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(54) **INFLATABLE BEDDING**

(57) An inflatable bedding includes an inflatable component (10), and the inflatable component (10) includes an inflatable air chamber (100) and an air nozzle (101). A top surface layer (21) is connected to the inflatable component (10). A padding chamber (200) is formed between the top surface layer (21) and an outer surface of the inflatable component (10). The padding chamber (200) is filled with a padding (22). The padding (22) is connected to the top surface layer (21) to form a connection region (A). The connection region (A) is configured to allow air to

enter or exit the padding chamber (200) therethrough. With the formation of the region allowing air to enter or exit the padding chamber (200) on the top surface layer (21), the padding chamber (200) can be directly inflated or deflated through the top surface layer (21), so that the inflation and deflation efficiency is improved. The fixed connection of the padding (22) inside the padding chamber (200) can prevent the padding (22) from moving in the padding chamber (200), thereby providing improved comfort during use.

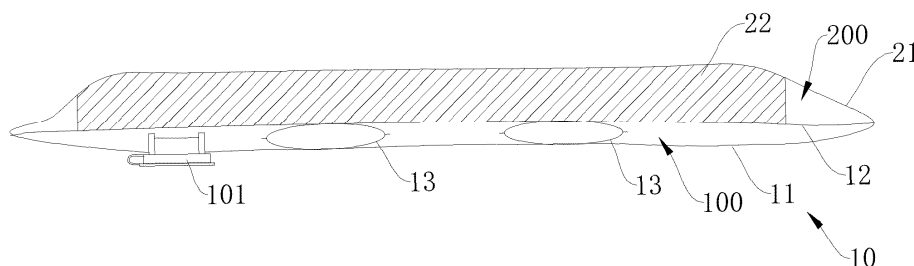


FIG. 1A

Description

TECHNICAL FIELD

[0001] The present invention relates to an inflatable product, and specifically to an inflatable bedding.

BACKGROUND

[0002] In daily life, inflatable bedding can be used as pillows, mattresses, seat cushions, back cushions, etc. At present, inflatable bedding is generally classified into the following types by the structure.

[0003] A first type of inflatable bedding includes an outer shell formed by sealed joining of a flexible air impermeable material and defining a chamber. An air nozzle in communication with the chamber is provided on the outer shell. The hardness of the inflatable bedding is determined by the amount of inflation. If the inflation is too much, the inflatable bedding will be too hard to fit a human body. If the inflation is too little, the inflatable bedding cannot provide sufficient support. Because the amount of inflation is not easy to adjust, this type of inflatable bedding cannot provide sufficient comfort.

[0004] A second type of inflatable bedding includes an outer shell formed by sealed joining of a flexible air impermeable material and defining a chamber, and a padding in the chamber. The padding is generally made of sponge or hollow cotton. The padding has a predetermined volume in order to meet the requirements on the height and comfort of the inflatable bedding. Therefore, this type of inflatable bedding requires much space for storage even after deflation.

[0005] A third type of inflatable bedding is a combination of an inflatable bedding of the first type and an inflatable bedding of the second type. An inflatable air chamber is provided in the lower part of the inflatable bedding of the second type. Although such a structure provides greater comfort than the first type of inflatable bedding and requires less sponge than the second type of inflatable bedding under the same pillow height, two air nozzles need to be provided, making it troublesome to inflate and deflate.

SUMMARY

[0006] An objective of the present invention is to provide an inflatable bedding which is easy to store and has high inflation and deflation efficiency.

[0007] According to a first aspect of the present invention, an inflatable bedding is provided, including an inflatable component including an inflatable air chamber and an air nozzle, where a top surface layer is connected to the inflatable component, a padding chamber is formed between the top surface layer and an outer surface of the inflatable component, the padding chamber is filled with a padding, the padding is connected to the top surface layer to form a connection region, and the con-

nection region is configured to allow air to enter or exit the padding chamber.

[0008] Further, the top surface layer includes an air permeable layer and a thin film layer, the padding has pores, the thin film layer between the air permeable layer and the padding is connected to the padding and forms vent holes when hot melted, and the air enters or exits the padding chamber through the pores on the padding, the vent holes on the thin film layer, and the air permeable layer.

[0009] Further, the padding has a plurality of through holes formed through a top surface and a bottom surface of the padding, and a region of the thin film layer opposite to the plurality of through holes is air impermeable.

[0010] Further, the top surface layer includes at least two thin film layers arranged at an interval, and the at least two thin film layers are each arranged between the air permeable layer and the padding.

[0011] Further, at least two connection regions are formed at an interval between the padding and the top surface layer, where two of the at least two connection regions are respectively located at opposing edges of two sides of the padding.

[0012] According to a second aspect of the present invention, an inflatable bedding is provided, including an inflatable component including an inflatable air chamber and an air nozzle, where a top surface layer is connected to the inflatable component, a padding chamber is formed between the top surface layer and an outer surface of the inflatable component, the padding chamber is filled with a padding, the top surface layer is provided with a connection portion, the connection portion is connected to the padding, the top surface layer is further provided with an air permeable region communicating the padding chamber with outside air, and the air permeable region is configured to allow air to enter or exit the padding chamber.

[0013] Further, an area of the air permeable region is not smaller than an area of the connection portion.

[0014] According to a third aspect of the present invention, an inflatable bedding is provided, including an inflatable component including an inflatable air chamber and an air nozzle, where a top surface layer is connected to the inflatable component, a padding chamber is formed between the top surface layer and an outer surface of the inflatable component, the padding chamber is filled with a padding, the padding is connected to the inflatable component, the top surface layer is provided with an air permeable region communicating the padding chamber with outside air, and the air permeable region is configured to allow air to enter or exit the padding chamber.

[0015] According to a fourth aspect of the present invention, an inflatable bedding is provided, including an inflatable component including an inflatable air chamber and an air nozzle, and further including a support component having a padding chamber and a padding arranged in the padding chamber, where the support

component is connected to the inflatable component, the padding chamber is located above the inflatable air chamber, the support component has a top surface layer distant from the inflatable air chamber, the padding is connected to the top surface layer to form a connection region, and the connection region is configured to allow air to enter or exit the padding chamber.

[0016] Further, the support component includes an accommodating chamber configured to accommodate the inflatable component, the accommodating chamber is located below the padding, the support component is provided with an opening allowing the inflatable component to be placed into or taken out from the accommodating chamber, and a closure member configured to open and close the opening is provided at the opening.

[0017] Further, the support component is detachably connected to the padding by a connection assembly, the connection assembly includes a first connection member and a second connection member, the first connection member is arranged on a top surface, a side surface, or a bottom surface of the inflatable component, and the second connection member is arranged on the support component and is configured to detachably connect to the first connection member.

[0018] In the inflatable bedding according to the above four aspects, further, outer contours of projections of the padding on the inflatable component and the top surface layer are located within outer contours of the inflatable component and the top surface layer, respectively.

[0019] In the inflatable bedding according to the above four aspects, further, an area of an air permeable region on the top surface layer is not less than 10% of a total area of the top surface layer.

[0020] In the inflatable bedding according to the above four aspects, further, the inflatable component includes an isolation layer and a bottom surface layer seal-connected to the isolation layer, the inflatable air chamber is formed between the isolation layer and the bottom surface layer, and the air nozzle is provided on the bottom surface layer. Further, a plurality of straps are arranged in the inflatable air chamber, and two ends of each of the plurality of straps are respectively connected to the isolation layer and the bottom surface layer. Further, an expandable segment is provided on a peripheral side of the isolation layer, and after the inflatable air chamber is inflated, the expandable segment extends toward the top surface layer to fit to a side edge of the top surface layer.

[0021] In the inflatable bedding according to the above four aspects, further, the inflatable bedding further includes an air permeable waterproof layer, where the air permeable waterproof layer is a coating applied to an outer surface of the top surface layer or is a fabric layer covering an outer side of the top surface layer. Further, the air permeable waterproof layer detachably covers the top surface layer.

[0022] In the inflatable bedding according to the above four aspects, further, the padding is made of a compressible and resilient padding material, and the padding is in a form of a block or a sheet.

sible and resilient padding material, and the padding is in a form of a block or a sheet.

[0023] In the inflatable bedding according to the above four aspects, further, the inflatable bedding is a pillow, a seat cushion, or a mattress.

[0024] Compared with the prior art, the present invention has the following advantages.

[0025] (1) The design in which the padding is separated from the inflatable component can reduce the required volume of the padding, save materials, and reduce the costs. After being inflated, the inflatable component supports the padding, so that the inflatable bedding can better support a human body and provide improved comfort.

[0026] (2) With the formation of the region allowing air to enter or exit the padding chamber on the top surface layer, the padding chamber can be directly inflated or deflated through the top surface layer, so that the inflation and deflation efficiency is improved.

[0027] (3) The fixed connection of the padding inside the padding chamber can prevent the padding from moving in the padding chamber, thereby providing improved comfort during use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028]

FIG. 1A is a schematic cross-sectional view of an inflatable bedding according to Embodiment 1 of the present invention, showing a state in which an inflatable component 10 is not inflated.

FIG. 1B is a schematic cross-sectional view of the inflatable bedding according to Embodiment 1 of the present invention, showing a state in which the inflatable component 10 is partially inflated.

FIG. 1C is a schematic cross-sectional view of the inflatable bedding according to Embodiment 1 of the present invention, showing a state in which the inflatable component 10 is fully inflated.

FIG. 1D is a partial schematic view of the inflatable bedding according to Embodiment 1 of the present invention, showing an initial state before a top surface layer 21 is connected to a padding 22.

FIG. 1E is a partial schematic view of the inflatable bedding according to Embodiment 1 of the present invention, showing a state after the top surface layer 21 is connected to the padding 22 by hot melting.

FIG. 2A is a schematic cross-sectional view of an inflatable bedding according to Embodiment 2 of the present invention.

FIG. 2B is a top view of a padding of the inflatable bedding according to Embodiment 2 of the present invention, showing an initial state in which the padding is not stretched.

FIG. 2C is a top view of the padding of the inflatable bedding according to Embodiment 2 of the present invention, showing a state in which through holes are

formed after the padding is stretched.

FIG. 3A is a bottom view of a top surface layer of an inflatable bedding according to Embodiment 3 of the present invention.

FIG. 3B is a bottom view of another variant embodiment of the top surface layer of the inflatable bedding according to Embodiment 3 of the present invention.

FIG. 3C is a schematic cross-sectional view of the top surface layer of the inflatable bedding according to Embodiment 3 of the present invention, showing an initial state before the top surface layer 21 is connected to a padding 22.

FIG. 3D is a schematic cross-sectional view of the top surface layer of the inflatable bedding according to Embodiment 3 of the present invention, showing a state after the top surface layer 21 is connected to the padding 22 by hot melting.

FIG. 4 is a schematic cross-sectional view of an inflatable bedding according to Embodiment 4 of the present invention.

FIG. 5 is a schematic cross-sectional view of an inflatable bedding according to Embodiment 5 of the present invention.

FIG. 6A is a schematic side view of an inflatable bedding according to Embodiment 6 of the present invention.

FIG. 6B is a schematic cross-sectional view of the inflatable bedding according to Embodiment 6 of the present invention, showing a state in which a support component is separated from an inflatable component.

FIG. 6C is a schematic side view of the inflatable bedding according to Embodiment 6 of the present invention, showing a variant implementation of a connection assembly.

FIG. 6D is a schematic side view of the inflatable bedding according to Embodiment 6 of the present invention, showing another variant implementation of the connection assembly.

FIG. 7A is a schematic side view of an inflatable bedding according to Embodiment 7 of the present invention.

FIG. 7B is a schematic cross-sectional view of the inflatable bedding according to Embodiment 7 of the present invention, showing a state in which an inflatable component 10 is received in a support component 20.

FIG. 8 is a partially enlarged view of an inflatable bedding according to Embodiment 8 of the present invention.

[0029] In the drawings, the reference numerals respectively represent:

10. inflatable component; 11. bottom surface layer; 12. isolation layer; 121. expandable segment; 13. strap; 100. inflatable air chamber; 101. air nozzle; 20. support component; 200. padding chamber; 201.

accommodating chamber; 21. top surface layer; 211. air permeable layer; 212. thin film layer; 22. padding; 220. through hole; 221. preformed slit; 23. adhesive layer; 24. closure member.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0030] The present invention will be further described through specific implementations. It should be noted that the embodiments or technical features described below may be arbitrarily combined to form new embodiments without conflict.

[0031] In the description of the present invention, it should be noted that orientation and position relationships indicated by the orientation terms such as "center", "transverse", "longitudinal", "length", "width", "thickness", "on", "below", "front", "rear", "left", "right", "vertical", "horizontal", "top", "bottom", "inner", "outer", "clockwise", and "counterclockwise" are based on the orientation or positional relationships shown in the drawings, and are only for the convenience of describing the present invention and simplifying the description, rather than indicating or implying that the apparatus or element described must have a specific orientation or be constructed and operated in a specific orientation, and therefore are not to be construed as limiting the present invention.

[0032] It should be noted that in the specification and claims of the present invention, the terms such as "first" and "second" are intended to distinguish between similar objects but do not indicate a particular order or sequence.

[0033] In the specification and claims of the present invention, the terms "include", "comprise", and any other variants thereof are intended to cover a non-exclusive inclusion. For example, a process, method, system, product, or device that includes a list of steps or units is not necessarily limited to those expressly listed steps or units, but may include other steps or units not expressly listed or inherent to such a process, method, product, or device.

[0034] The present invention provides an inflatable bedding including an inflatable component 10. The inflatable component 10 includes an inflatable air chamber 100 and an air nozzle 101. The inflatable air chamber 100 is inflated or deflated through the air nozzle 101. The inflatable component 10 can provide stable support when inflated, and can be stored after being deflated.

[0035] The inflatable bedding further includes a padding 22 isolated from the inflatable air chamber 100. The padding 22 may be made of a soft, compressible and resilient material such as ordinary sponge, high-resilience sponge, or memory foam. During use of the inflatable bedding, the padding 22 is located between a user and the inflatable component 10 to improve the comfort of the user.

[0036] The separation of the padding 22 from the inflatable component 10 is conducive to speeding up the inflation and deflation of the inflatable component 10,

thereby improving the convenience of using the inflatable bedding. If the padding 22 is arranged in the inflatable air chamber 100, the inflation and deflation efficiency of the inflatable component 10 is greatly reduced due to the obstruction of the padding 22, and it takes more time to inflate or deflate during use.

[0037] Further, a top surface layer 21 is further provided on an outer side of the padding 22 to protect the padding 22.

[0038] The top surface layer 21 may be directly fixedly or detachably connected to the inflatable component 10, so that a padding chamber 200 configured to receive the padding 22 is formed between the top surface layer 21 and the inflatable component 10. The padding chamber 200 may be closed. For example, when all edges of the top surface layer 21 are connected to an outer surface of the inflatable component 10, a closed padding chamber 200 is formed. The padding chamber 200 may also be open. For example, when only some of the edges of the top surface layer 21 are connected to the outer surface of the inflatable component 10, an open padding chamber 200 is formed.

[0039] The top surface layer 21 may be a portion of a support component 20. The support component 20 is fixedly or detachably connected to the inflatable component 10. The support component 20 includes a padding chamber 200. The padding 22 is arranged in the padding chamber 200. When the support component 20 is detachably connected to the inflatable component 10, the support component 20 and the inflatable component 10 can be cleaned, replaced, or used separately, to adapt to different usage requirements.

[0040] Further, to facilitate the storage of the inflatable bedding, the padding chamber 200 needs to have an air permeable structure to realize inflation and deflation. When the padding chamber 200 is of an open structure, the padding chamber 200 itself has good air permeability. When the padding chamber 200 is of a closed structure, other air permeable structure is required to realize inflation and deflation.

[0041] An air nozzle may be provided on the top surface layer 21 to realize inflation and deflation of the padding chamber 200. However, the arrangement of the air nozzle affects the comfort of the user during use, and the inflation and deflation through the air nozzle are slow, affecting the convenience of use. Preferably, at least a portion of the top surface layer 21 is configured as an air permeable region, and air in the padding chamber 200 can enter or exit through the air permeable region on the top surface layer 21, eliminating a need for an air nozzle. In some embodiments, an area of an air permeable region on the top surface layer 21 is not less than 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, or 90% of a total area of the top surface layer 21. The larger the proportion of the area of the air permeable region, the higher the inflation and deflation efficiency.

[0042] In some embodiments, the top surface layer 21 is entirely an air permeable region, and the padding 22 is

connected to the top surface layer 21 or the inflatable component 10.

[0043] In some other embodiments, the top surface layer 21 is partially air permeable and partially air impermeable. For example, when the top surface layer 21 is connected to the padding 22, the connection region where the top surface layer 21 is connected to the padding 22 may be an air permeable region, and a region other than the connection region may be an air impermeable region. Alternatively, the connection region where the top surface layer 21 is connected to the padding 22 is an air impermeable region, and the region other than the connection region is an air permeable region. It should be noted that the above modes of division of the air permeable region and the air impermeable region are merely examples and are not an exhaustive list.

[0044] When the top surface layer 21 is partially air permeable and partially air impermeable, the top surface layer 21 may be formed by: first providing an air permeable fabric as a raw material, and arranging an adhesive layer in a region of the raw material connected to the padding 22, where after the adhesive layer is cured, the part of the top surface layer 21 with the adhesive layer is air impermeable, and the part of the top surface layer 21 without the adhesive layer is still air permeable; or first providing an air impermeable fabric as a raw material, hot melting a region of the raw material connected to the padding 22, providing a material having pores as the padding 22, and performing hot melting to melt and deform the plastic, to form vent holes at positions opposite to the pores of the padding 22, so that after hot melting, the part of the top surface layer 21 connected to the padding 22 is air permeable, and the part of the top surface layer 21 which is not in contact with the padding 22 is air impermeable; or first providing an air impermeable fabric as a raw material, and connecting the fabric to the padding 22 by sewing with needle and thread, where the fabric of the top surface layer 21 is punctured during the sewing process to provide air permeability. It should be noted that the above modes of formation of the air permeable region and the air impermeable region are merely examples and are not an exhaustive list.

[0045] Several embodiments are provided below for a further understanding of the techniques of the present invention.

[Embodiment 1]

[0046] As shown in FIG. 1A, FIG. 1B, and FIG. 1C, an inflatable bedding includes an inflatable component 10. The inflatable component 10 includes a bottom surface layer 11 and an isolation layer 12 which are seal-connected to each other, so that an inflatable air chamber 100 is formed between the bottom surface layer 11 and the isolation layer 12. An air nozzle 101 is provided on the bottom surface layer 11. The air nozzle 101 is in communication with the inflatable air chamber 100. The inflatable air chamber 100 is inflated or deflated through the

air nozzle 101.

[0047] The inflatable component 10 further includes a strap 13 connected to a middle portion of the bottom surface layer 11 and a middle portion of the isolation layer 12. The strap 13 is configured to restrict a deformation of the inflatable component 10 during inflation, so that the inflatable component 10 maintains a predetermined flatness. In other words, one end of the strap 13 is connected to the bottom surface layer 11, and an other end of the strap 13 is connected to the isolation layer 12. FIG. 1A, FIG. 1B, and FIG. 1C sequentially show changes of the inflatable air chamber 100 and the strap 13 during the inflation of the inflatable component 10. During inflation of the inflatable air chamber 100, a distance between the bottom surface layer 11 and the isolation layer 12 gradually increases until the strap 13 is tensioned and a stable state is reached. It can be understood that after the inflatable air chamber 100 is inflated, the strap 13 can prevent upper and lower surfaces of the inflatable component 10 from bulging, which is conducive to keeping the inflatable bedding flat and improving the comfort of use. In addition, the strap 13 can withstand a part of the air pressure in the inflatable air chamber 100, which is conducive to improving the safety and reliability of the inflatable bedding. It should be noted that the strap 13 may be made of an elastic material or an inelastic material, a plurality of straps 13 may be arranged in the inflatable air chamber 100, and the specific shape of the strap 13 is not limited in the present invention.

[0048] The inflatable bedding further includes a top surface layer 21. The top surface layer 21 is connected to the inflatable component 10, to form a padding chamber 200 between the top surface layer 21 and the isolation layer 12. A padding 22 is arranged in the padding chamber 200. The padding 22 is a sponge. The top surface layer 21, the isolation layer 12, and the bottom surface layer 11 may be laminated and connected by hot melting of the edges thereof, so that the padding chamber 200 and the inflatable air chamber 100 are respectively formed on upper and lower sides of the isolation layer 12.

[0049] The padding 22 is connected to the top surface layer 21. The padding 22 and the top surface layer 21 are not likely to displace relative to each other after being connected, thereby further improving the comfort during use.

[0050] The top surface layer 21 includes an air permeable layer 211 and a thin film layer 212 stacked on the air permeable layer 211. The thin film layer 212 is initially in an air impermeable state, as shown in FIG. 1D. In other words, the top surface layer 21 has an air impermeable material as a raw material. The preparation of the raw material is an existing mature process, which will not be described in detail in the present invention. When the top surface layer 21 and the padding 22 are connected by hot melting, the part of the thin film layer 212 opposite to the padding 22 is melted by heat, the molten plastic thin film is thus connected to the padding 22, and due to the existence of the pores on the surface of the padding 22,

corresponding vent holes are also formed on the thin film layer 212, as shown in FIG. 1E. Air enters or exits the padding chamber 200 through the pores in the padding 22, the vent holes in the thin film layer 212, and the air permeable layer 211. It can be understood by those skilled in the art that the padding 22 is a sponge having a large number of pores on its surface.

[0051] In other words, the padding 22 and the top surface layer 21 are connected to each other to form a connection region A, as shown in FIG. 1E. Air can enter or exit the padding chamber 200 through the connection region A. The connection region A in this embodiment includes a part of the thin film layer 212 where the vent holes are formed, and a part of the air permeable layer 211 and a part of the padding 22 which are opposite to the part of the thin film layer 212.

[0052] It can be understood that FIG. 1D and FIG. 1E are merely schematic illustrations of the air permeable layer 211, the thin film layer 212, and the padding 22, and do not show actual thicknesses thereof.

[0053] During the connection of the padding 22 and the top surface layer 21, the top surface layer 21 is damaged to a predetermined extent, and the top surface layer 21, which is initially air impermeable, becomes air permeable in the region connected to the padding 22. As such, air permeability of the padding chamber 200 is achieved while realizing the connection of the top surface layer 21 to the padding 22. In addition, because the raw material of the top surface layer 21 can be mass-produced and the raw material of the top surface layer 21 is directly connected to the padding 22 by melting in a hot-melting equipment during fabrication, the fabrication of the product is simple, which is conducive to mass production.

[0054] It should be noted that when the thin film layer 212 becomes air permeable after hot melting, the tactile feeling of an outer surface of the top surface layer 21 corresponding to the air permeable region may change, affecting the comfort of the user during use. The hot-melting equipment may be modified so that only a part of the thin film layer 212 is heated, i.e., only the heated region of the thin film layer 212 is connected to the padding 22 by melting, to form an air permeable connection region. For example, the heated region of the thin film layer 212 may be controlled to be a part of the thin film layer 212 in contact with the edges of the padding 22, and after hot melting, the thin film layer 212 forms an annular connection region, which reduces the area of the damaged part of the thin film layer 212 compared with a planar connection region, and reduces the change of the tactile feeling of the top surface layer 21 to a predetermined extent.

[0055] The air permeable layer 211 may be a woven fabric, and air can pass through gaps between warp and weft yarns of the fabric. The air permeable layer 211 may be a cotton fabric or a chemical fiber fabric.

[0056] The thin film layer 212 may be, but is not limited to, a polyurethane film, which has good adhesive properties and can well adhere to the padding 22 when hot

melted.

[0057] The bottom surface layer 12 and the top surface layer 21 may be made of the same or different fabrics. The isolation layer 11 may be an air impermeable plastic layer. The edges of the isolation layer 11, the bottom surface layer 12, and the top surface layer 21 can be connected by hot melting, which facilitates the fabrication.

[0058] The padding 22 is located in a middle region of the top surface layer 21, and a length and a width of the padding 22 are less than those of the top surface layer 21, i.e., the edges of the top surface layer 21 extend beyond a peripheral side of the padding 22, so a gap surrounding the padding 22 is formed between the top surface layer 21 and the isolation layer 12. In other words, outer contours of projections of the padding 22 on the inflatable component 10 and the top surface layer 21 are both located within outer contours of the inflatable component 10 and the top surface layer 21. To store the inflatable bedding, the air nozzle 101 is opened first, the inflatable component 10 is squeezed to discharge air from the inflatable air chamber 100, and then the inflatable bedding is squeezed and rolled with the top surface layer 21 as an inner side and the bottom surface layer 11 as an outer side. During the squeezing and rolling process, air in the padding chamber 200 is continuously discharged. After the rolling is completed, the top surface layer 21 is rolled to the inside, so outside air cannot enter the padding chamber 200 easily, making it easier for the inflatable bedding to maintain a squeezed and rolled state. In addition, a portion of the top surface layer 21 that extends beyond the padding 22 is air impermeable, and after the inflatable bedding is squeezed and rolled up, the air impermeable portion on the outer side can also provide a sealing effect, to prevent outside air from entering the padding chamber 200, allowing the inflatable bedding to maintain the squeezed state.

[0059] Further, an outer peripheral side of an upper surface of the padding 22 is inclined outward and downward, which is conducive to guiding the top surface layer 21 to deform and extend toward the inflatable component 10, thereby achieving a transition at the edges of the top surface layer 21. It can be understood that when the inflatable bedding is a pillow or seat cushion, the transition at the edges of the top surface layer 21 is conducive to fitting a neck or leg to provide improved comfort.

[0060] The inflatable bedding may be a pillow, a seat cushion, a mattress, etc.

[Embodiment 2]

[0061] As shown in FIG. 2A, Embodiment 2 is different from Embodiment 1 in that in Embodiment 2, the padding 22 has a plurality of through holes 220 formed through a top surface and a bottom surface thereof, and the arrangement of the through holes 220 is conducive to reducing the volume of the padding 22 after squeezing, allowing the inflatable bedding to have a smaller volume

in the stored state. The thin film layer 212 is not in contact with the padding 22 at the through holes 220.

[0062] It can be understood by those skilled in the art that the through holes 220 in the padding 22 in the present invention are different from the pores in the padding 22 when the padding 22 is a sponge. Generally, a sponge having a thickness rarely has a continuous hole directly running through the top and bottom surfaces thereof. Therefore, the meaning of the through hole 220 will be clear to those skilled in the art.

[0063] It can be understood that a cross-section of the through hole 220 may be circular, rectangular, or in other shapes, and the number of through holes 220 may be one, or a plurality of through holes 220 may be provided in an array in various forms in the padding 22, to improve the inflation and deflation efficiency of the support component 20.

[0064] As shown in FIG. 2B, the padding 22 is provided with preformed slits 221 in an initial state, the padding 22 is connected to the top surface layer 21 in a stretched state, and the preformed slits 221 form the through holes 220 as the padding 22 is stretched, as shown in FIG. 2C. In other words, a small-sized material is first processed by cutting or punching to form the padding 22 with the preformed slits 221, and then the padding 22 is stretched to a required size and then connected to the top surface layer 21, so that the padding 22 can be maintained in the stretched state, and the preformed slits 221 form the through holes 220. Such a design can reduce the material consumption, simplify the fabrication process, and lower the costs compared with a design in which the through holes 220 are directly fabricated.

[0065] It should be noted that when the thin film layer 212 of the top surface layer 21 becomes air permeable after hot melting, the tactile feeling of the outer surface of the top surface layer 21 corresponding to the air permeable region changes, affecting the comfort of the user during use. The arrangement of the through holes 220 is conducive to reducing the area of the damaged region of the thin film layer 212, so in some embodiments, the comfort of the top surface layer 21 can be adjusted by changing the number, diameter, position, and the like of the through holes 220.

[Embodiment 3]

[0066] As shown in FIG. 3A and FIG. 3B, Embodiment 3 is different from Embodiment 1 in that in Embodiment 3, the top surface layer 21 includes an air permeable layer 211 and at least two thin film layers 212 arranged at an interval, and each of the thin film layers 212 is arranged on an inner side of the air permeable layer 211. In other words, in Embodiment 3, the top surface layer 21 is air permeable at a position where the thin film layer 212 is not provided. This embodiment is conducive to increasing the area of the air permeable region of the top surface layer 21 and improving the inflation and deflation efficiency of the padding chamber 200.

[0067] The thin film layers 212 are still connected to the padding 22 by hot melting, and the connection region A is air permeable.

[0068] The number and position of the thin film layers 212 may be set as needed. For example, two thin film layers 212 may be respectively arranged at two edges opposite to the padding 22, and after hot melting, the top surface layer 21 and two opposing edges of the padding 22 are connected, as shown in FIG. 3A. As such, the area of the air permeable region of the top surface layer 21 can be increased to a greater extent, and the stability of connection between the top surface layer 21 and the padding 22 can also be ensured. Alternatively, five thin film layers 212 may be provided, which are respectively arranged at positions corresponding to four corners of the padding 22 and a position corresponding to a center of the padding 22, as shown in FIG. 3B.

[0069] It should be noted that in this embodiment, the at least two thin film layers 212 are arranged at an interval, as shown in FIG. 3C, so after the hot melt connection, at least two connection regions A are formed at an interval between the padding 22 and the top surface layer 21, as shown in FIG. 3D.

[0070] It should be noted that the arrangement of the thin film layers 212 may affect the tactile feeling of the entire top surface layer 21 and therefore affect the comfort of the user during use, so in some embodiments, the comfort of the top surface layer 21 can be adjusted by changing the area of the thin film layers 212, the position of the thin film layers 212, and the number of the thin film layers 212. For example, in some embodiments, the arrangement of the thin film layers 212 deteriorates the tactile feeling of the top surface layer 21. In these embodiments, only two narrow thin film layers 212 are provided, and the two thin film layers 212 are respectively located at two opposing edges of the air permeable layer 211.

[Embodiment 4]

[0071] As shown in FIG. 4, an inflatable bedding includes an inflatable component 10. The inflatable component 10 includes a bottom surface layer 11 and an isolation layer 12 which are seal-connected to each other, so that an inflatable air chamber 100 is formed between the bottom surface layer 11 and the isolation layer 12. An air nozzle 101 is provided on the bottom surface layer 11. The air nozzle 101 is in communication with the inflatable air chamber 100. The inflatable air chamber 100 is inflated or deflated through the air nozzle 101.

[0072] For the structure of the inflatable component 10, reference can be made to Embodiment 1, and the details will not be repeated herein.

[0073] The inflatable bedding further includes a top surface layer 21. The top surface layer 21 is connected to the inflatable component 10, to form a padding chamber 200 between the top surface layer 21 and an outer surface of the inflatable component 10. The padding

chamber 200 is filled with a padding 22.

[0074] The top surface layer 21 is provided with a connection portion 213. The connection portion 213 is connected to the padding 22. A region on the top surface layer 21 other than the connection portion 213 is an air permeable region. The padding chamber 200 is in communication with outside air through the air permeable region. The air permeable region is configured to allow air to enter or exit the padding chamber 200 therethrough. The connection portion 213 may be an adhesive layer or other structures for connection.

[0075] During fabrication, an air permeable fabric is first provided for preparing the top surface layer 21, and then the connection portion 213 is provided on the top surface layer 21. The connection portion 213 is air impermeable, so a region of the top surface layer 21 where the connection portion 213 is provided becomes air impermeable, and a region of the top surface layer 21 where the connection portion 213 is not provided remains air impermeable. The connection portion 213 may be a photocurable or thermally curable adhesive layer, and can firmly adhere to the padding 22.

[0076] Preferably, an area of the air permeable region on the top surface layer 21 is not smaller than an area of the connection portion.

[Embodiment 5]

[0077] As shown in FIG. 5, an inflatable bedding includes an inflatable component 10. The inflatable component 10 includes a bottom surface layer 11 and an isolation layer 12 which are seal-connected to each other, so that an inflatable air chamber 100 is formed between the bottom surface layer 11 and the isolation layer 12. An air nozzle 101 is provided on the bottom surface layer 11. The air nozzle 101 is in communication with the inflatable air chamber 100. The inflatable air chamber 100 is inflated or deflated through the air nozzle 101.

[0078] For the structure of the inflatable component 10, reference can be made to Embodiment 1, and the details will not be repeated herein.

[0079] The inflatable bedding further includes a top surface layer 21. The top surface layer 21 is connected to the inflatable component 10, to form a padding chamber 200 between the top surface layer 21 and an outer surface of the inflatable component 10. The padding chamber 200 is filled with a padding 22. The padding 22 is connected to the inflatable component 10. For example, an adhesive layer 23 is provided between the padding 22 and the isolation layer 12 to connect the padding 22 and the inflatable component 10.

[0080] The top surface layer 21 is provided with an air permeable region through which the padding chamber 200 is in communication with outside air, and the air permeable region is configured to allow air to enter or exit the padding chamber 200 therethrough.

[0081] The top surface layer 21 may be directly made of an air permeable fabric, such as a cotton fabric or a

chemical fiber fabric. The top surface layer 21 may also be formed by splicing fabrics of different materials. For example, the top surface layer 21 is formed by splicing an air permeable fabric and an air impermeable fabric, so that the top surface layer 21 is partially air permeable and partially air impermeable.

[Embodiment 6]

[0082] As shown in FIG. 6A, an inflatable bedding includes an inflatable component 10, a support component 20, and a connection assembly 30. The support component 20 is detachably connected to the inflatable component 10 by the connection assembly 30. For the structure of the inflatable component 10, reference can be made to Embodiment 1, and the details will not be repeated herein.

[0083] The support component 20 includes a padding chamber 200. A padding 22 is arranged in the padding chamber 200. The support component 20 has a top surface layer 21 distant from the inflatable component 10. The padding 22 is connected to the top surface layer 21. For the selection of the top surface layer 21 and the mode of connection between the padding 22 and the top surface layer 21, reference can be made to Embodiment 1, and the details will not be repeated herein.

[0084] The connection assembly 30 includes a first connection member 31 provided on the inflatable component 10 and a second connection member 32 provided on the support component 20. The first connection member 31 is detachably connected to the second connection member 32. The first connection member 31 may be arranged on a bottom surface, a top surface, or a side surface of the inflatable component 10. The position of the first connection member 31 is not particularly limited in the present invention. The second connection member 32 may be arranged on a bottom surface, a top surface, or a side surface of the support component 20 as long as the second connection member 32 can be connected to the first connection member 31. Preferably, the second connection member 31 is not arranged on the top surface layer 21, to avoid contact with a user during use to affect the comfort.

[0085] For example, the first connection member 31 and the second connection member 32 are Velcro straps configured to bond to each other, as shown in FIG. 6B. The first connection member 31 is arranged on the top surface of the inflatable component 10, the second connection member 32 is arranged on the bottom surface of the support component 20, and the first connection member 31 can be conveniently connected to the second connection member 32.

[0086] For another example, the connection assembly 30 includes a plurality of pairs of laces, as shown in FIG. 6C. Each pair of laces includes a first connection member 31 provided on the inflatable component 10 and a second connection member 32 provided on the support component 20. The plurality of pairs of laces are distributed

around the inflatable component 10 and the support component 20.

[0087] For another example, the connection assembly 30 includes a plurality of pairs of buckles, as shown in FIG. 6D. Each pair of buckles includes a first connection member 31 provided on the inflatable component 10 and a second connection member 32 provided on the support component 20. The first connection members 31 are distributed around the bottom surface of the inflatable component 10. Each of the second connection members 32 extends downward from the support component 20 to the corresponding first connection member 31.

[0088] The connection assembly 30 may be implemented in various forms. The specific form of the connection assembly 30 is not limited in the present invention, and any structure that can detachably connect the inflatable component 10 to the support component 20 falls within the scope of protection of the present invention.

[Embodiment 7]

[0089] As shown in FIG. 7A and FIG. 7B, an inflatable bedding includes an inflatable component 10 and a support component 20. For the structure of the inflatable component 10, reference can be made to Embodiment 1, and the details will not be repeated herein.

[0090] The support component 20 includes a padding chamber 200. A padding 22 is arranged in the padding chamber 200. The support component 20 has a top surface layer 21 distant from the inflatable component 10. The padding 22 is connected to the top surface layer 21. For the selection of the top surface layer 21 and the mode of connection between the padding 22 and the top surface layer 21, reference can be made to Embodiment 1, and the details will not be repeated herein.

[0091] The support component 20 further includes an accommodating chamber 201 configured to accommodate the inflatable component 10. The accommodating chamber 201 is located below the padding chamber 200. The accommodating chamber 201 may be or may not be in communication with the padding chamber 200.

[0092] The support component 20 is provided with an opening through which the inflatable component 10 is placed into or taken out from the accommodating chamber 201. A closure member 24 configured to open and close the opening is further provided at the opening.

[Embodiment 8]

[0093] As shown in FIG. 8, Embodiment 8 is different from Embodiment 1 in that in Embodiment 8, an expandable segment 121 is provided on a peripheral side of the isolation layer 12, and after the inflatable air chamber 100 is inflated, the expandable segment 121 extends toward the top surface layer 21, so that the isolation layer 12 bulges toward the top surface layer 21 to fit to a lower surface of the padding 22 to support the padding 22. In addition, the expandable segment 121 fits to a side edge

of the top surface layer 21, to prevent the isolation layer 12 from receiving excessive air pressure, and prevent air in the inflatable air chamber 100 from squeezing the edge and causing the isolation layer 12 to break. It should be noted that the top surface layer 21 wraps the expandable segment 121 of the isolation layer 12, and the isolation layer 12 is located between the top surface layer 21 and the inflatable component 10, so that the isolation layer 12 can also be protected, thereby reducing the risk of puncturing of the isolation layer 12.

[Embodiment 9]

[0094] Embodiment 9 is different from Embodiment 1 in that the inflatable bedding further includes an air permeable waterproof layer arranged on an outer side of the top surface layer 21. The waterproof layer can prevent water from entering the padding chamber 200, which is conducive to keeping the padding 22 dry.

[0095] The waterproof layer may be a coating applied to an outer surface of the top surface layer 21. For example, a hydrophobic paint is applied to the outer surface of the top surface layer 21.

[0096] The waterproof layer may also be a waterproof fabric independent of the top surface layer 21, which covers the top surface layer 21. The waterproof layer may be fixedly or detachably connected to the top surface layer 21. The detachable connection is advantageous in that a user can decide whether to mount or remove the waterproof layer according to a usage scenario. If the inflatable bedding is used indoors, the waterproof layer can be removed, allowing the user to directly touch the top surface layer 21 which is more skin-friendly and comfortable. If the inflatable bedding is used outdoors, the waterproof layer can be mounted to cover the top surface layer 21 to prevent rain or moisture in the air from entering the padding chamber 200.

[0097] The basic principles, main features and advantages of the present invention have been described above. Those skilled in the art should understand that the present invention is not limited to the above embodiments. The descriptions of the embodiments and the specification are only for illustrating the principles of the present invention. Various changes and improvements may be made to the present invention without departing from the spirit and scope of the present invention, and such changes and improvements all fall within the scope of protection claimed by the present invention. The scope of protection claimed by the present invention is defined by the appended claims and their equivalents.

Claims

1. An inflatable bedding, comprising an inflatable component comprising an inflatable air chamber and an air nozzle, **characterized in that** a top surface layer is connected to the inflatable component, a padding

chamber is formed between the top surface layer and an outer surface of the inflatable component, the padding chamber is filled with a padding, the padding is connected to the top surface layer to form a connection region, and the connection region is configured to allow air to enter or exit the padding chamber.

2. The inflatable bedding according to claim 1, **characterized in that** the top surface layer comprises an air permeable layer and a thin film layer, the padding has pores, the thin film layer between the air permeable layer and the padding is connected to the padding and forms vent holes when hot melted, and the air enters or exits the padding chamber through the pores on the padding, the vent holes on the thin film layer, and the air permeable layer.

3. The inflatable bedding according to claim 2, **characterized in that** the padding has a plurality of through holes formed through a top surface and a bottom surface of the padding, and a region of the thin film layer opposite to the plurality of through holes is air impermeable.

4. The inflatable bedding according to claim 2, **characterized in that** the top surface layer comprises at least two thin film layers arranged at an interval, and the at least two thin film layers are each arranged between the air permeable layer and the padding.

5. The inflatable bedding according to claim 1, **characterized in that** at least two connection regions are formed at an interval between the padding and the top surface layer, wherein two of the at least two connection regions are respectively located at opposing edges of two sides of the padding.

6. The inflatable bedding according to claim 1, **characterized in that** the top surface layer is detachably connected to the inflatable component.

7. An inflatable bedding, comprising an inflatable component comprising an inflatable air chamber and an air nozzle, **characterized in that** a top surface layer is connected to the inflatable component, a padding chamber is formed between the top surface layer and an outer surface of the inflatable component, the padding chamber is filled with a padding, the top surface layer is provided with a connection portion, the connection portion is connected to the padding, the top surface layer is further provided with an air permeable region communicating the padding chamber with outside air, and the air permeable region is configured to allow air to enter or exit the padding chamber.

8. The inflatable bedding according to claim 6, **characterized in that** an area of the air permeable region

is not smaller than an area of the connection portion.

9. An inflatable bedding, comprising an inflatable component comprising an inflatable air chamber and an air nozzle, **characterized in that** a top surface layer is connected to the inflatable component, a padding chamber is formed between the top surface layer and an outer surface of the inflatable component, the padding chamber is filled with a padding, the padding is connected to the inflatable component, the top surface layer is provided with an air permeable region communicating the padding chamber with outside air, and the air permeable region is configured to allow air to enter or exit the padding chamber.
10. An inflatable bedding, comprising an inflatable component comprising an inflatable air chamber and an air nozzle, **characterized by** further comprising a support component having a padding chamber and a padding arranged in the padding chamber, wherein the support component is connected to the inflatable component, the padding chamber is located above the inflatable air chamber, the support component has a top surface layer distant from the inflatable air chamber, the padding is connected to the top surface layer to form a connection region, and the connection region is configured to allow air to enter or exit the padding chamber.
11. The inflatable bedding according to claim 10, **characterized in that** the support component comprises an accommodating chamber configured to accommodate the inflatable component, the accommodating chamber is located below the padding, the support component is provided with an opening allowing the inflatable component to be placed into or taken out from the accommodating chamber, and a closure member configured to open and close the opening is provided at the opening; or the support component is detachably connected to the padding by a connection assembly, the connection assembly comprises a first connection member and a second connection member, the first connection member is arranged on a top surface, a side surface, or a bottom surface of the inflatable component, and the second connection member is arranged on the support component and is configured to detachably connect to the first connection member.
12. The inflatable bedding according to any one of claims 1 to 11, **characterized in that** outer contours of projections of the padding on the inflatable component and the top surface layer are located within outer contours of the inflatable component and the top surface layer, respectively.
13. The inflatable bedding according to any one of

claims 1 to 11, **characterized in that** an area of an air permeable region on the top surface layer is not less than 10% of a total area of the top surface layer.

14. The inflatable bedding according to any one of claims 1 to 11, **characterized in that** the inflatable component comprises an isolation layer and a bottom surface layer seal-connected to the isolation layer, the inflatable air chamber is formed between the isolation layer and the bottom surface layer, and the air nozzle is provided on the bottom surface layer.
15. The inflatable bedding according to claim 14, **characterized in that** a plurality of straps are arranged in the inflatable air chamber, and two ends of each of the plurality of straps are respectively connected to the isolation layer and the bottom surface layer.
16. The inflatable bedding according to claim 14, **characterized in that** an expandable segment is provided on a peripheral side of the isolation layer, and after the inflatable air chamber is inflated, the expandable segment extends toward the top surface layer to fit to a side edge of the top surface layer.
17. The inflatable bedding according to any one of claims 1 to 11, **characterized by** further comprising an air permeable waterproof layer, wherein the air permeable waterproof layer is a coating applied to an outer surface of the top surface layer or is a fabric layer covering an outer side of the top surface layer.
18. The inflatable bedding according to claim 17, **characterized in that** the air permeable waterproof layer detachably covers the top surface layer.
19. The inflatable bedding according to any one of claims 1 to 11, **characterized in that** the padding is made of a compressible and resilient padding material, and the padding is in a form of a block or a sheet.
20. The inflatable bedding according to any one of claims 1 to 11, **characterized in that** the inflatable bedding is a pillow, a seat cushion, or a mattress.

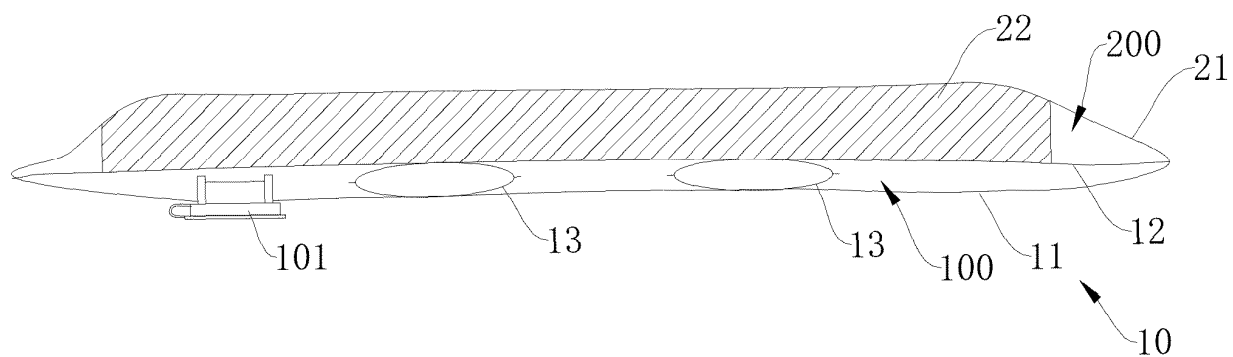


FIG. 1A

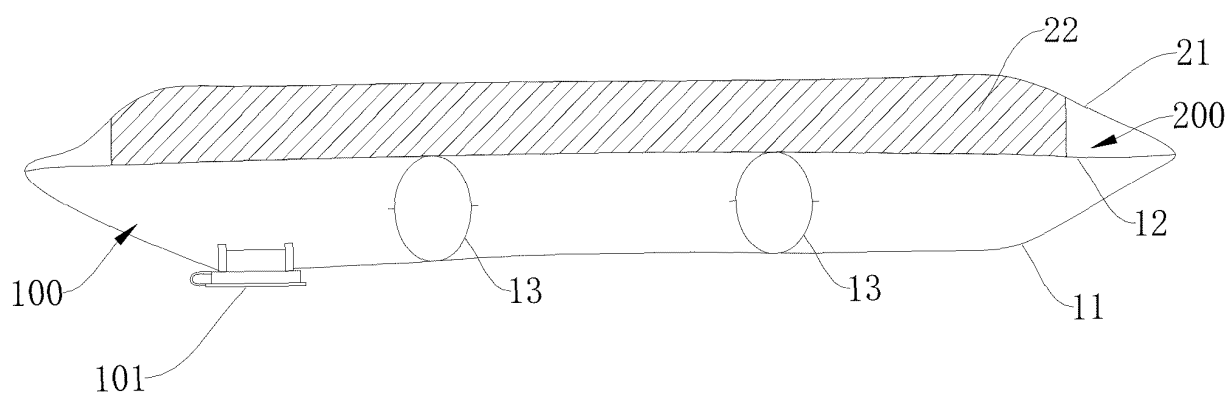


FIG. 1B

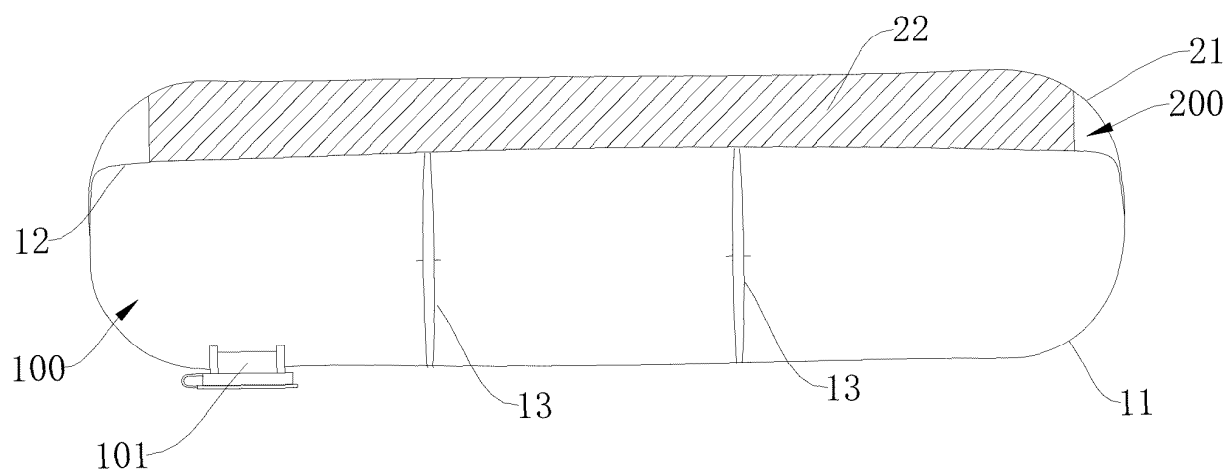


FIG. 1C

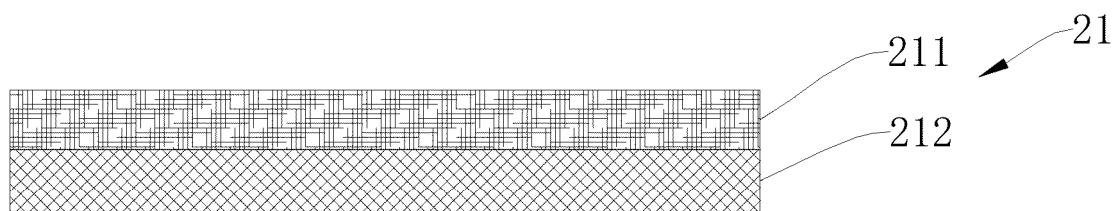


FIG. 1D

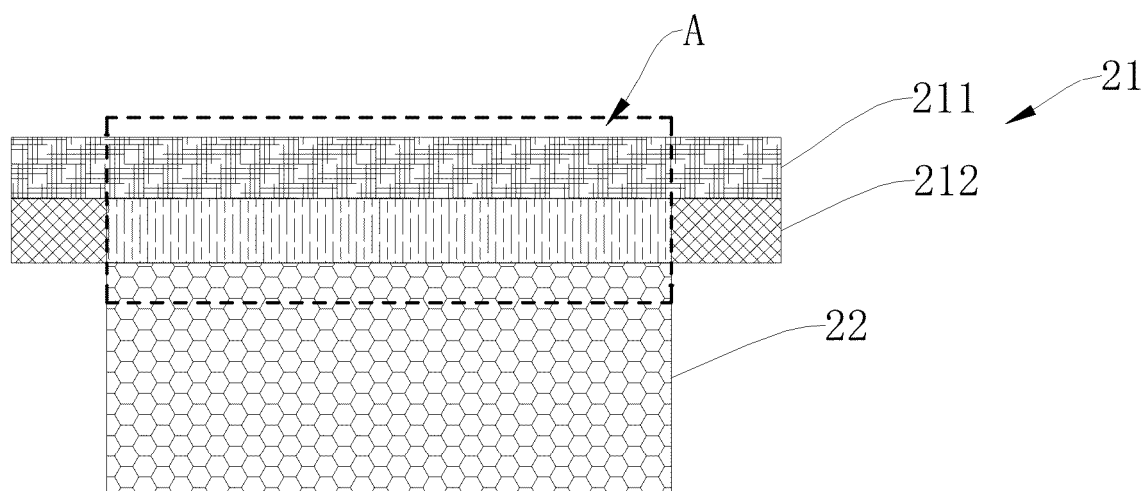


FIG. 1E

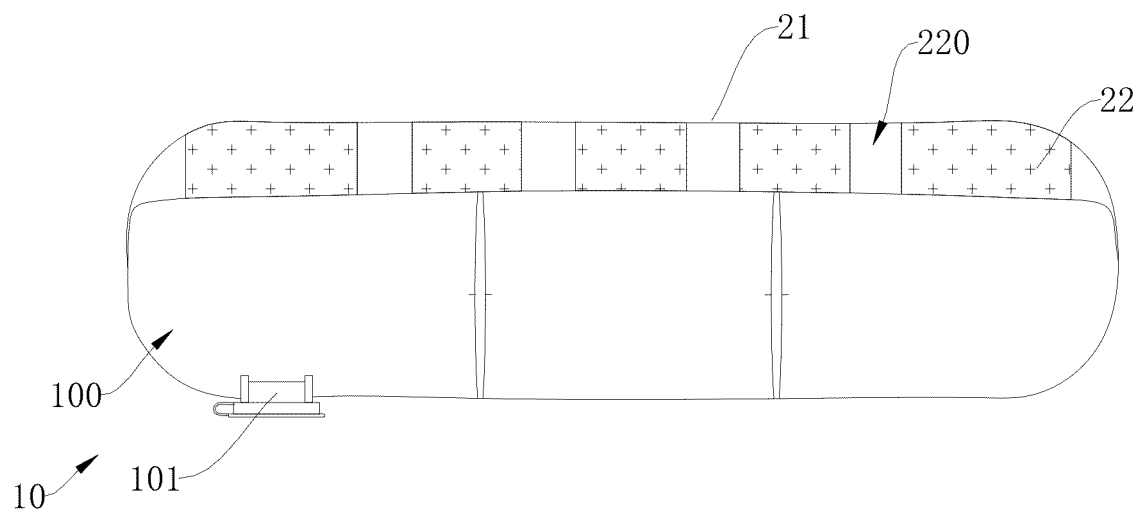


FIG. 2A

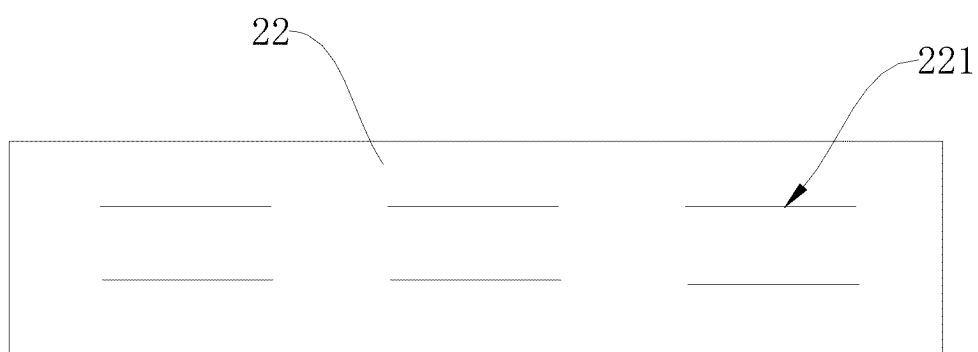


FIG. 2B

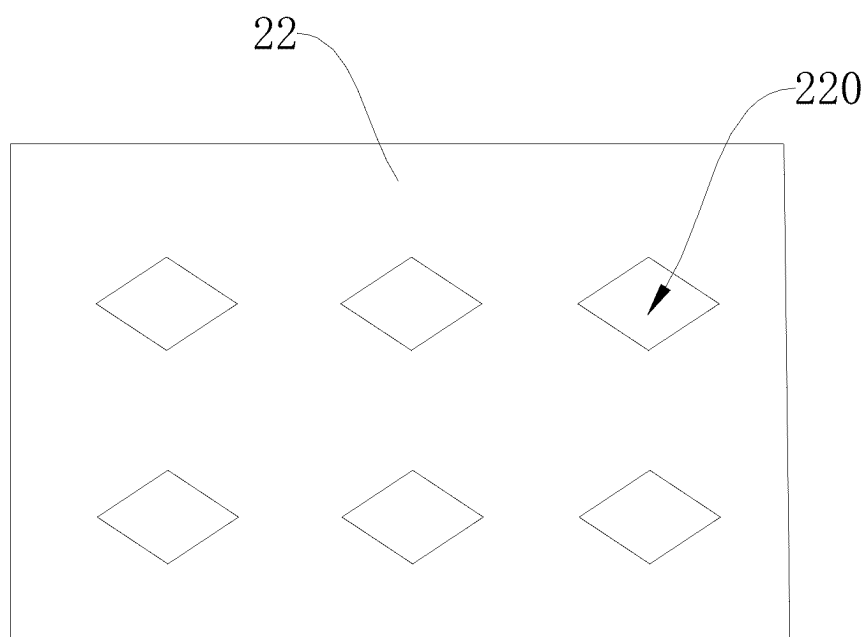


FIG. 2C

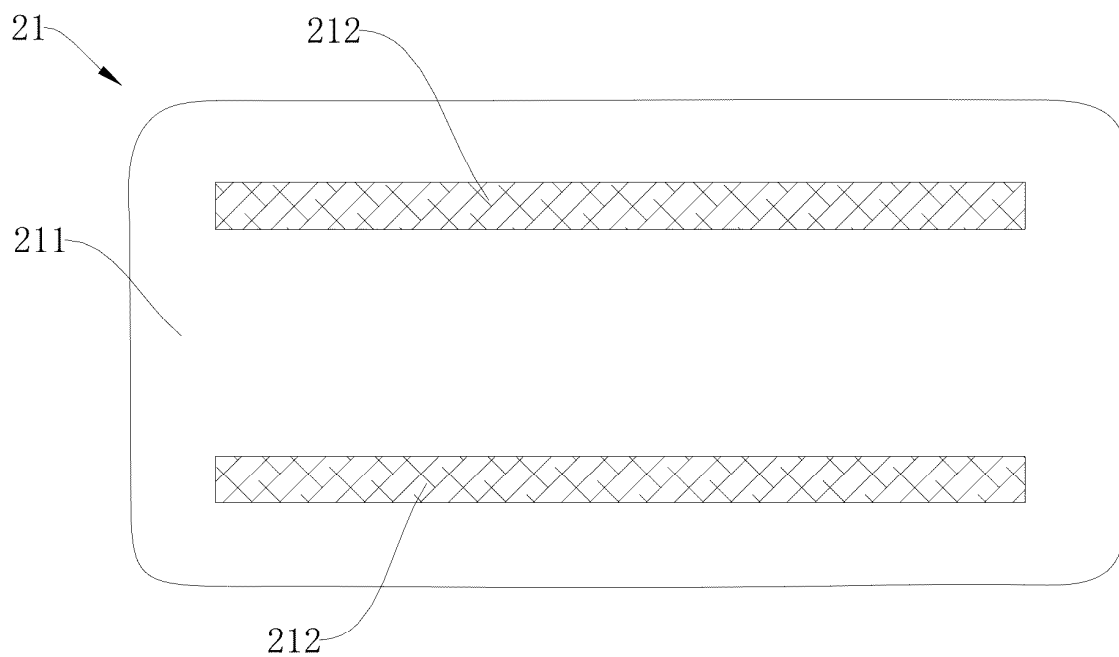


FIG. 3A

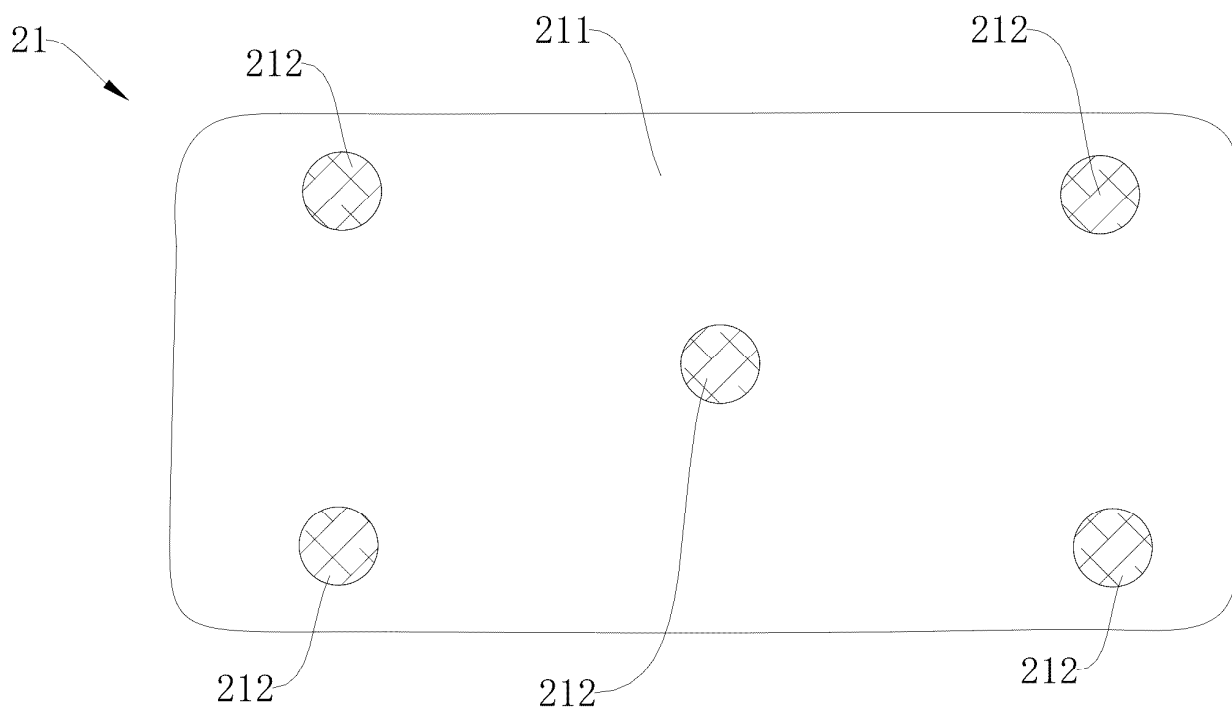


FIG. 3B

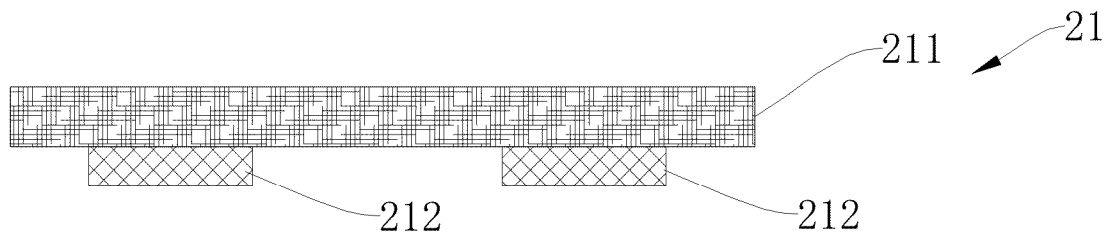


FIG. 3C

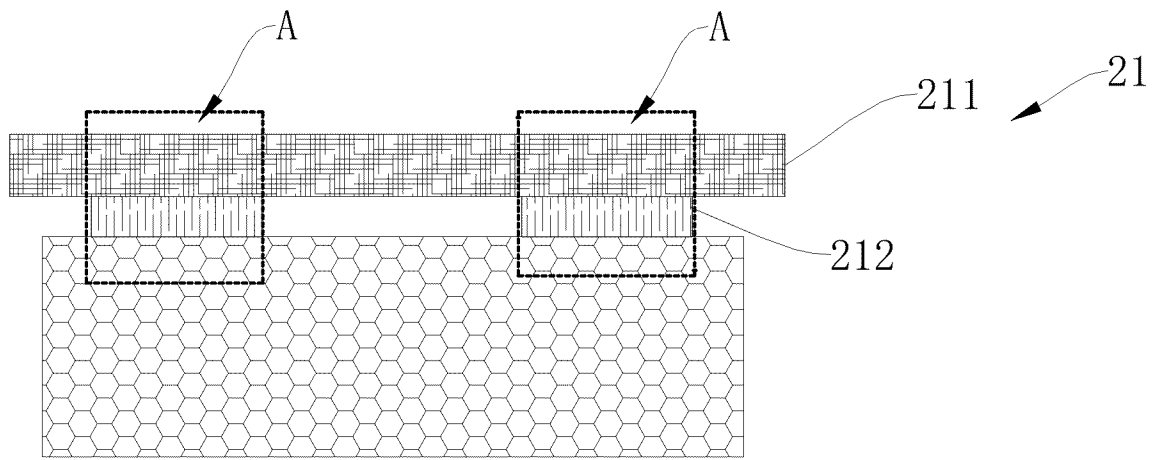


FIG. 3D

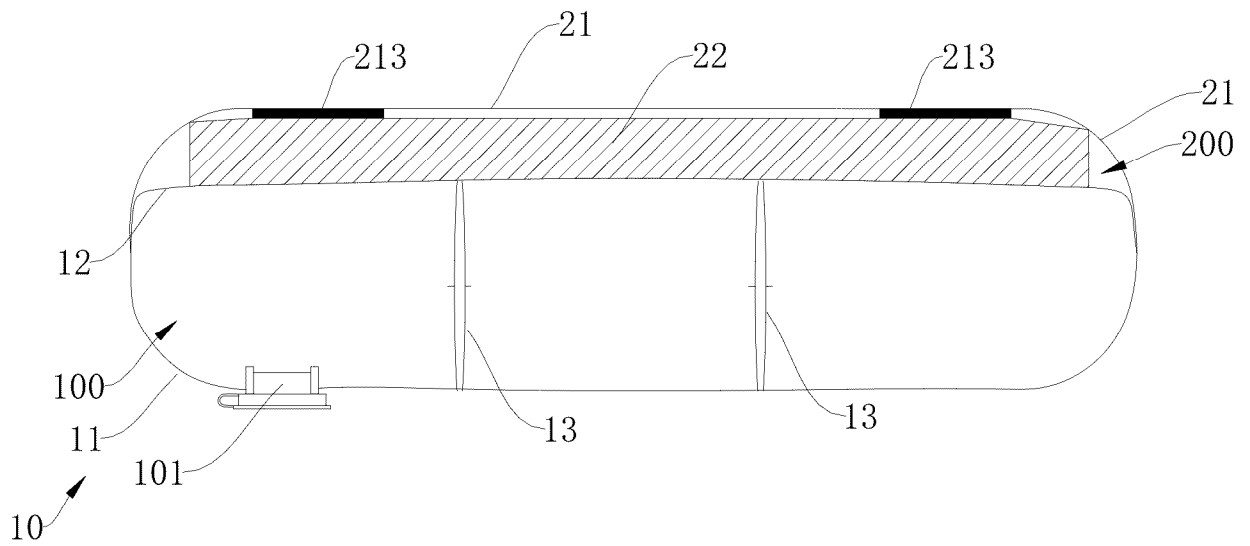


FIG. 4

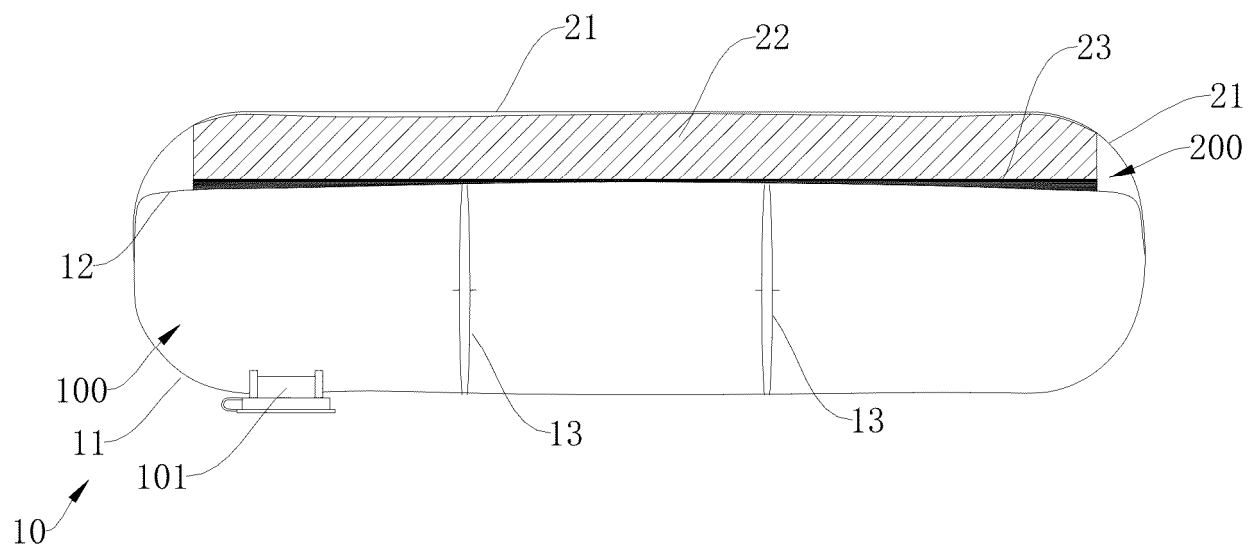


FIG. 5

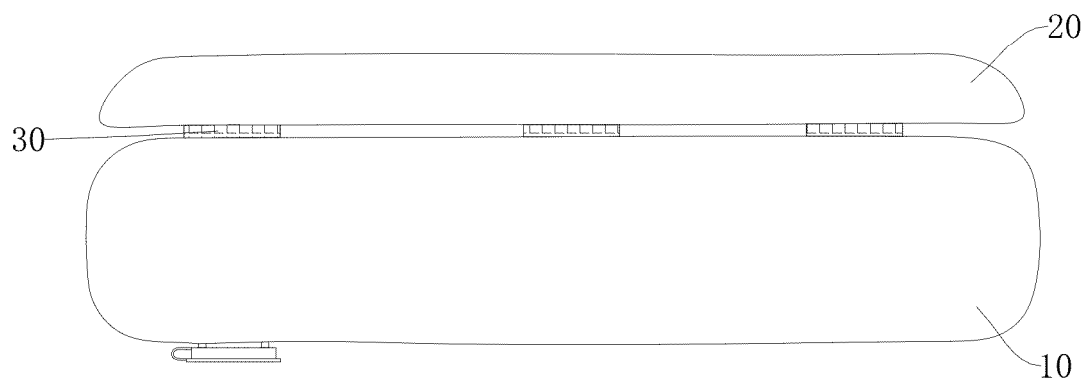


FIG. 6A

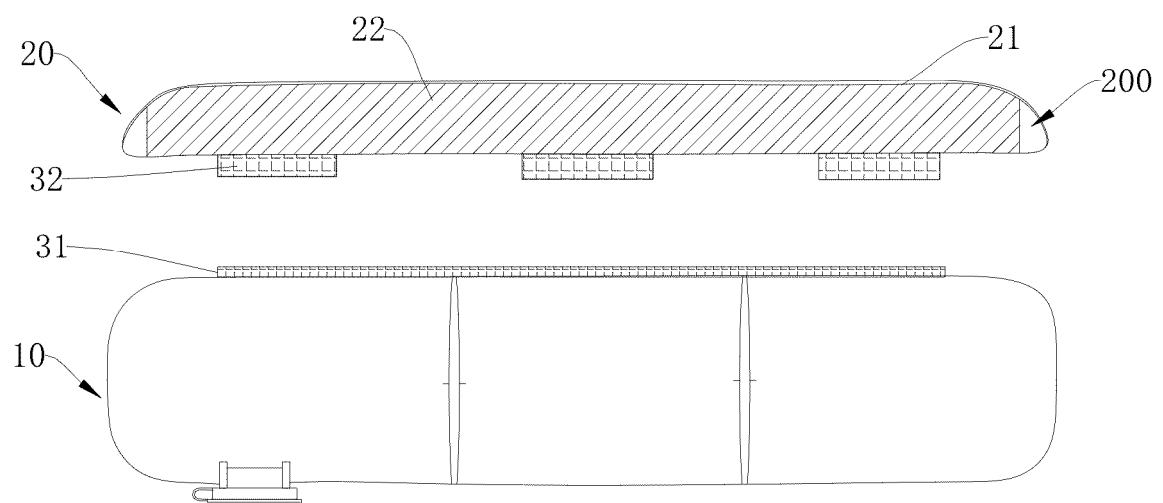


FIG. 6B

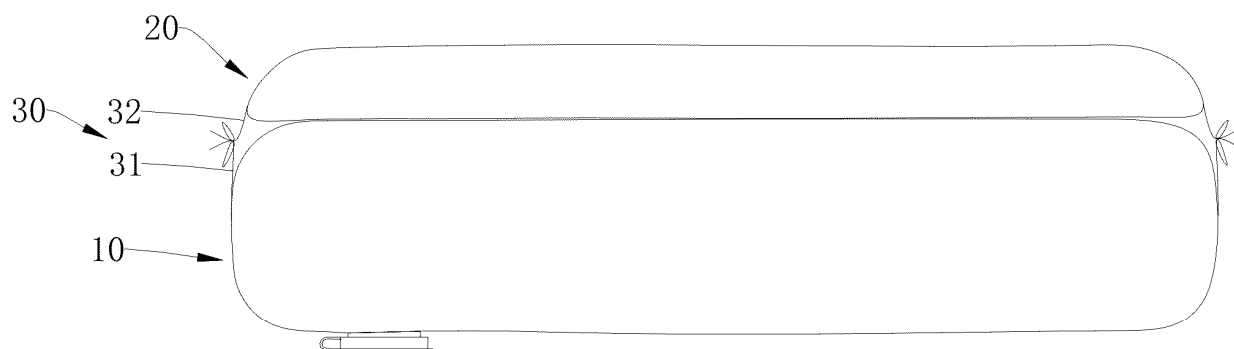


FIG. 6C

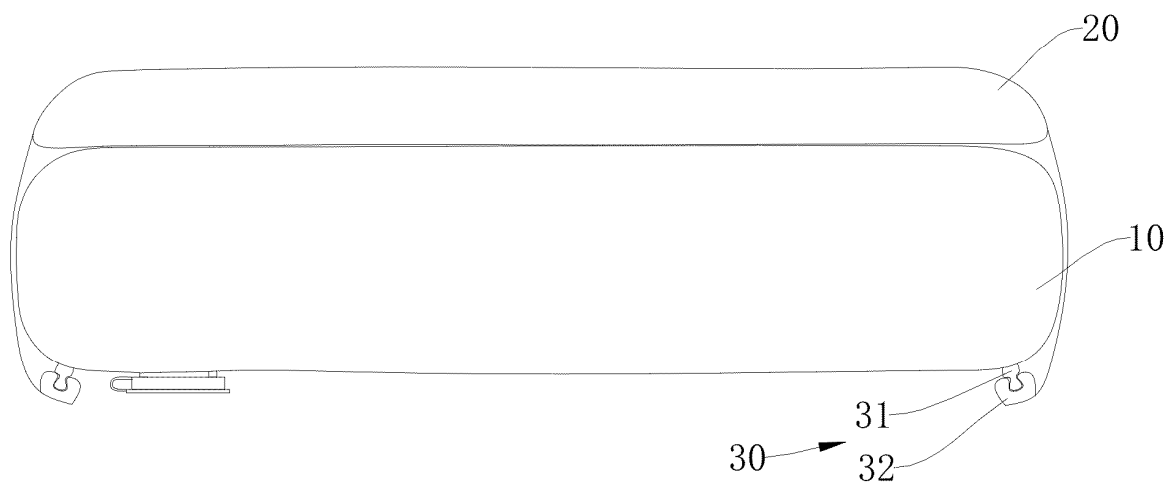


FIG. 6D

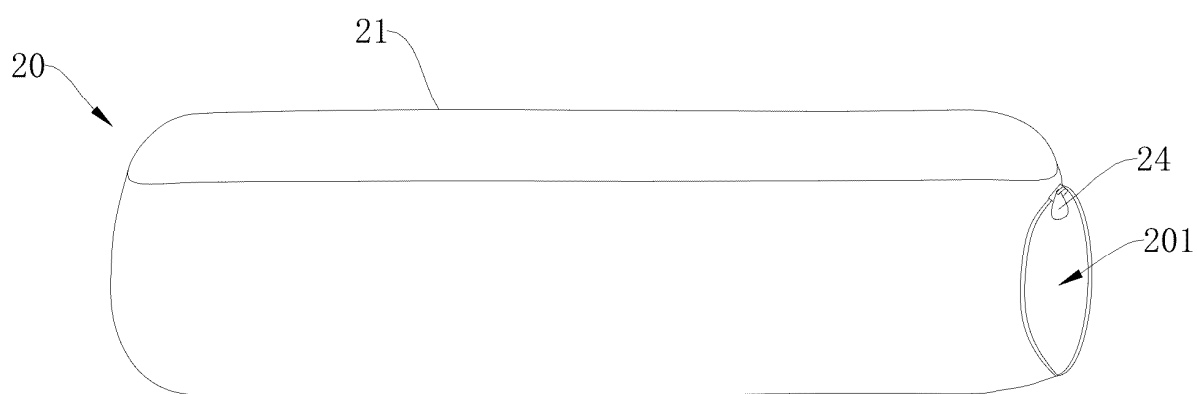


FIG. 7A

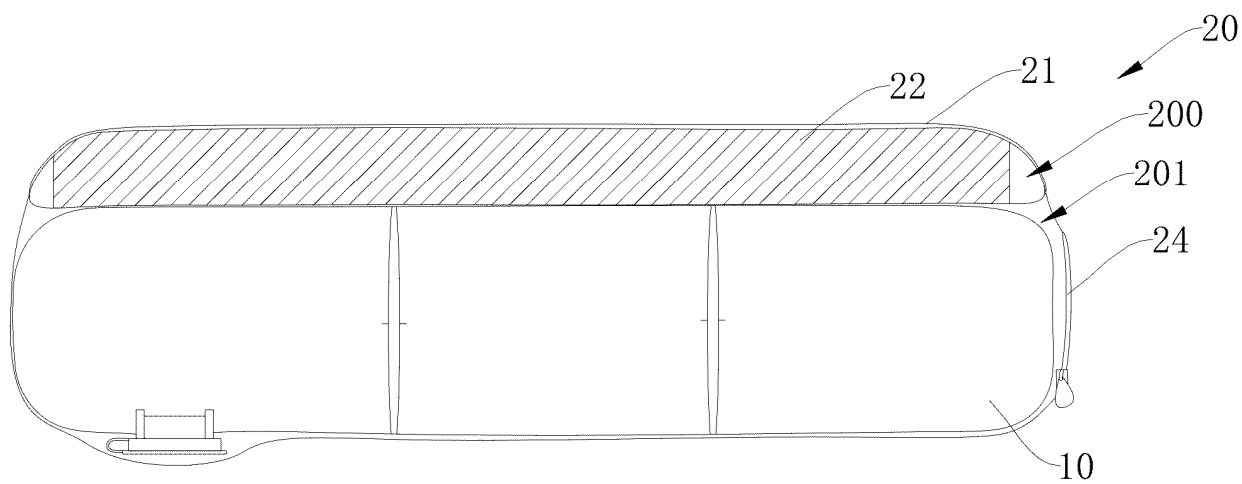


FIG. 7B

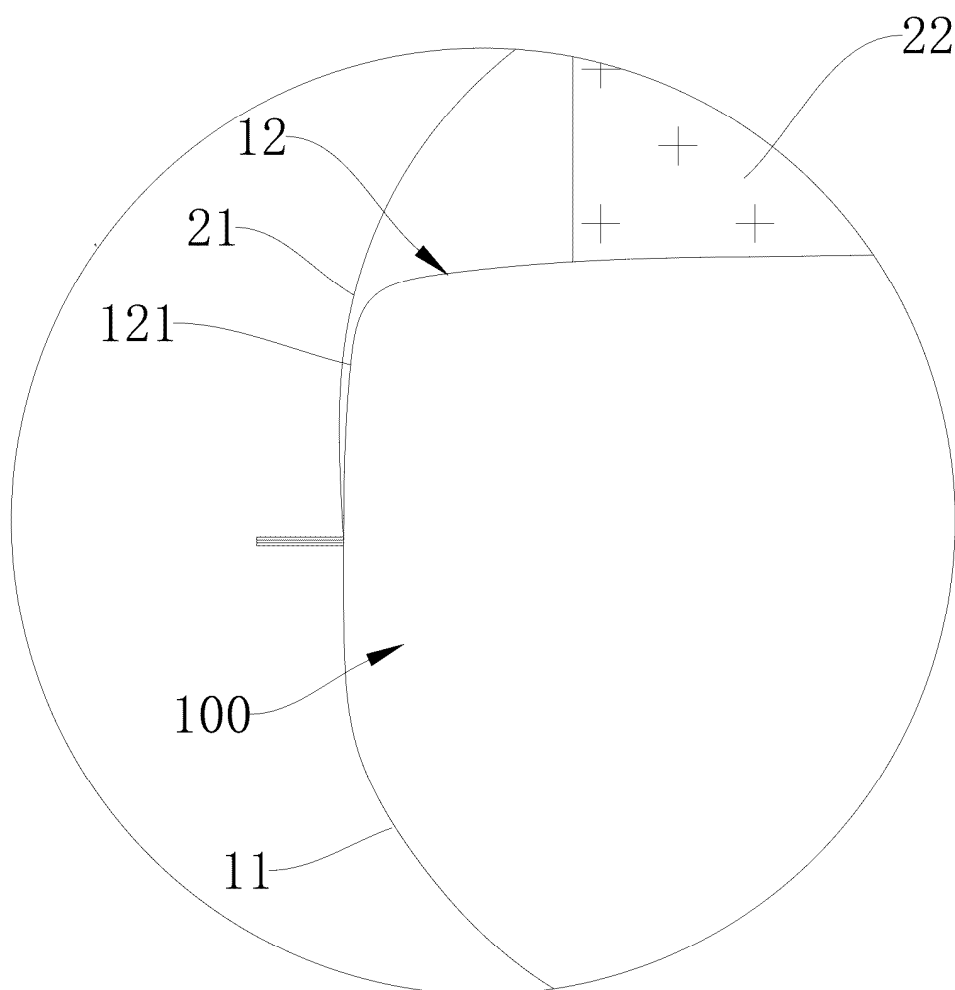


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2023/127867

A. CLASSIFICATION OF SUBJECT MATTER

A47G9/10(2006.01)i; A47G9/00(2006.01)i; A47C27/08(2006.01)i; A47C27/15(2006.01)i; A47G9/06(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC:A47G9 A47C27

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNTXT, ENTXTC, ENTXT, VEN: 充气, 气囊, 气腔, 垫, 枕, 薄膜, 热熔, 上, 填充, 下, 支撑, 通风, 透气, inflat+, gas, charg+, air, chamber, mat, mattress, pillow, film, hot, melt+, up, fill+, down, support, breath+, aeration

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 108720477 A (王程 等 (WANG, Cheng et al.)) 02 November 2018 (2018-11-02) description, paragraphs 6-33, and figure 1	1, 5-9
X	CN 107224139 A (BESTWAY INFLATABLES & MATERIAL CORP.) 03 October 2017 (2017-10-03) description, paragraphs 43-77, and figure 6	10-20
X	CN 201370359 Y (GAO LIN) 30 December 2009 (2009-12-30) description, pages 1-2, and figure 1	1, 5-9
X	CN 204048995 U (LIN WEILIN) 31 December 2014 (2014-12-31) description, paragraphs 3-21, and figures 1-3	1, 5-9
Y	CN 108720477 A (王程 等 (WANG, Cheng et al.)) 02 November 2018 (2018-11-02) description, paragraphs 6-33, and figure 1	2-4
Y	CN 208582117 U (LI JINXING) 08 March 2019 (2019-03-08) description, paragraphs 6-25, and figures 1-2	2-4

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"D" document cited by the applicant in the international application	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"E" earlier application or patent but published on or after the international filing date	"&" document member of the same patent family
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

06 December 2023

Date of mailing of the international search report

21 December 2023

Name and mailing address of the ISA/CN

China National Intellectual Property Administration (ISA/
CN)
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Beijing 100088

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2023/127867

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 216932529 U (GUANGDONG MIKE TECHNOLOGY CO., LTD.) 12 July 2022 (2022-07-12) entire document	1-20
A	CN 218044590 U (GUANGDONG MIKE SMART HOME CO., LTD.) 16 December 2022 (2022-12-16) entire document	1-20
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