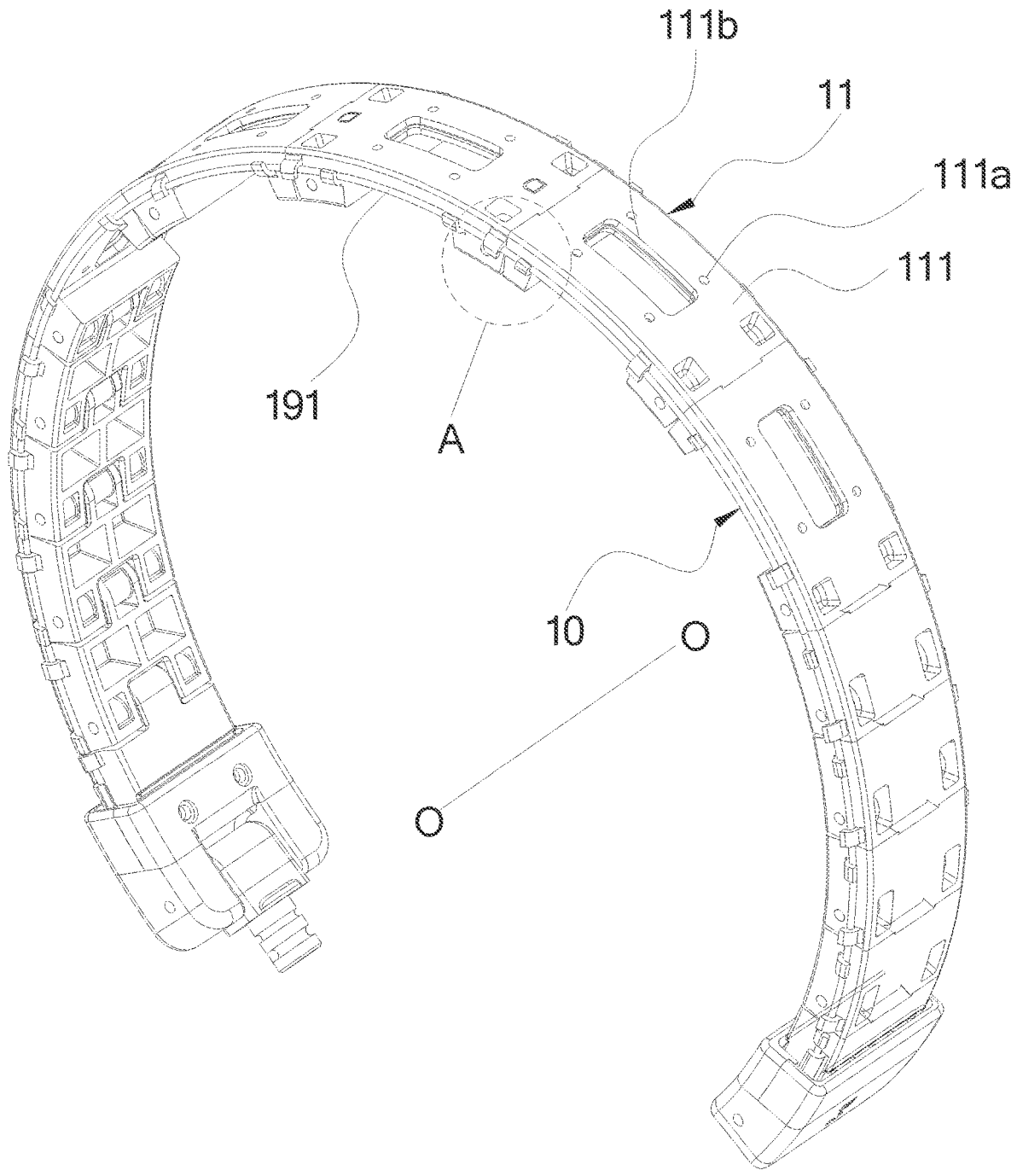


Fig. 1

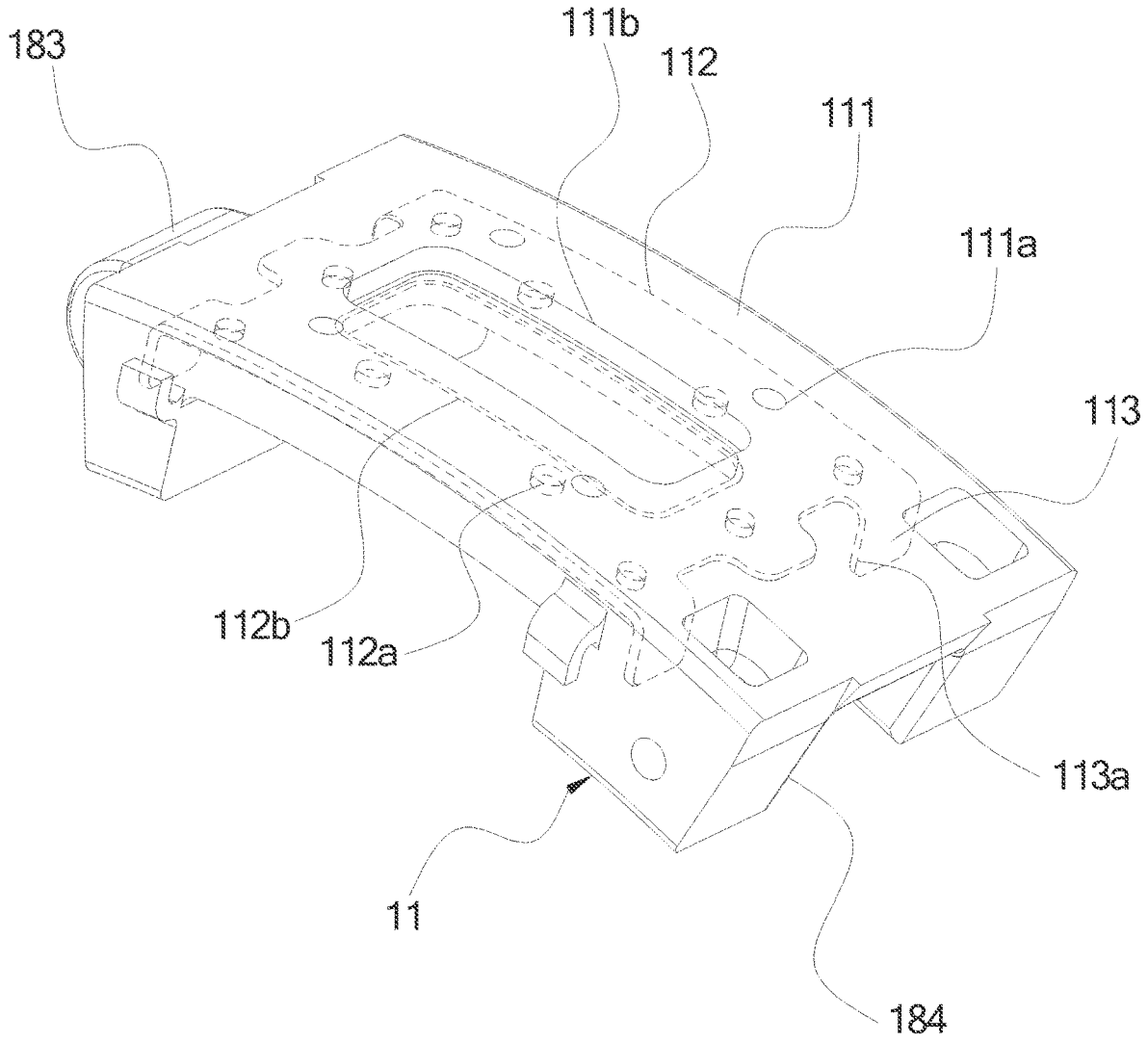


Fig. 2

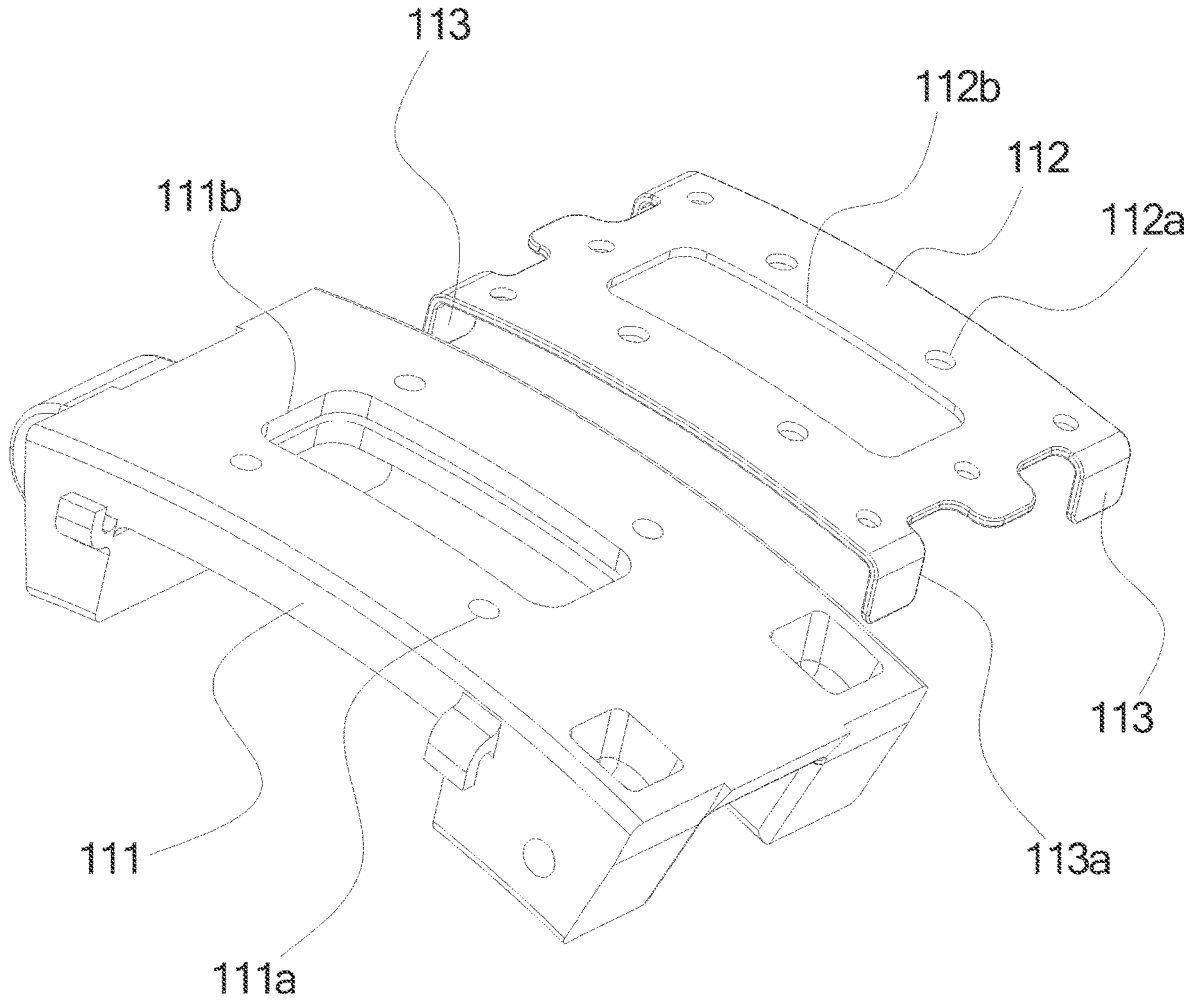


Fig. 3

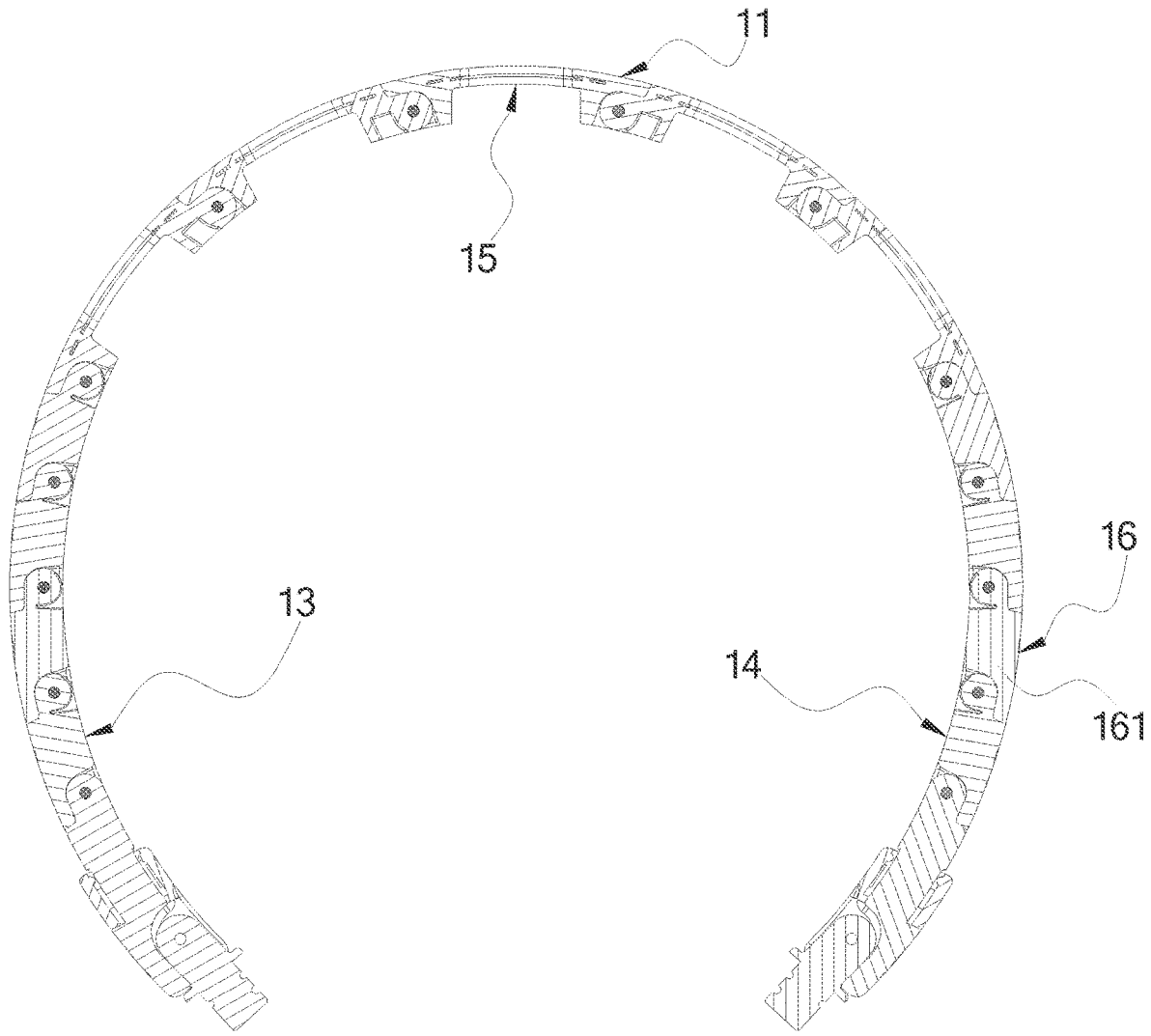


Fig. 4

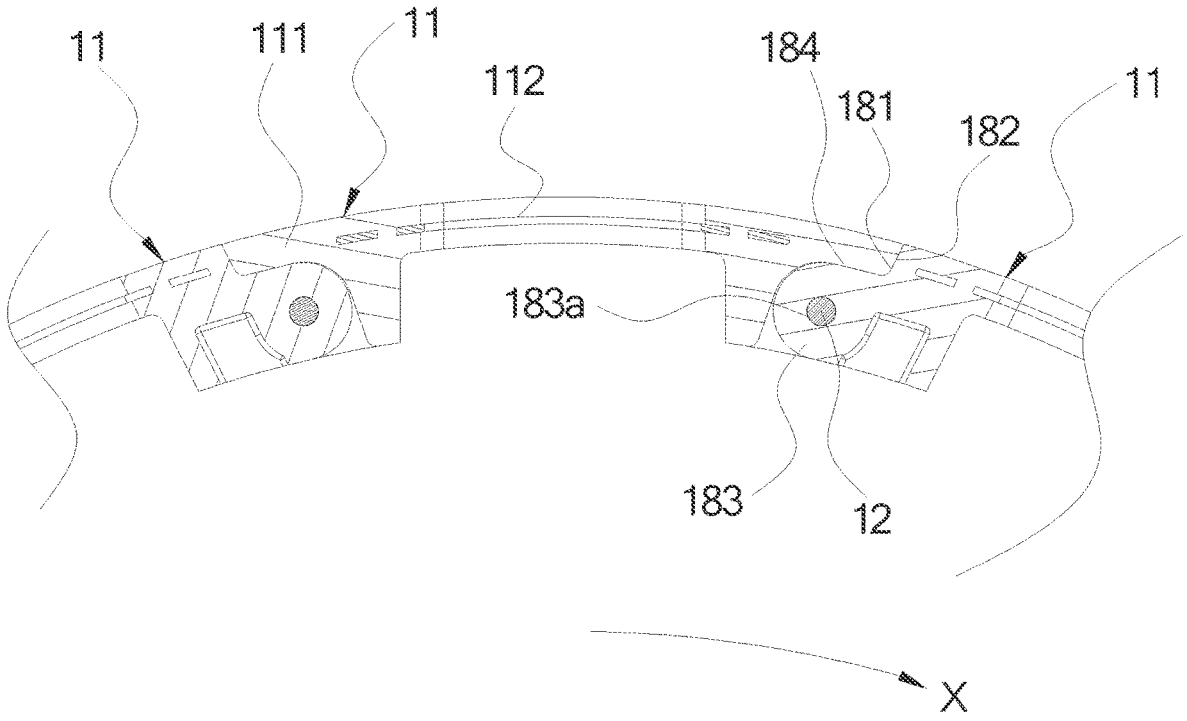


Fig. 5

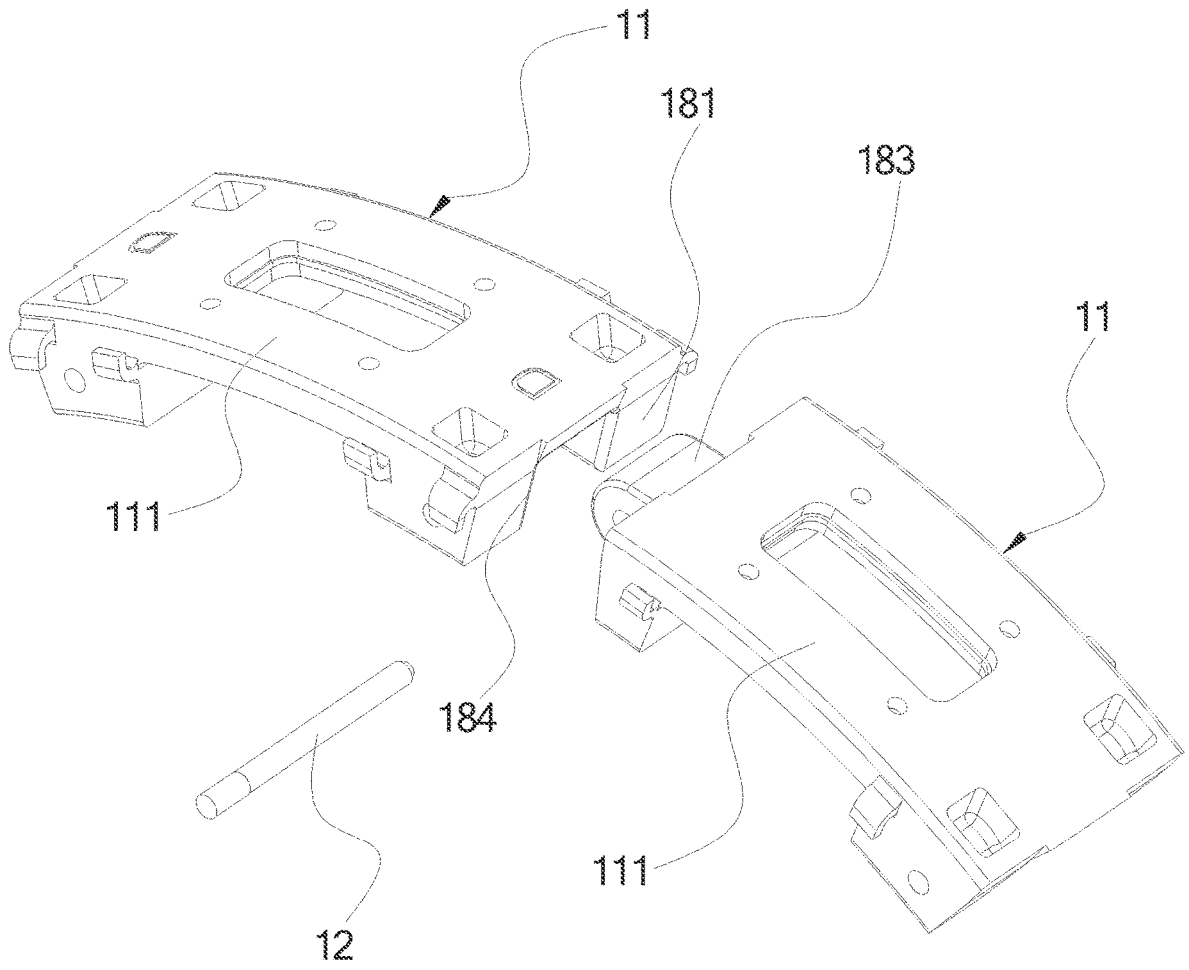


Fig. 6

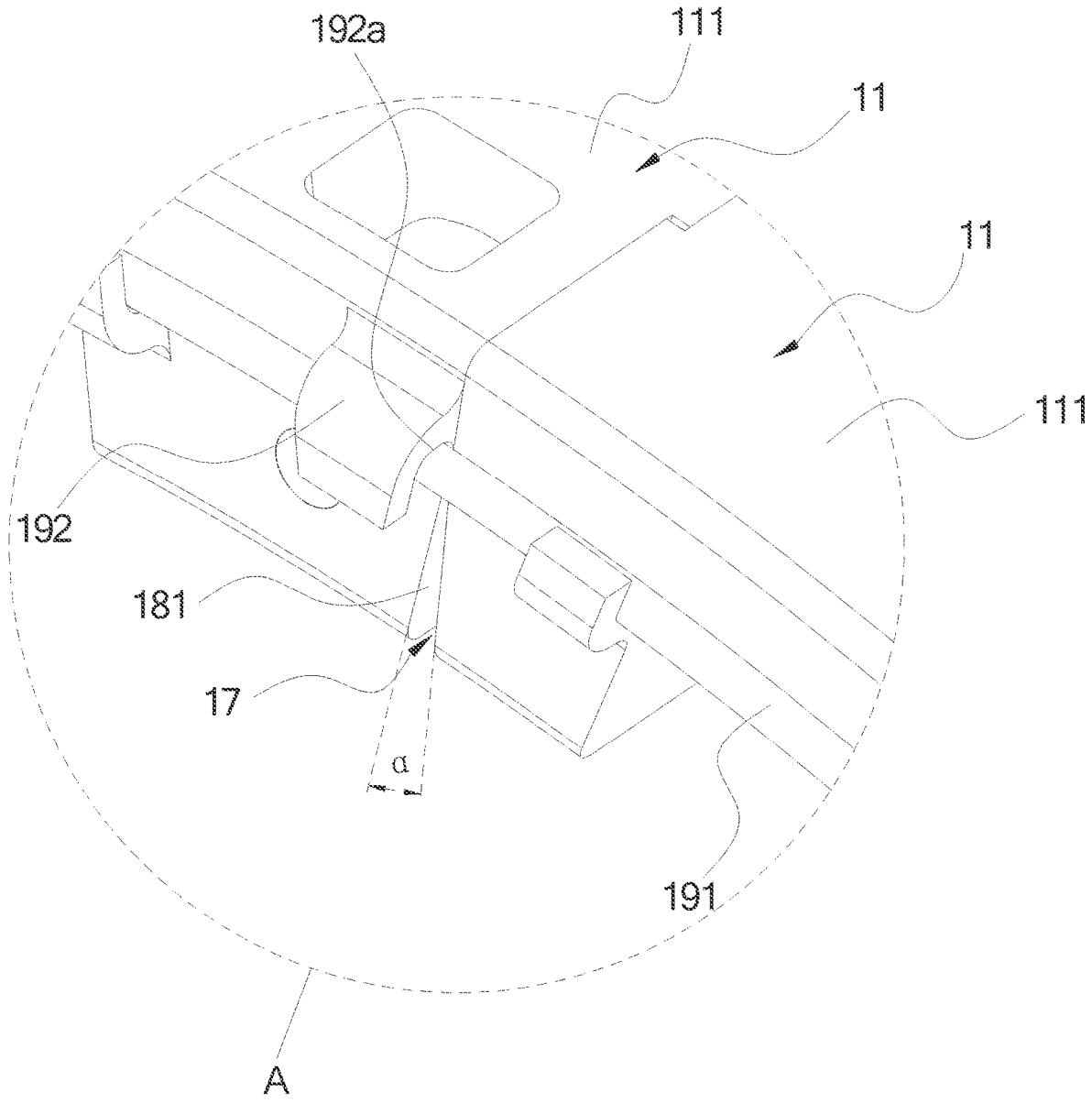


Fig. 7

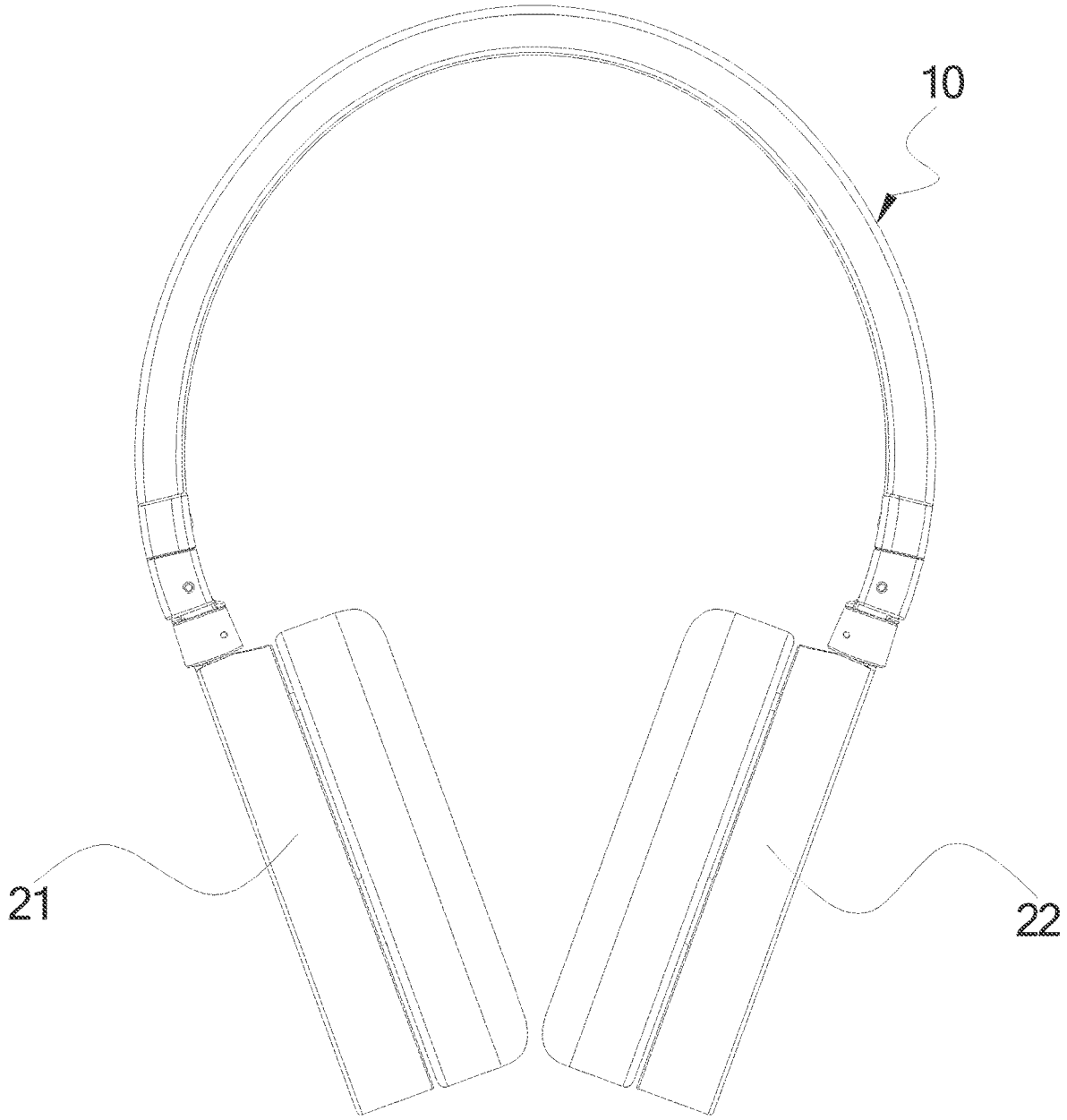


Fig. 8

HEADBAND AND HEADPHONES

[0001] The present application claims priority to CN application Ser. No. 20/232,0855761.X, filed on Apr. 17, 2023. The above application is incorporated by reference in its entirety.

FIELD

[0002] This application relates to the field of headphone technology, particularly to a type of headband and headphones.

BACKGROUND

[0003] Headband devices such as headphones are highly popular among users because of their easy-to-wear performance. However, the headband of headband devices is generally larger in size, and often has limited adjustability, which results in increased storage space when the headband is being stored, and inconvenience to carry it around.

SUMMARY

[0004] This application provides a headband and headphones that can reduce the storage space occupied by the headband when stored, increase its portability, and at the same time, improve the stability and reliability of the headband.

[0005] Firstly, this application provides a headband, which includes an arc-shaped frame. The frame comprises: multiple joint structures, which are arranged along an extension direction of the frame; multiple pivot axles, where at least one pivot axle rotationally connects two adjacent joint structures, with an axial direction of the pivot axle being parallel to an axial direction of the frame, allowing the adjacent joint structures to rotate relative to each other around the axial direction of the pivot axle, and enabling the frame to switch between a folded state and an unfolded state; wherein the multiple joint structures include at least one joint structure such as a first joint structure, which consists of a plastic part and a spring piece, with the plastic part and the spring piece being integrally injection-molded.

[0006] Secondly, this application provides a pair of headphones, which comprises a first earphone unit, a second earphone unit, and a headband. The first earphone unit is connected to one end of the frame, and the second earphone unit is connected to the other end of the frame. In some examples, the frame includes an arc-shaped frame having at least four joint structures arranged in series along an extension direction of the frame, wherein each joint structure is pivotally coupled to adjacent joint structures. In some examples, the arc-shaped frame has at least five joint structures. In some examples, the arc-shaped frame has at least six joint structures. In some examples, the arc-shaped frame has at least seven joint structures. In some examples, the arc-shaped frame has at least eight joint structures. In some examples, the arc-shaped frame has at least nine joint structures. The joint structures may be the same or different in their structures or configurations.

[0007] The embodiments of this application include at least the following beneficial technical effects: when the headband is not in use, the frame can be folded by rotating each joint structure around the axis of the pivot axle, causing the frame to enter a folded state, thereby allowing the headband to enter a folded state. This significantly reduces the spatial volume of the frame when it is in the folded state, thereby reducing the spatial volume of the headband, and making the headband more convenient to carry. In addition, the spring clip has a certain degree of elasticity, and when the headband is worn on the head, the elasticity of the spring clip ensures that the headband maintains a good clamping force in the expanded state, making the connection between the headband and a person's head more secure and preventing the headband from falling or slipping off the head. Moreover, the plastic part has the advantages of being lightweight, having a simple processing technology, and high processing precision. By integrally molding the plastic part with the spring clip to form the first joint structure, the overall weight and processing difficulty of the first joint structure can be reduced, and the processing precision of the first joint structure can be improved. This ensures a more precise assembly between each of the first joint structures, and at the same time, the spring clip is less likely to separate from the plastic part, making the overall performance of the first joint structure more stable and less prone to loosening, thereby enhancing the stability and reliability of the headband.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] To more clearly illustrate the examples or related technology of this application, a brief introduction to the drawings used in the description of the examples or related technology will be provided below. It is evident that the drawings described below are only some examples of this application, and for those skilled in the art, other drawings can be obtained based on these drawings without any creative effort.

[0009] FIG. **1** is a schematic structural diagram of a headband in an embodiment of this application;

[0010] FIG. **2** is a schematic structural diagram of a first joint structure in an embodiment of this application;

[0011] FIG. **3** is a schematic diagram of the components of the first joint structure in an embodiment of this application;

[0012] FIG. **4** is a schematic structural diagram of a headband in an embodiment of this application;

[0013] FIG. **5** is a schematic diagram of a partial structure of a headband in an embodiment of this application;

[0014] FIG. **6** is a schematic structural diagram of two adjacent joint structures in an embodiment of this application;

[0015] FIG. **7** is an enlarged schematic view of the area A in FIG. **1**;

[0016] FIG. **8** is a schematic structural diagram of headphones in an embodiment of this application.

REFERENCE MARKINGS IN THE DRAWINGS

[0017] **10**, frame; **11**, first joint structure; **111**, plastic part; **111***a*, first positioning structure; **111***b*, first hollow structure; **112**, spring clip; **112***a*, second positioning structure; **112***b*, second hollow structure; **113**, bending structure; **113***a*, opening; **12**, pivot axle; **13**, first clamping mechanism; **14**, second clamping mechanism; **15**, connecting mechanism; **16**, second joint structure; **161**, joint piece; **17**, rotational clearance; **181**, first connecting surface; **182**, second connecting surface; **183**, rotating piece; **183***a*, mounting hole; **184**, accommodating slot; **191**, memory metal strip; **192**, mounting piece; **192***a*, limiting hole; **21**, first earphone unit; **22**, second earphone unit.

BRIEF DESCRIPTION

[0018] To make the objectives, technical solutions, and advantages of this application clearer and more comprehensible, the following detailed description of the application is provided in conjunction with the accompanying drawings and examples. It should be understood that the specific examples described herein are only used to explain this application and are not intended to limit the scope of this application.

[0019] This application provides a headband and headphones designed to address the issue that headbands generally have a large spatial volume and has limited adjustability, resulting in the headbands occupying a significant amount of storage space and being inconvenient to carry it around when stored.

[0020] In a first aspect, this application provides a headband, as shown in FIG. **1**, which comprises an arc-shaped frame **10**. The frame **10** comprises multiple joint structures and multiple pivot axles **12** (as shown in FIG. **6**); the multiple joint structures are arranged along the extension direction (i.e., the length direction) of the frame **10**, with adjacent joint structures connected by one or two pivot axles **12**. The axial direction (i.e., the length direction) of the pivot axle **12** is parallel to the axial direction of the frame **10** (the OO direction in FIG. **1**). Adjacent joint structures can rotate relative to each other around the axial direction of one or the pair of oppositely arranged pivot axles **12**, allowing the frame **10** to switch between a folded state and an unfolded state.

[0021] It is understandable that, in an example of a headband application for over-ear headphones, the headband is used to connect with the earphone units and can secure the earphone units on the user's head. When the headband is in use, such as when it is worn on the head, the frame **10** is in an expanded state, meaning the headband is expanded and occupies a larger volume of space. In this application, the frame **10** serves as the main structural body of the headband. The frame **10** also provides mounting interfaces and support for other components. The frame **10** includes multiple joints that can rotate relative to each other. Therefore, when the headband is not in use, it can be folded by rotating each joint structure around the pivot axle **12**, causing the frame **10** to enter a folded state. This folding action reduces the headband's volume significantly, making it more convenient to carry.

[0022] It should be noted that the structures of the multiple joint structures can be the same or different; this application does not impose specific limitations. As shown in FIGS. **2** and **3**, the multiple joint structures include a first joint structure **11**, which comprises a plastic part **111** and a spring clip **112**. The plastic part **111** and the spring clip **112** are integrally molded by injection-molding.

[0023] It should be noted that the spring clip **112** has a certain degree of elasticity, and when the headband is worn on the head, the spring force of the spring clip **112** maintains a good clamping force while the headband is in the expanded state, ensuring a firm connection between the headband and the head to prevent the headband from falling or slipping off the head. In addition, the plastic part **111** has the advantages of being lightweight, having a simple manufacturing process, and high processing precision. Integrating the plastic part **111** with the spring clip **112** through injection-molding to form the first joint structure **11** can reduce the overall weight and manufacturing difficulty of the first joint structure **11**, and improve the processing precision of the first joint structure **11**, making the assembly between each first joint structure **11** more precise. At the same time, the spring clip **112** and the plastic part **111** are not easily separated, making the overall performance of the first joint structure **11** more stable and less prone to disassembly or loosening.

[0024] In an example of this application, the structural strength of the spring clip **112** is greater than that of the plastic part **111**. Structural strength refers to the ability of an object to resist breaking, which can enhance the overall structural strength of the first joint structure **11**, making the overall performance of the first joint structure **11** more stable and less likely to break when the headband is bent.

[0025] Preferably, the material used to make the spring clip **112** can be an elastic metal, such as spring steel or spring copper, etc., which can increase the structural strength of the first joint structure **11** while enhancing its elasticity, ensuring a more secure connection between the headband and the head when the headband is worn. Based on actual needs, the material for the spring clip **112** can also be elastic plastic or other materials.

[0026] In one example of this application, the plastic part **111** has a hollow cavity, and the spring clip **112** is located inside the hollow cavity. It is understandable that when forming the first joint structure **11**, the pre-prepared spring clip **112** can be placed inside the mold, then molten plastic is injected into the mold and used to wrap the spring clip **112**. As the plastic wraps around the spring clip **112**, a hollow cavity is formed inside the plastic part **111**. This design can further enhance the connection strength between the spring clip **112** and the plastic part **111**, preventing separation during the bending process of the headband.

[0027] In another example of this application, the spring clip **112** can also be stacked on the outer or inner surface of the plastic part **111**. It should be noted that the outer surface of the plastic part **111** refers to the surface that is away from the head when the headband is worn, while the inner surface of the plastic part **111** refers to the surface that faces towards the head when the headband is worn. When forming the first joint structure **11**, the pre-prepared spring clip **112** can also be placed inside the mold, followed by the injection of plastic into the mold. The plastic then forms on the surface of the spring clip **112**, allowing the spring clip **112** to be stacked on the outer or inner surface of the plastic part **111**. This design facilitates the user's observation of the spring clip **112**, and in case of damage to the spring clip **112**, it allows for timely repair or replacement of the first joint structure **11**.

[0028] In an example of this application, the plastic part **111** is provided with a first positioning structure **111***a*, and a portion of the spring clip **112** is located within the first positioning structure **111***a*; and/or, the spring clip **112** is provided with a second positioning structure **112***a*, and a portion of the plastic part **111** is located within the second positioning structure **112***a*. It should be noted that the use of the first positioning structure **111***a* and the second positioning structure **112***a* can provide positioning for the spring clip **112**, ensuring that the spring clip **112** is accurately installed at the designed location. Additionally, the first positioning structure **111***a* and the second positioning structure **112***a* can also enhance the connection strength between the spring clip **112** and the plastic part **111**, preventing relative movement between the spring clip **112** and the plastic part **111**.

[0029] The first positioning structure **111***a* may include structures such as positioning holes and/or slots located on the plastic part **111**, with the spring clip **112** being provided with protruding structures, such as positioning posts. When the spring clip **112** and the plastic part **111** are integrally molded by injection, the molten plastic wraps around the protruding structures to form the positioning holes and/or slots. The second positioning structure **112***a* may also include structures such as positioning holes and/or slots located on the spring clip **112**. When the spring clip **112** and the plastic part **111** are integrally molded by injection, the molten plastic enters and solidifies within the positioning holes and/or slots.

[0030] In an example of this application, the end of the spring clip **112** is provided with a bending structure **113**, which is integrally molded with the spring clip **112** by injection molding. It is understandable that when the spring clip **112** is integrally molded with the plastic part **111** by injection molding, the molten plastic will wrap around the bending structure **113**, which can increase the contact area between the spring clip **112** and the plastic part **111**, thereby further enhancing the connection strength between the spring clip **112** and the plastic part **111**, and preventing separation during the bending process of the headband. Additionally, the plastic part **111** can limit the position of the spring clip **112** in various directions through the bending structure **113**, preventing relative movement between the spring clip **112** and the plastic part **111**.

[0031] The bending structure **113** can be bent inward towards the plastic part **111**, or it can be bent outward away from the plastic part **111**. Preferably, the bending structure **113** can be integrally formed with the spring clip **112** to enhance the connection strength between the spring clip **112** and the bending structure **113**. In this case, the bending structure **113** can be formed by bending a portion of the end of the spring clip **112**. Preferably, both ends of the spring clip **112** can be provided with the bending structure **113** to further enhance the connection strength between the spring clip **112** and the plastic part **111**.

[0032] In an example of this application, an opening **113***a* is provided on the bending structure **113**. It can be understood that when the spring clip **112** is integrally injection-molded with the plastic part **111**, the molten state fills in the opening **113***a,* thereby wrapping the bending structure **113** more tightly, which can further enhance the connection strength between the spring clip **112** and the plastic part **111**, as well as strengthen the positional limitation of the plastic part **111** in all directions on the spring clip **112**.

[0033] In an example of this application, the plastic part **111** is provided with a first hollow structure **111***b,* which penetrates the outer and inner surfaces of the plastic part **111**, and the spring clip **112** is provided with a second hollow structure **112***b* corresponding to the first hollow structure **111***b.* It can be understood that the first hollow structure **111***b* and the second hollow structure **112***b* can reduce the contact area and weight between the first joint structure **11** and the top of the head, thereby reducing the pressure on the top of the head; in addition, the elasticity of the spring clip **112** can be adjusted through the design of the second hollow structure **112***b;* the elasticity of the spring clip **112** can also be adjusted based on certain aspects such as the thickness of the spring clip **112**. The volume of the first hollow structure **111***b* and the second hollow structure **112***b* can be selected according to actual needs, and this application does not impose specific restrictions.

[0034] As shown in FIG. **4**, the frame **10** comprises a first clamping mechanism **13**, a second clamping mechanism **14**, and a connecting mechanism **15**; the second clamping mechanism **14** is set opposite to the first clamping mechanism **13**; the connecting mechanism **15** is located between the first clamping mechanism **13** and the second clamping mechanism **14**, with one end of the connecting mechanism **15** rotatably connected to the first clamping mechanism **13** through a pivot axle **12**, and the other end rotatably connected to the second clamping mechanism **14** through another pivot axle **12**.

[0035] The connecting mechanism **15** is formed by sequentially connecting multiple first joint structures **11**. It can be understood that when the headband is worn on the head, the connecting mechanism **15** is located at the top part of the head, with the first clamping mechanism **13** and the second clamping mechanism **14** located on either side of the head, respectively. The combined clamping force of the first clamping mechanism **13** and the second clamping mechanism **14** is used to secure the headband on the head; the connecting mechanism **15** is formed by sequentially connecting multiple first joint structures **11**. The elasticity of the first joint structures **11** can provide greater clamping force for the first and second clamping mechanisms, ensuring a more secure connection between the headband and the head, and preventing the headband from falling off the head.

[0036] Further, multiple joint structures also comprise a second joint structure **16**. The first clamping mechanism **13** is formed by connecting multiple second joint structures **16** in sequence, and the second clamping mechanism **14** is formed by connecting another set of multiple second joint structures **16** in sequence. The second joint structure **16** is different from the first joint structure **11** in configuration. Specifically, the second joint structure **16** can include a joint piece **161**, which can also be a part formed from plastic. It is understandable that, compared to the first joint structure **11**, the second joint structure **16** has a simpler configuration, and it may include parts made from plastic without components such as a spring clip **112**, which can reduce the weight of the second joint structure **16**, thereby reducing the overall weight of the headband and enhancing the comfort of the user wearing the headband.

[0037] Furthermore, the first clamping mechanism **13** and the second clamping mechanism **14** can be symmetrically distributed at the two ends of the connecting mechanism **15**.

[0038] It should also be noted that all the first joint structures **11** in the connecting mechanism **15** can have the same or different configurations, all the second joint structures **16** in the first clamping mechanism **13** can have the same or different configurations, and all the second joint structures **16** in the second clamping mechanism **14** can have the same or different configurations. In some examples, the connecting mechanism **15** has at least two first joint structures. In some examples, the connecting mechanism **15** has at least three first joint structures. In some examples, the connecting mechanism **15** has at least four first joint structures. In some examples, the connecting mechanism **15** has at least five first joint structures. In some examples, the first clamping mechanism **13** and the second clamping mechanism **14** each has at least one second joint structures. In some examples, the first clamping mechanism **13** and the second

clamping mechanism **14** each has at least two second joint structures. In some examples, the first clamping mechanism **13** and the second clamping mechanism **14** each has at least three second joint structures. In some examples, the first clamping mechanism **13** and the second clamping mechanism **14** each has at least four second joint structures. In some examples, the first clamping mechanism **13** and the second clamping mechanism **14** each has at least five second joint structures.

[0039] As shown in FIGS. **5** and **6**, in some examples of this application, two adjacent joint structures have mutually facing first connecting surfaces **181** and second connecting surfaces **182**. Among the adjacent joint structures, the one with the first connecting surface **181** is equipped with an accommodating slot **184**, and the one with the second connecting surface **182** is equipped with a rotating piece **183**. The accommodating slot **184** has a slot opening located on the first connecting surface **181**, and the rotating piece **183** is positioned on the second connecting surface **182**. The rotating piece **183** is inserted through the slot opening into accommodating slot **184**. The rotating piece **183** is provided with a mounting hole **183***a*, which extends axially along the pivot axle **12** and penetrates through the rotating piece **183**. The pivot axle **12** is threaded through the mounting hole **183***a*, and the adjacent joint structures are rotationally connected through the rotating member **183** and the pivot axle **12**. The accommodating slot **184** extends inwardly towards the frame **10** to form a clearance notch that allows for the rotation of the rotating piece **183**.

[0040] When the frame **10** is in the expanded state, the part of the first connection surface **181** that is far from the inside of the frame **10** and opposite the accommodating slot **184** abuts against the second connection surface **182**. It can be understood that by inserting the rotating piece **183** into the accommodating slot **184**, the connection between two adjacent joint structures is achieved, which can reduce the gap between them, thereby reducing the overall spatial volume of the headband. Moreover, the clearance notch provides rotational space for the rotating piece **183**, allowing it to rotate towards the inside of the frame **10** around the axial direction of the pivot axle **12** when the frame **10** is in the expanded state, enabling the frame **10** to enter a folded state. Additionally, when the frame **10** is in the expanded state, the abutment of the first connection surface **181** against the second connection surface **182** ensures that the joint structures can only rotate towards the inside of the frame **10** (in the X direction as shown in FIG. **5**) to enter a folded state, and cannot rotate away from the inside of the frame **10**, thus preventing reverse folding.

[0041] It should be noted that among the adjacent joint structures, the pivot axle **12** may be fixedly connected to one joint structure, and the rotating piece **183** may be fixedly connected to the other joint structure, with the rotating piece **183** being rotationally connected around the axial direction of the pivot axle **12**, thereby achieving the rotational connection between the two adjacent joint structures. Alternatively, the pivot axle **12** may be rotationally connected around its axis to one joint structure, and the rotating piece **183** may be fixedly connected to the other joint structure, with the rotating piece **183** being fixedly connected to the pivot axle **12**, which can also achieve the rotational connection between the two adjacent joint structures.

[0042] As shown in FIG. **7**, in some examples of this application, when the frame **10** is in an expanded state, there is a rotational clearance **17** between two adjacent joint structures. The end of the rotational clearance **17** facing the inside of the frame **10** is an opening **113***a*. It can be understood that the rotational clearance **17** can provide rotational space for the joint structure to rotate towards the inside of the frame **10** to allow the frame **10** to enter a folded state.

[0043] Furthermore, the spacing of the rotational clearance **17** gradually increases in the direction closer to the inside of the frame **10**. It can be understood that, instead of setting the width of the gaps at each part of the rotational clearance **17** to be the same, for example, the overall shape of the rotational clearance **17** being rectangular, the examples of this application set the rotational clearance **17** to be generally in an inverted V-shape. This means that the spacing of the rotational clearance **17** gradually increases in the direction closer to the inside of the frame **10**, which can reduce the spatial volume of the rotational clearance **17** between two adjacent joint structures without affecting the rotation of the joint structures. As a result, the overall spatial volume of the frame **10** in the expanded state is smaller. Moreover, after the joint structures rotate towards the inside of the frame **10** to enter a folded state, the rotational clearance **17** can be substantially eliminated, thereby further reducing the spatial volume of the headband in the folded state.

[0044] Specifically, when the frame **10** is in an expanded state, a rotational clearance **17** is formed between the first connecting surface **181** and the second connecting surface **182**. It can be understood that when the frame **10** is in an expanded state, at least a part of the first connecting surface **181** and the second connecting surface **182** are not in contact, forming a V-shaped rotational clearance **17**.

[0045] When the frame **10** is in an expanded state, the angle formed between the first connecting surface **181** and the second connecting surface **182** is α, which can be 5 degrees to 10 degrees, preferably 8 degrees, to ensure that the joint structure has sufficient rotational space, while also avoiding an excessively large gap between adjacent joint structures that would lead to an overly large volume of the headband.

[0046] Refer to FIG. **7** for continuation. In one example of this application, a memory metal strip **191** is arranged on the side of the frame **10**. The memory metal strip **191** extends along the extending direction of the frame **10** and is connected to the frame **10**, and the frame **10** is maintained, for example, in an unfolded state under the action of the memory metal strip **191**. The material for preparing the memory metal strip **191** can be, for example, a nickel-titanium alloy. Shape memory alloys have the property of being able to remember their original shape and return to that shape under certain conditions after being deformed. In one example, by arranging the memory metal strip **191** on the side of the frame **10**, the original shape of the memory metal strip **191** can be designed to be the same or similar to the shape of the frame **10** when it is in an unfolded state. In this way, the memory metal strip **191** can provide a certain restoring force when returning the headband to the unfolded state. In another example, the original shape of the memory metal strip **191** can also be designed to be the same as the shape of the frame **10** when it is in a folded state, so that the memory metal strip **191** can provide a restoring force to return the headband to the folded state after it is unfolded, thereby giving the headband a greater clamping force when

worn on the head. The specific working principle of the shape memory alloy has been disclosed in related technology, and this application will not elaborate further.

[0047] Furthermore, the memory metal strip **191** can be arranged on only one side of the frame **10** along the axial direction of the pivot axle **12**, or on both sides along the axial direction of the pivot axle **12**.

[0048] Specifically, in one example of this application, multiple mounting components **192** are arranged on the frame **10**. The multiple mounting components **192** are spaced apart along the extending direction of the frame **10**, and the mounting components **192** are provided with limiting holes **192***a*, through which the memory metal strip **191** is threaded. The limiting holes **192***a* are used to limit the position of the memory metal strip **191** to prevent it from separating from the frame **10**.

[0049] Based on the aforementioned headband, this application also provides a pair of headphones, as shown in FIG. **8**. The headphones include a first earphone unit **21**, a second earphone unit **22**, and a headband as described in any of the aforementioned examples. The first earphone unit **21** is connected to one end of the headband's frame **10**, and the second earphone unit **22** is connected to the other end of the headband's frame **10**.

[0050] The headphones include the over-the-head type, which can be either wired or wireless. One of the first earphone unit **21** and the second earphone unit **22** can be the left earphone unit, and the other can be the right earphone unit.

[0051] The above descriptions are only the examples of this application and are not intended to limit the scope of this application. Any modifications, equivalent substitutions, and improvements made within the spirit and principles of this application should be included within the scope of protection of this application. For example, the headband disclosed herein can include sound isolating ear protecting units at its distal ends to enable use for what is commonly known as ear muffs. Alternatively, the headband disclosed herein can include ear covering material and structure at its distal ends to enable use for what is also commonly known as ear warmers.

What is claimed is:

1. A headband comprising:

an arc-shaped frame having a plurality of joint structures arranged along an extension direction of the frame, wherein at least one of the plurality of joint structures comprises a plastic part and a spring clip, with the plastic part being integrally injection-molded with the spring clip; and

a plurality of pivot axles, wherein at least one pivot axle, of the plurality of pivot axles, rotationally connects two adjacent joint structures, an axial direction of the at least one pivot axle is parallel to an axial direction of the frame, and the two adjacent joint structures are configured to rotate relative to each other around the axial direction of the pivot axle, allowing the frame to switch between a folded state and an unfolded state.

2. The headband according to claim **1**, wherein a structural strength of the spring clip is greater than a structural strength of the plastic part.

3. The headband according to claim **1**, wherein the plastic part has a hollow cavity, and the spring clip is:

located inside the hollow cavity; or

stacked on an outer surface or an inner surface of the plastic part.

4. The headband according to claim **1**, wherein the plastic part is provided with a first positioning structure, and a part of the spring clip is located inside the first positioning structure; and/or

the spring clip is provided with a second positioning structure, and a portion of the plastic part is located inside the second positioning structure.

5. The headband according to claim **1**, wherein an end of the spring clip is provided with a bending structure, which is integrally injection-molded with the spring clip.

6. The headband according to claim **5**, wherein the bending structure is provided with an opening.

7. The headband according to claim **1**, wherein the two adjacent joint structures have a first connecting surface and a second connecting surface facing each other, and wherein the two adjacent joint structures comprises a first joint structure and a second joint structure, the first joint structure with the first connecting surface is provided with an accommodating slot, and the second joint structure with the second connecting surface is provided with a rotating piece.

8. The headband according to claim **7**, wherein the accommodating slot has a slot opening located at the first connecting surface, and the rotating piece is located at the second connecting surface and is inserted into the accommodating slot through the slot opening, and wherein the rotating piece is provided with a mounting hole, which extends axially along the at least one pivot axle and penetrates the rotating piece.

9. The headband according to claim **8**, wherein the at least one pivot axle is inserted into the mounting hole, and the two adjacent joint structures are rotationally connected through the rotating piece and the at least one pivot axle, and wherein the accommodating slot extends inwardly towards the frame to form a clearance notch for a rotation of the rotating piece.

10. The headband according to claim **9**, wherein, when the frame is in an expanded state, a portion of the first connecting surface that is away from the inside of the frame at the accommodating slot abuts against the second connecting surface.

11. The headband according to claim **1**, the frame further comprises:

a first clamping mechanism;

a second clamping mechanism set opposite to the first clamping mechanism; and

a connecting mechanism located between the first clamping mechanism and the second clamping mechanism, wherein one end of the connecting mechanism is rotatably connected to the first clamping mechanism through a first pivot axle, and other end of the connecting mechanism is rotatably connected to the second clamping mechanism through a second pivot axle,

wherein the plurality of joint structures further comprises a series of first joint structures, and wherein the connecting mechanism is formed by the series of first joint structures connected in sequence.

12. The headband according to claim **11**, wherein the plurality of joint structures further comprises a series second joint structures, wherein the first clamping mechanism is formed by the series of second joint structures connected in sequence, the second clamping mechanism is formed by the series of second joint structures connected in sequence, and

wherein the series of second joint structures are different in structure from the series of first joint structures.

13. A pair of headphones comprising:

a first earphone unit,

a second earphone unit,

and a headband including first and second ends which are connected respectively to the first and second earphone units, the headband further including an arc-shaped frame having:

a plurality of joint structures arranged along an extension direction of the frame, wherein at least one of the plurality of joint structures comprises a plastic part and a spring clip, with the plastic part being integrally injection-molded with the spring clip; and

a plurality of pivot axels, wherein at least one pivot axle, of the plurality of pivot axles, rotationally connects two adjacent joint structures, an axial direction of the at least one pivot axle is parallel to an axial direction of the frame, and the two adjacent joint structures are configured to rotate relative to each other around the axial direction of the pivot axle, allowing the frame to switch between a folded state and an unfolded state.

14. The pair of headphones according to claim **13**, wherein a structural strength of the spring clip is greater than a structural strength of the plastic part.

15. The pair of headphones according to claim **14**, wherein the plastic part has a hollow cavity, and the spring clip is:

located inside the hollow cavity; or

stacked on an outer surface or an inner surface of the plastic part.

16. The pair of headphones according to claim **13**, wherein the plastic part is provided with a first positioning structure, wherein a part of the spring clip is located inside the first positioning structure; and/or

the spring clip is provided with a second positioning structure, and a portion of the plastic part is located inside the second positioning structure.

17. The pair of headphones according to claim **13**, wherein an end of the spring clip is provided with a bending structure, which is integrally injection-molded with the spring clip.

18. The pair of headphones according to claim **13**, wherein the two adjacent joint structures have a first connecting surface and a second connecting surface facing each other, and wherein the two adjacent joint structures comprise a first joint structure and a second joint structure, the first joint structure with the first connecting surface is provided with an accommodating slot, and the second joint structure with the second connecting surface is provided with a rotating piece,

wherein the accommodating slot has a slot opening located at the first connecting surface, and the rotating piece is located at the second connecting surface and is inserted into the accommodating slot through the slot opening, and wherein the rotating piece is provided with a mounting hole, which extends axially along the at least one pivot axle and penetrates the rotating piece,

wherein the at least one pivot axle is inserted into the mounting hole, and the two adjacent joint structures are rotationally connected through the rotating piece and the at least one pivot axle, and wherein the accommodating slot extends inwardly towards the frame to form a clearance notch for a rotation of the rotating piece, and

wherein, when the frame is in an expanded state, a portion of the first connecting surface that is away from the inside of the frame at the accommodating slot abuts against the second connecting surface.

19. The pair of headphones according to claim **13**, wherein the frame further comprises a memory metal strip arranged on a side of the frame and extending along the extending direction of the frame, and wherein the memory metal strip is configured to have an original shape substantially similar to a shape of the frame in the unfolded state, and wherein the memory metal strip provides a restoring force returning the headband to the unfolded state.

20. The pair of headphones according to claim **13**, wherein the frame further comprises a memory metal strip arranged on a side of the frame and extending along the extending direction of the frame, and wherein the memory metal strip is configured to have an original shape substantially similar to a shape of the frame in the folded state, and wherein the memory metal strip provides a restoring force returning the headband to the folded state after it is unfolded.

21. A pair of headphones comprising:

a first carphone unit,

a second earphone unit,

and a headband including first and second ends which are connected respectively to the first and second earphone units, the headband further including an arc-shaped frame having at least five joint structures arranged in series along an extension direction of the frame, wherein each joint structure is pivotally coupled to adjacent joint structures.

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