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			4893d1398945ba4539d1f847b983ccb19aef77b5		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	17	
	Claims		18	23	
	Abstract		24	24	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	Drawings.pdf	7220999	no	16
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3	Application Data Sheet	ADS.pdf	1256017	no	8
			647c130a34ddf4cd65af58baa6516378e5be3276		
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4	Oath or Declaration filed	Declaration.pdf	142504	no	2
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5	Power of Attorney	BestwayPOA.pdf	240095	no	1
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INFLATABLE BED

CROSS REFERENCE

[0001] The present application is continuation application of and claims priority to U.S. Patent Application No. 15/280,513, filed September 29, 2016, which claims the benefit and priority of Chinese Application No. 201610020533.5, filed January 13, 2016 and Chinese Application No. 201620031074.6, filed January 13, 2016. The entire disclosures of each of the above applications are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to inflatable beds or inflatable mattresses, and more specifically, to an inflatable bed, the structure of which is configured to limit the outward bulging or deformation of a side wall.

BACKGROUND

[0003] Currently, inflatable beds and inflatable mattresses have been very popular. The inflatable beds and inflatable mattresses have the advantages of light weight, easy to carry and store, etc., and thus are widely used in various occasions. For example, household inflatable beds and inflatable mattresses can often be used as temporary beds for visiting guests. In addition, the inflatable beds and inflatable mattresses are very suitable for use in outdoor camping.

[0004] Conventionally, the inflatable beds and inflatable mattresses are generally made of PVC sheet, PU sheet, or the like, and have various different structures, in which a typical mechanism is that using a top sheet, a bottom sheet, and a side wall coupled to the top sheet and the bottom sheet to form an inflatable air chamber. Tensioning structures, which are coupled to the top sheet and the bottom sheet and are arranged at an interval, are disposed in the air chamber, so as to form a shape having a certain height and a substantially flat upper surface for people to lie on.

[0005] Among the existing inflatable beds and inflatable mattresses, some have a larger height, whereby the side walls of the inflatable beds and inflatable mattresses after being inflated are susceptible to bulge and deform, affecting the appearance of the inflatable beds and inflatable mattresses. And, the bulging and deformation of the inflatable beds and inflatable mattresses may also result in the decay of air pressure in the air chamber, such that

the inflatable beds and inflatable mattresses are softened, reducing the comfort of the inflatable beds and inflatable mattresses.

[0006] Therefore, in order to solve the above-mentioned problem of bulging of the side walls, in some inflatable beds and inflatable mattresses, a middle sheet is arranged between the top sheet and the bottom sheet and is coupled to the side walls. In the inflatable beds and inflatable mattresses of such a structure, although the problem of bulging and deformation of the side walls is slightly improved, the desired result still cannot be achieved. Moreover, since tensioning structures have to be arranged between the middle sheet and the top sheet and between the middle sheet and the bottom sheet, the manufacturing process of the inflatable beds and inflatable mattresses becomes more complicated, that is to say, more plastic sheet is required.

[0007] Furthermore, in the prior art, the inflatable beds and inflatable mattresses with a relatively large height have a defect in its stability. When a user lies on or seats near the edge of the inflatable beds and inflatable mattresses, the inflatable beds and inflatable mattresses are susceptible to roll over. In order to improve the stability, an inflatable stabilization tube is arranged on the outer periphery of the bottom sheet of the inflatable bed in U.S. Patent US 6671910. However, such a structure will not only affect the aesthetic appearance of the inflatable bed, but also brings inconvenience to the user.

SUMMARY

[0008] The technical problem to be solved by the present invention is to provide an inflatable bed, in order to overcome the defects of easy occurrence of bulging and deformation of the side walls of the inflatable beds and inflatable mattresses, poor stability of the inflatable beds and inflatable mattresses, and susceptibility of roll-over in the prior art.

[0009] The above-mentioned technical problems are solved according to the present invention by providing an inflatable bed, comprising a top sheet and a bottom sheet, which are disposed vertically at an interval, at least one side wall, at least one first tensioning structure, and at least one support structure.

[0010] An upper edge of said side wall is coupled to an outer edge of said top sheet. A lower edge of said side wall is coupled to an outer edge of said bottom sheet, and an air chamber is formed between said top sheet, said bottom sheet and said side wall.

[0011] The at least one first tensioning structure is arranged in said air chamber. An upper end and a lower end of said first tensioning structure are respectively coupled to said top sheet and said bottom sheet.

[0012] The at least one support structure is arranged in said air chamber. Said support structure is arranged in a longitudinal direction of at least one of said side walls. At least two outside edges of said support structure are respectively coupled to the side wall adjacent thereto, and at least one inside edge of said support structure is coupled to the top sheet or bottom sheet adjacent thereto.

[0013] Preferably, said support structure comprises a second tensioning structure and a third tensioning structure, at least two outside edges of said second tensioning structure are respectively coupled to the side wall adjacent thereto, and at least one inside edge of said second tensioning structure is coupled to the top sheet adjacent thereto.

[0014] The at least two outside edges of said third tensioning structure are respectively coupled to the side wall adjacent thereto, and at least one inside edge of said third tensioning structure is coupled to the bottom sheet adjacent thereto.

[0015] Preferably, said second tensioning structure and said third tensioning structure are respectively provided with a plurality of air holes, through which an airflow passage is formed in said air chamber.

[0016] Preferably, said second tensioning structure and said third tensioning structure are disposed at an interval in a perpendicular direction.

[0017] Preferably, said second tensioning structure comprises at least two first I-beams, an outside edge and an inside edge of each of said first I-beams, are respectively coupled to the side wall adjacent thereto and said top sheet, and the at least two first I-beams, are disposed at an interval.

[0018] Preferably, said third tensioning structure comprises at least two second I-beams,, an outside edge and an inside edge of each of said second I-beams, are respectively coupled to the side wall adjacent thereto and said bottom sheet, and the at least two second I-beams, are disposed at an interval.

[0019] Preferably, said second tensioning structure comprises at least one first Y-beam, wherein two outside edges of said first Y-beam are respectively coupled to the side wall adjacent thereto, and an inside edge is coupled to said top sheet.

[0020] Preferably, said third tensioning structure comprises at least one second Y-beam, wherein two outside edges of said second Y-beam are respectively coupled to the side wall adjacent thereto, and an inside edge is coupled to said bottom sheet.

[0021] Preferably, said second tensioning structure comprises at least one first tubular beam, which has at least two outside edges respectively coupled to the side wall adjacent thereto, and at least one inside edge is coupled to said top sheet.

[0022] Preferably, said third tensioning structure comprises at least one second tubular beam, which has at least two outside edges respectively coupled to the side wall adjacent thereto, and at least one inside edge is coupled to said bottom sheet.

[0023] Preferably, said second tensioning structure comprises at least one first V- beam, wherein two outside edges of said first V- beam are respectively coupled to the side wall adjacent thereto, and an inside edge is coupled to said top sheet.

[0024] Preferably, said third tensioning structure comprises at least one second V- beam, wherein two outside edges of said second V- beam are respectively coupled to the side wall adjacent thereto, and an inside edge is coupled to said bottom sheet.

[0025] Preferably, said at least two first I-beams are arranged spaced apart from each other at a lower surface of said top sheet.

[0026] Preferably, said at least two second I- beams are arranged spaced apart from each other at an upper surface of said bottom sheet.

[0027] Preferably, said at least two first I- beams are arranged at an interval on an inner surface of said side wall in a perpendicular direction.

[0028] Preferably, said at least two second I- beams are arranged at an interval on the inner surface of said side wall in a perpendicular direction.

[0029] Preferably, the two outside edges of said at least one first Y- beam is arranged at an interval on an inner surface of said side wall in a perpendicular direction.

[0030] Preferably, the two outside edges of said at least one second Y- beam are arranged at an interval on the inner surface of said side wall in a perpendicular direction.

[0031] Preferably, said at least two outside edges of said at least one first tubular beam, which are coupled to the side wall adjacent thereto, are arranged at an interval on an inner surface of said side wall in a perpendicular direction.

[0032] Preferably, said at least two outside edges of said at least one second tubular beam, which are coupled to the side wall adjacent thereto, are arranged at an interval on the inner surface of said side wall in a perpendicular direction.

[0033] Preferably, the two outside edges of said at least one first V-beam is arranged at an interval on an inner surface of said side wall in a perpendicular direction.

[0034] Preferably, the two outside edges of said at least one second V-beam is arranged at an interval on an inner surface of said side wall in a perpendicular direction.

[0035] Preferably, said at least two first I-beams as a whole are of a continuous annular structure or a segmental annular structure.

[0036] Preferably, said at least two second I-beams as a whole are of a continuous annular structure or a segmental annular structure.

[0037] Preferably, said at least one first Y-bam as a whole is of a continuous annular structure or a segmental annular structure.

[0038] Preferably, said at least one second Y-beam as a whole is of a continuous annular structure or a segmental annular structure.

[0039] Preferably, said at least one first tubular beam as a whole is of a segmental annular structure.

[0040] Preferably, said at least one second tubular beam as a whole is of a segmental annular structure.

[0041] Preferably, said at least one first V-bream as a whole is of a continuous annular structure or a segmental annular structure.

[0042] Preferably, said at least one second V-beam as a whole is of a continuous annular structure or a segmental annular structure.

[0043] Preferably, said first tensioning structure is one or more beams selected from I-beams, coil beams, Y-beams or X-beams.

[0044] Preferably, said first tensioning structure, said second tensioning structure and said third tensioning structure are all made of thermoplastic plastic sheet.

[0045] Preferably, one or more of said first tensioning structure, said second tensioning structure and said third tensioning structure at least partially comprise mesh, laminated plastic sheet or a threads.

[0046] Preferably, two side surfaces of said mesh or said threads are at least partially coupled integrally with two opposite plastic strips, and said mesh and said threads are sandwiched between the two opposite plastic strips.

[0047] Preferably, two side surfaces of said mesh or said threads are at least partially coupled integrally with an U-shaped plastic strip, and said mesh and said threads are sandwiched between the U-shaped plastic strip.

[0048] Preferably, said first tensioning structure is coupled to said top and bottom sheets by means of high-frequency welding; said second tensioning structure is coupled to said top sheet and said side wall by means of high-frequency welding; and said third tensioning structure is coupled to said bottom sheet and said side wall by means of high-frequency welding.

[0049] Preferably, the height where said top sheet is located in the inside part of an upper edge of said second tensioning structure is lower than the height where said top sheet is located in the outside part of the upper edge of said second tensioning structure.

[0050] Preferably, the height where said bottom sheet is located in the inside part of a lower edge of said third tensioning structure is lower than the height where said bottom sheet is located in the outside part of the lower edge of said third tensioning structure.

[0051] Preferably, said inflatable bed further comprises a built-in air pump, which is arranged on said side wall and is located between a lower edge of said second tensioning structure and an upper edge of said third tensioning structure for inflating said air chamber.

[0052] Preferably, said inflatable bed further comprises an air valve, which is arranged on said side wall for the inflation and deflation of said inflatable bed.

[0053] The positive effects of the present invention lie in the following aspects.

[0054] The inflatable bed of the present invention overcomes the defect of outward bulging and deformation of the side walls of the inflatable beds and inflatable mattresses having a relatively large height in prior art, making their appearance more attractive. The inflatable beds and inflatable mattresses have a good stability, which overcomes the problem of susceptibility of roll-over in the prior art. Furthermore, the inflatable bed of the present invention can also prevent the user from rolling down during use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0055] The above-mentioned and other features, properties and advantages of the present invention will become more apparent from the following description of embodiments with reference to the accompany drawings, in which:

[0056] Fig. 1 is a perspective view of an inflatable bed according to the present invention.

[0057] Fig. 2 is a front view of the inflatable bed according to the present invention.

[0058] Fig. 3 is a right view of the inflatable bed according to the present invention.

[0059] Fig. 4 is a top view of the inflatable bed according to the present invention.

[0060] Fig. 5 is a sectional view of a first embodiment taken along line A-A in Fig. 4.

[0061] Fig. 6 is a schematic structural partially sectional view of the first embodiment of the inflatable bed according to the present invention.

[0062] Fig. 7 is a first exploded view of the first embodiment of the inflatable bed according to the present invention.

[0063] Fig. 8 is a second exploded view of the first embodiment of the inflatable bed according to the present invention.

[0064] Fig. 9 is a sectional view of a second embodiment taken along line A-A in Fig. 4.

[0065] Fig. 10 is a first exploded view of the second embodiment of the inflatable bed according to the present invention.

[0066] Fig. 11 is a second exploded view of the second embodiment of the inflatable bed according to the present invention.

[0067] Fig. 12 is a first sectional view of a third embodiment taken along line A-A in Fig. 4.

[0068] Fig. 13 is a second sectional view of the third embodiment taken along line A-A in Fig. 4.

[0069] Fig. 14 is a first exploded view of the third embodiment of the inflatable bed according to the present invention.

[0070] Fig. 15 is a second exploded view of the third embodiment of the inflatable bed according to the present invention.

[0071] Fig. 16 is a sectional view of a fourth embodiment taken along line A-A in Fig. 4.

[0072] Fig. 17 is a first exploded view of the fourth embodiment of the inflatable bed according to the present invention.

[0073] Fig. 18 is a second exploded view of the fourth embodiment of the inflatable bed according to the present invention.

[0074] Fig. 19 is a sectional view of a fifth embodiment taken along line A-A in Fig. 4.

[0075] Fig. 20 is a schematic structural partially sectional view of the fifth embodiment of the inflatable bed according to the present invention.

[0076] Fig. 21 is a sectional view of a sixth embodiment taken along line A-A in Fig. 4.

[0077] Fig. 22 is a sectional view of a seventh embodiment taken along line A-A in Fig. 4.

[0078] Fig. 23 is a schematic structural partially sectional view of the seventh embodiment of the inflatable bed according to the present invention.

[0079] Fig. 24 is a schematic view of the interior structure of the seventh embodiment of the inflatable bed according to the present invention.

DETAILED DESCRIPTION

[0080] The present invention will be further described below in conjunction with detailed embodiments and the accompanying drawings. More details are provided in the following detailed description in order for the present invention to be fully understood. However, the present invention can be implemented in various ways other than those described herein. A person skilled in the art can make similar analogy and modification according to the practical applications without departing from the spirit of the present invention, and therefore the contents of the detailed embodiments herein should not be construed as limiting to the scope of the present invention.

[0081] Embodiment 1:

[0082] Fig. 1 is a perspective view of an inflatable bed according to the present invention. Fig. 2 is a front view of the inflatable bed according to the present invention. Fig. 3 is a right view of the inflatable bed according to the present invention. Fig. 4 is a top view of the inflatable bed according to the present invention. Fig. 5 is a sectional view of a first embodiment taken along line A-A in Fig. 4. Fig. 6 is a schematic structural partially sectional view of the first embodiment of the inflatable bed according to the present invention. Fig. 7 is an exploded view of the first embodiment of the inflatable bed according to the present invention.

[0083] As shown in Figs. 1-7, an inflatable bed 10 is disclosed in the first embodiment according to the present invention, which comprises a top sheet 11, a bottom sheet 12, at least

one side wall 13, at least one first tensioning structure 14 and at least one support structure. The bottom sheet 12 and the top sheet 11 are disposed vertically at an interval, an upper edge of the side wall 13 is coupled to an outer edge of the top sheet 11, a lower edge of the side wall 13 is coupled to an outer edge of the bottom sheet 12, and an air chamber is formed between the top sheet 11, the bottom sheet 12 and the side wall 13. Moreover, the first tensioning structure 14 is arranged in the air chamber, and an upper end and a lower end of the first tensioning structure 14 are respectively coupled to the top sheet 11 and the bottom sheet 12. This has the effects of limiting the respective upward and downward bulging of the top sheet 11 and the bottom sheet 12 by means of the first tensioning structure 14 after said air chamber is inflated. In particular, both the top sheet 11 and the bottom sheet 12 may be configured as a two-layer structure, which can be formed with different patterns by mutually welding at least two sheets. Alternatively, a sponge structure is further sandwiched in the two-layer structure.

[0084] Said support structure is arranged in said air chamber herein, said support structure is arranged in the longitudinal direction of at least one of the side walls 13, at least two outside edges of said support structure are respectively coupled to the side wall 13 adjacent thereto, and at least one inside edge of said support structure is coupled to the top sheet 11 or bottom sheet 12 adjacent thereto.

[0085] Preferably, said support structure comprises a second tensioning structure 15 and a third tensioning structure 16. At least two outside edges of the second tensioning structure 15 are respectively coupled to the side wall 13 adjacent thereto, and at least one inside edge of the second tensioning structure 15 is coupled to the top sheet 11 adjacent thereto. The second tensioning structure 15 is configured to limit the upward and lateral bulging of the top sheet 11 and the side wall 13 after said air chamber is inflated.

[0086] Moreover, at least two outside edges of the third tensioning structure 16 are respectively coupled to the side wall 13 adjacent thereto, and at least one inside edge of the third tensioning structure 16 is coupled to the adjacent bottom sheet 12. The third tensioning structure 16 is configured to limit the respective downward and lateral bulging of the bottom sheet 12 and the side wall 13 after said air chamber is inflated.

[0087] In this embodiment, the second tensioning structure 15 comprises at least two first I-beams 151, one outside edge 152 of each first I-beams 151 is coupled to the side wall 13 adjacent thereto, the other inside edge 153 is coupled to the top sheet 11 adjacent thereto,

and the at least two first I-beams 151 are disposed at an interval. The third tensioning structure 16 comprises at least two second I-beams 161, one outside edge 162 of each second I-beam 161 is coupled to the side wall 13 adjacent thereto, the other inside edge 163 is coupled to the bottom sheet 12 adjacent thereto, and the at least two second I-beams 151 are disposed at an interval. In this embodiment, the numbers of first I-beams 151 and second I-beams 161 are both two by way of example, but their numbers are not limited by this embodiment, and may be more than two, which also fall within the scope of protection of the present invention.

[0088] The second tensioning structure 15 and the third tensioning structure 16 are preferably disposed at an interval in a perpendicular direction. In this embodiment, for example, the second tensioning structure 15 and the third tensioning structure 16 divide the respective side wall 13 into five sections, so that the second tensioning structure 15 is configured to limit the upward and lateral bulging of the top sheet 11 and the side wall 13 after said air chamber is inflated, and the third tensioning structure 16 is configured to limit the respective downward and lateral bulging of the bottom sheet 12 and the side wall 13 after said air chamber is inflated.

[0089] Of course, the second tensioning structure 15 and the third tensioning structure 16 may also divide the respective side wall 13 into a multi-section structure, such as a four- or six-section structure; this embodiment is merely exemplary and the present invention is not limited thereto, and all the structures with four or more sections fall within the scope of protection of the present invention.

[0090] Further, the at least two first I-beams 151 are arranged spaced apart from each other at a lower surface of the top sheet 11, and the at least two second I-beams 161 are arranged spaced apart from each other at an upper surface of the bottom sheet 12. The at least two first I-beams 151 are arranged at an interval on an inner surface of the side wall 13 in a perpendicular direction. The at least two second I-beams 161 are arranged at an interval on the inner surface of the side wall 13 in a perpendicular direction.

[0091] Furthermore, the at least two first I-beams 151 as a whole are of a continuous annular structure or a segmental annular structure. The at least two second I-beams 161 as a whole are of a continuous annular structure or a segmental annular structure. Moreover, the at least two first I-beams 151 are provided with air holes 154, and an airflow passage is formed in said air chamber through the air holes 154. The at least two second I-beams 161 are

provided with air holes 164, and an airflow passage is formed in said air chamber through the air holes 164 (as shown in Figs. 7 and 8).

[0092] The first tensioning structure 14 of the present invention may employ one or more beams selected from I-beams, coil beams, Y-beams or X-beams. Moreover, the first tensioning structure 14, the second tensioning structure 15 and the third tensioning structure 16 may be all made of thermoplastic plastic sheet, and one or more of the first tensioning structure 14, the second tensioning structure 15 and the third tensioning structure 16 at least partially comprise mesh, laminated plastic sheet or threads.

[0093] The structures thereof may take various forms. For example, two side surfaces of said mesh or said threads are at least partially coupled integrally with two opposite plastic strips, and said mesh and said threads are sandwiched between the two opposite plastic strips.

[0094] As another example, two side surfaces of said mesh or said threads are at least partially coupled integrally with an U-shaped plastic strip, and said mesh and said threads are sandwiched between the U-shaped plastic strip. These connecting structures can be used to effectively manufacture the beams required by the inflatable bed in the present invention; the solution in this embodiment is merely exemplary and the present invention is not limited thereto, and any other structure, which can implement the beam, falls within the scope of protection of the present invention.

[0095] On the basis of the structure of the above beams, in order to ensure a firm connection between the components, the first tensioning structure 14 is coupled to the top sheet 11 and the bottom sheet 12 by means of high-frequency welding. Similarly, the second tensioning structure 15 is coupled to the top sheet 11 and the side wall 13 by means of high-frequency welding. The third tensioning structure 16 is coupled to the bottom sheet 12 and the side wall 13 by means of high-frequency welding.

[0096] In the inflatable bed of the present invention formed of the aforementioned structure, the height where the top sheet 11 thereof is located in the inside part of an upper edge of the second tensioning structure 15 is lower than the height where the top sheet 11 is located in the outside part of the upper edge of the second tensioning structure 15. The height where the bottom sheet 12 is located in the inside part of a lower edge of the third tensioning structure 16 is lower than the height where the bottom sheet 12 is located in the outside part of the lower edge of the third tensioning structure 16.

[0097] Furthermore, the inflatable bed 10 further comprises a built-in air pump 20, and the built-in air pump 20 is arranged on the side wall 13 and is located between a lower edge of the second tensioning structure 15 and an upper edge of the third tensioning structure 16 for inflating said air chamber. Moreover, the inflatable bed 10 further comprises an air valve 30, and the air valve 30 is arranged on the side wall 13 for the inflation and deflation of the inflatable bed 10.

[0098] Embodiment 2:

[0099] Fig. 9 is a sectional view of a second embodiment taken along line A-A in Fig. 4. Fig. 10 is a first exploded view of the second embodiment of the inflatable bed of the present invention. Fig. 11 is a second exploded view of the second embodiment of the inflatable bed of the present invention.

[00100] As shown in Figs. 9-11, the structure of this embodiment is substantially the same as that of the first embodiment, except that the second tensioning structure 15 comprises at least one first Y-beam 151, wherein two outside edges 152 of the first Y-beam 151 are respectively coupled to the side wall 13 adjacent thereto, and the other inside edge 153 is coupled to the top sheet 11. Similarly, the third tensioning structure 16 comprises at least one second Y-beam 161, wherein two outside edges 162 of the second Y-beam 161 are respectively coupled to the side wall 13 adjacent thereto, and the other inside edge 163 is coupled to the bottom sheet 12.

[00101] The second tensioning structure 15 and the third tensioning structure 16 are preferably disposed at an interval in a perpendicular direction. In this embodiment, the second tensioning structure 15 and the third tensioning structure 16 divide the respective side wall 13 into five sections, so that the second tensioning structure 15 is configured to limit the upward and lateral bulging of the top sheet 11 and the side wall 13 after said air chamber is inflated, and the third tensioning structure 16 is configured to limit the respective downward and lateral bulging of the bottom sheet 12 and the side wall 13 after said air chamber is inflated.

[00102] Of course, the second tensioning structure 15 and the third tensioning structure 16 may also divide the respective side wall 13 into a multi-section structure, such as a four- or six-section structure; this embodiment is merely exemplary and the present invention is not limited thereto, and all the structures with four or more sections fall within the scope of protection of the present invention.

[00103] Further, the two outside edges 152 of the at least one first Y-beam 151 are arranged at an interval on an inner surface of the side wall 13 in a perpendicular direction. The two outside edges 162 of the at least one second Y-beam 161 are arranged at an interval on the inner surface of the side wall 13 in a perpendicular direction.

[00104] Furthermore, the at least one first Y-beam 151 as a whole is of a continuous annular structure or a segmental annular structure. The at least one second Y-beam 161 as a whole is of a continuous annular structure or a segmental annular structure. Moreover, the at least one first Y-beam 151 is further provided with air holes 154, and an airflow passage is formed in said air chamber through the air holes 154. The at least one second Y-beam 161 is further provided with air holes 164, and an airflow passage is formed in said air chamber through the air holes 164 (as shown in Figs. 10 and 11).

[00105] Embodiment 3:

[00106] Fig. 12 is a first sectional view of a third embodiment taken along line A-A in Fig. 4. Fig. 13 is a second sectional view of the third embodiment taken along line A-A in Fig. 4. Fig. 14 is a first exploded view of the third embodiment of the inflatable bed of the present invention. Fig. 15 is a second exploded view of the third embodiment of the inflatable bed of the present invention.

[00107] As shown in Figs. 12-15, the structure of this embodiment is substantially the same as that of the first embodiment, except that the second tensioning structure 15 comprises at least one first tubular beam 151, wherein the first tubular beam 151 has at least two outside edges 152 respectively coupled to the side wall 13 adjacent thereto, and at least one inside edge 153 is coupled to the top sheet 11. The third tensioning structure 16 comprises at least one second tubular beam 161, wherein the second tubular beam 161 has at least two outside edges 162 respectively coupled to the side wall 13 adjacent thereto, and at least one inside edge 163 is coupled to the bottom sheet 12. The first tubular beam 151 and the second tubular beam 161 herein may be of various tubular structures, such as a triangular tubular structure, or a quadrilateral tubular structure (as shown in Figs. 13 and 14).

[00108] Beam 151, which are coupled to the wall 13 adjacent thereto, are arranged at an interval on an inner surface of the side wall 13 in a perpendicular direction. The at least two outside edges 162 of the at least one second tubular beam 161, which are coupled to the wall 13 adjacent thereto, are arranged at an interval on an inner surface of the side wall 13 in a perpendicular direction.

[00109] The at least one first tubular beam 151 herein as a whole is of a segmental annular structure. The at least one second tubular beam 161 as a whole is of a segmental annular structure (as shown in Figs. 13 and 14).

[00110] The second tensioning structure 15 and the third tensioning structure 16 are preferably disposed at an interval in a perpendicular direction. In this embodiment, the second tensioning structure 15 and the third tensioning structure 16 divide the respective side wall 13 into five sections, so that the second tensioning structure 15 is configured to limit the upward and lateral bulging of the top sheet 11 and the side wall 13 after said air chamber is inflated, and the third tensioning structure 16 is configured to limit the respective downward and lateral bulging of the bottom sheet 12 and the side wall 13 after said air chamber is inflated.

[00111] Of course, the second tensioning structure 15 and the third tensioning structure 16 may also divide the respective side wall 13 into a multi-section structure, such as a four- or six-section structure; this embodiment is merely exemplary and the present invention is not limited thereto, and all the structures with four or more sections fall within the scope of protection of the present invention.

[00112] Embodiment 4:

[00113] Fig. 16 is a sectional view of a fourth embodiment taken along line A-A in Fig. 4. Fig. 17 is a first exploded view of the fourth embodiment of the inflatable bed of the present invention. Fig. 18 is a second exploded view of the fourth embodiment of the inflatable bed of the present invention.

[00114] As shown in Figs. 16-18, the structure of this embodiment is substantially the same as that of the first embodiment, except that the second tensioning structure 15 comprises at least one first V-beam 151, wherein two outside edges 152 of the first V-beam 151 are respectively coupled to the side wall 13 adjacent thereto, and the other inside edge 153 is coupled to the top sheet 11. The third tensioning structure 16 comprises at least one second V-beam 161, wherein two outside edges 162 of the second V-beam 161 are respectively coupled to the side wall 13 adjacent thereto, and the other inside edge 163 is coupled to the top sheet 11.

[00115] Further, the two outside edges 152 of the at least one first V-beam 151 are arranged at an interval on an inner surface of the side wall 13 in a perpendicular direction.

The two outside edges 162 of the at least one second VV-beam 161 are arranged at an interval on the inner surface of the side wall 13 in a perpendicular direction.

[00116] Furthermore, the at least one first V-beam 151 as a whole is of a continuous annular structure or a segmental annular structure. The at least one second V-beam 161 as a whole is of a continuous annular structure or a segmental annular structure. Moreover, the at least one first V-beam 151 is provided with air holes 154, and an airflow passage is formed in said air chamber through the air holes 154. The at least one second V-shaped drawstring V-beam 161 is provided with air holes 164, and an airflow passage is formed in said air chamber through the air holes 164.

[00117] The second tensioning structure 15 and the third tensioning structure 16 are preferably disposed at an interval in a perpendicular direction. In this embodiment, the second tensioning structure 15 and the third tensioning structure 16 divide the respective side wall 13 into five sections, so that the second tensioning structure 15 is configured to limit the upward and lateral bulging of the top sheet 11 and the side wall 13 after said air chamber is inflated, and the third tensioning structure 16 is configured to limit the respective downward and lateral bulging of the bottom sheet 12 and the side wall 13 after said air chamber is inflated.

[00118] Of course, the second tensioning structure 15 and the third tensioning structure 16 may also divide the respective side wall 13 into a multi-section structure, such as a four- or six-section structure; this embodiment is merely exemplary and the present invention is not limited thereto, and all the structures with four or more sections fall within the scope of protection of the present invention.

[00119] Embodiment 5:

[00120] Fig. 19 is a sectional view of a fifth embodiment taken along line A-A in Fig. 4. Fig. 20 is a schematic structural partially sectional view of the fifth embodiment of the inflatable bed of the present invention.

[00121] As shown in Figs. 19 and 20, the structure of this embodiment is substantially the same as that of the first embodiment, except that the first tensioning structure 14 employs a Y-beam, and the upper and lower ends of the first tensioning structure 14 are respectively coupled to the top sheet 11 and the bottom sheet 12. Several beams in the first tensioning structure 14 are arranged spaced apart from each other. The upper end of each beam of the first tensioning structure 14 takes the form of a fork and is coupled to and supports the top

sheet 11, and the lower end takes the form of an I-beam and is downwardly coupled to the bottom sheet 12. After said air chamber is inflated, such a structure can effectively limit the respective upward and downward bulging of the top sheet 11 and the bottom sheet 12.

[00122] Embodiment 6:

[00123] Fig. 21 is a sectional view of a sixth embodiment taken along line A-A in Fig. 4.

[00124] As shown in Fig. 21, the structure of this embodiment is substantially the same as that of the fifth embodiment, except that the first tensioning structure 14 employs an X-shaped drawstring at the upper and lower ends, and the upper and lower ends of the first tensioning structure 14 are respectively coupled to the top sheet 11 and the bottom sheet 12. Several drawstrings in the first tensioning structure 14 are arranged spaced apart from each other. The upper end of each drawstring of the first tensioning structure 14 takes the form of a folk and is upwardly coupled to the top sheet 11, and the lower end also takes the form of a folk and is downwardly coupled to the bottom sheet 12. After said air chamber is inflated, such a structure can limit the respective upward and downward bulging of the top sheet 11 and the bottom sheet 12 more effectively.

[00125] Embodiment 7:

[00126] Fig. 22 is a sectional view of a seventh embodiment taken along line A-A in Fig. 4. Fig. 23 is a schematic structural partially sectional view of the seventh embodiment of the inflatable bed of the present invention. Fig. 24 is a schematic view of the interior structure of the seventh embodiment of the inflatable bed of the present invention.

[00127] As shown in Figs. 22-24, the structure of this embodiment is substantially the same as that of the first embodiment, except that all the drawstrings in the first tensioning structure 14 employ coil beams, and the upper and lower ends of each beam of the first tensioning structure 14 are respectively coupled to the top sheet 11 and the bottom sheet 12. Several beams in the first tensioning structure 14 are arranged spaced apart from each other. After said air chamber is inflated, this structure can effectively limit the respective upward and downward bulging of the top sheet 11 and the bottom sheet 12.

[00128] According to the description of the aforementioned structures, the structural variations in the embodiments may arbitrarily combined, and are not limited to the particular embodiments described above, i.e., the number of beams contained in the second tensioning structure 15 and the number of beams contained in the third tensioning structure 16 are unlimited, which can be adjusted according to actual requirements.

[00129] Similarly, the connection between the beams in the second tensioning structure 15 and the connection between the beams in the third tensioning structure 16 are also not limited to the aforementioned embodiments, as long as the side wall 13 is divided into at least five (or equal to or greater than four) sections, for example, the number of beams in the second tensioning structure 15 and that in the third tensioning structure 16 as well as the connection thereof can be changed so as to divide the side wall 13 into multiple sections such as six or seven sections.

[00130] Of course, the structures of the first tensioning structure 14 can be commonly used in each case, and likewise serve to support the top sheet 11 and the bottom sheet 12, effectively limiting the respective upward and downward bulging of the top sheet 11 and the bottom sheet 12.

[00131] In summary, the inflatable bed of the present invention can limit the outward bulging or deformation of the side wall of the inflatable bed by using various types of tensioning structures. The structure of the inflatable bed of the present invention effectively overcomes the defect of outward bulging and deformation of the side walls of the inflatable beds and inflatable mattresses having a relatively large height in prior art, making their appearance more attractive. The inflatable beds and inflatable mattresses have a good stability, which overcomes the problem of susceptibility of roll-over in the prior art. Furthermore, the inflatable bed of the present invention can also prevent the user from rolling down during use.

[00132] While the particular embodiments of the present invention have been described, a person skilled in the art should understand that these are merely illustrative, and that the scope of protection of the present invention is defined by the appended claims. Various alterations or modifications can be made by a person skilled in the art to these embodiments without departing from the principle and substance of the present invention; however, these alterations and modifications all fall within the scope of protection of the invention.

CLAIMS

What is claimed is:

1. An inflatable bed, comprising:

a top sheet having a generally rectangular shape;

a bottom sheet having a generally rectangular shape spaced apart from said top sheet;

at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;

at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet;

a second tensioning structure located in said air chamber and including a first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall, and said top sheet;

a third tensioning structure located in said air chamber and including a first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall, and said bottom sheet; and

at least one of:

a second upper beam tensioning structure located in said first upper beam space further extending between and drawing together said at least one side wall and said top sheet; and

a second lower beam tensioning structure located in said first lower beam space further extending between and drawing together said at least one side wall and said bottom sheet.

2. The inflatable bed according claim 1, wherein said second tensioning structure further includes said second upper beam tensioning structure located in said first upper beam space.

3. The inflatable bed according claim 2, wherein said second upper beam tensioning structure draws together said at least one side wall and said top sheet to form a bulge along said top periphery.

4. The inflatable bed according to claim 2, wherein said first upper beam tensioning structure forms a first upper oblique angle with respect to said at least one side wall and wherein said second upper beam tensioning structure forms a second upper oblique angle with respect to said at least one side wall, and wherein said first upper oblique angle is different than said second upper oblique angle.

5. The inflatable bed according to claim 2, wherein said first upper beam tensioning structure is segmented along said at least one side wall.

6. The inflatable bed according claim 1, wherein said third tensioning structure further includes said second lower beam tensioning structure located in said first lower beam space.

7. The inflatable bed according claim 6, wherein said second lower beam tensioning structure draws together said at least one side wall and said bottom sheet to form a bulge along said bottom periphery.

8. The inflatable bed according to claim 6, wherein said first lower beam tensioning structure forms a first lower oblique angle with respect to said at least one side wall and wherein said second lower beam tensioning member forms a second lower oblique

angle with respect to said at least one side wall, and wherein said first lower oblique angle is different than said second lower oblique angle.

9. The inflatable bed according to claim 6, wherein said first lower beam tensioning structure is segmented along said at least one side wall.

10. The inflatable bed according claim 1, wherein said second tensioning structure further includes said second upper beam tensioning structure located in said first upper beam space, and wherein said third tensioning structure further includes a second lower beam tensioning structure located in said first lower beam space.

11. The inflatable bed according claim 1, wherein at least one of said first upper beam tensioning structure and said second upper beam tensioning structure extends along said at least one side wall, traversing less than a full periphery of said at least one side wall.

12. The inflatable bed according claim 1, wherein at least one of said first lower beam tensioning structure and said second lower beam tensioning structure extend along said at least one side wall, traversing less than a full periphery of said at least one side wall.

13. The inflatable bed according claim 1, wherein said second tensioning structure and said third tensioning structure both extend along said at least one side wall, traversing less than a full periphery of said at least one side wall.

14. The inflatable bed according claim 1, wherein said side wall defines a width between said top sheet and said bottom sheet, and wherein along said side wall, a first distance is defined between said second upper tensioning structure and said top sheet and a second distance is defined between said second lower tensioning structure and said bottom sheet, wherein said first distance and said second distance are less than half of said width.

15. The inflatable bed according claim 1, wherein said at least one first tensioning structure extends parallel to a lateral direction of said rectangular shape of said top sheet and said bottom sheet and perpendicular to a longitudinal direction of said rectangular shape of said top sheet and said bottom sheet.

16. The inflatable bed according claim 15, wherein said at least one first tensioning structure includes a plurality of first tensioning structures spaced in a parallel relationship.

17. The inflatable bed according claim 16, wherein said plurality of first tensioning structures are spaced from said at least one side wall.

18. An inflatable bed, comprising:

a top sheet having a generally rectangular shape;

a bottom sheet having a generally rectangular shape spaced apart from said top sheet;

at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;

at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet;

a second tensioning structure located in said air chamber and including a first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall and said top sheet;

said second tensioning structure further including a second upper beam tensioning structure located in said first upper beam space further drawing together said at least one side wall and said top sheet;

a third tensioning structure located in said air chamber and including a first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall and said bottom sheet; and

said third tensioning structure further including a second lower beam tensioning structure located in said second lower beam space further drawing together said at least one side wall and said bottom sheet.

19. The inflatable bed according claim 18, wherein said first lower beam tensioning structure is segmented along said at least one side wall and said first upper beam tensioning structure is segmented along said at least one side wall.

20. An inflatable bed, comprising:

a top sheet having a generally rectangular shape;

a bottom sheet having a generally rectangular shape spaced apart from said top sheet;

at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;

at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet;

a second tensioning structure located in said air chamber and including a first upper beam tensioning structure that is segmented, said first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall and said top sheet;

said second tensioning structure further including a second upper beam tensioning structure located in said first upper beam space further drawing together said at least one side wall and said top sheet to form a bulge along said top periphery;

a third tensioning structure located in said air chamber and including a first lower beam tensioning structure that is segmented, said first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall and said bottom sheet;

said third tensioning structure further including a second lower beam tensioning structure located in said second lower beam space further drawing together said at least one side wall and said bottom sheet; and

wherein said at least one first tensioning structure is spaced from said at least one side wall and extends parallel to a lateral direction of said rectangular shape of said top sheet and said bottom sheet and perpendicular to a longitudinal direction of said rectangular shape of said top sheet and said bottom sheet.

ABSTRACT

An inflatable bed is provided. The inflatable bed comprises a top sheet and a bottom sheet disposed vertically at an interval, at least one side wall, at least one first tensioning structure and at least one support structure. An upper edge of said side wall is coupled to an outer edge of said top sheet. A lower edge of said side wall is coupled to an outer edge of said bottom sheet. An upper end and a lower end of said first tensioning structure are respectively coupled to said top sheet and said bottom sheet. Said support structure is disposed in a longitudinal direction of at least one of said side walls. At least two outside edges of said support structure are respectively coupled to the side wall adjacent. At least one inside edge of said support structure is coupled to the top sheet or bottom sheet adjacent.

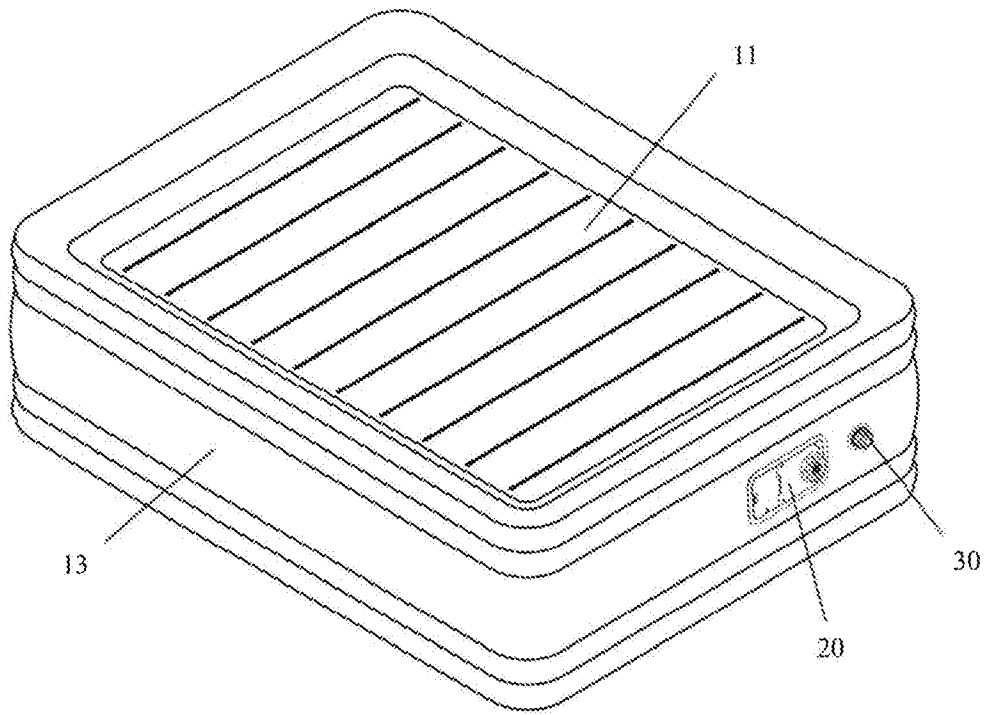


Fig. 1

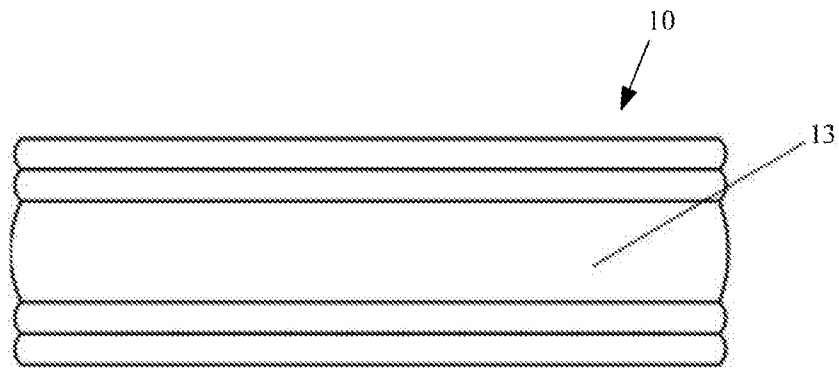


Fig. 2

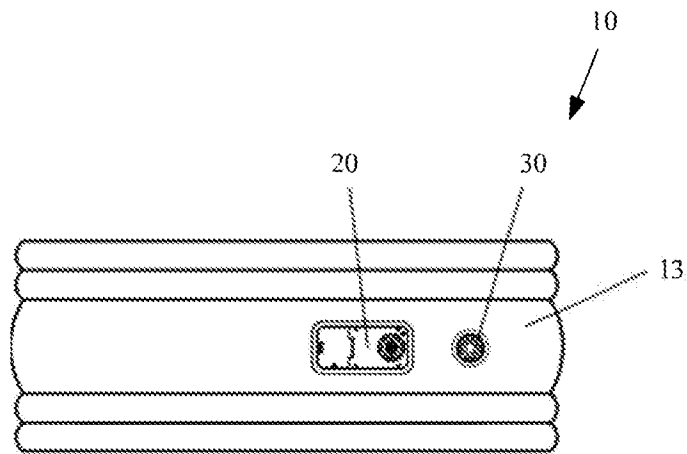


Fig. 3

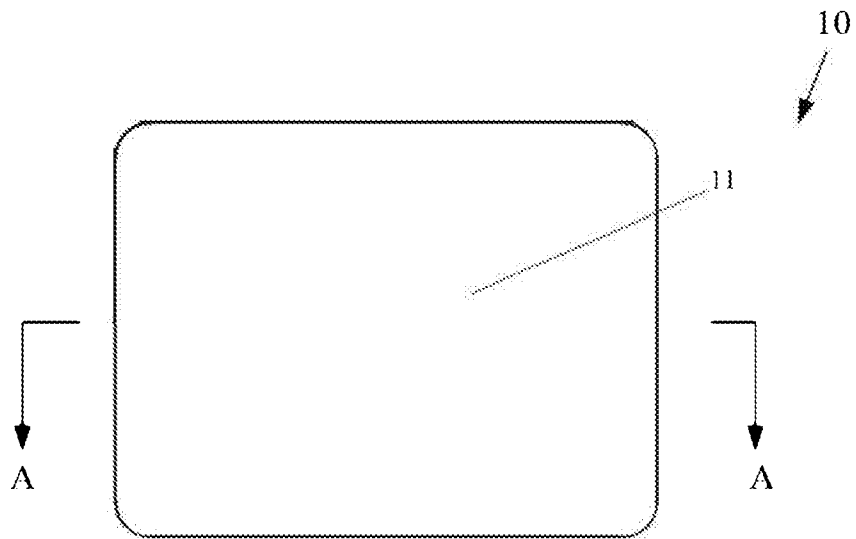


Fig. 4

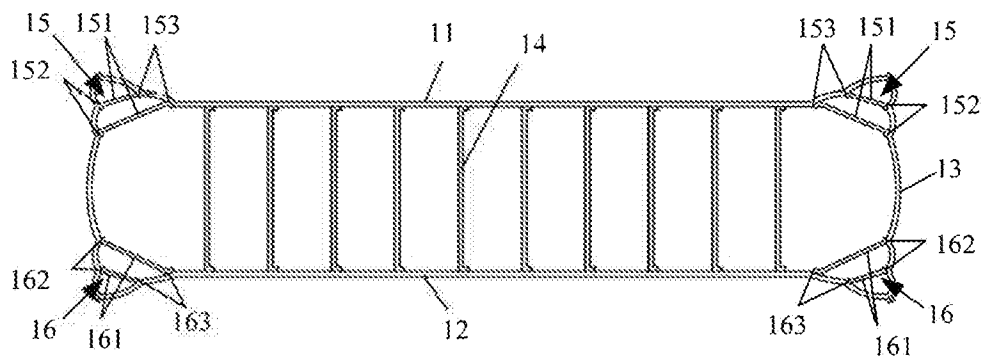


Fig. 5

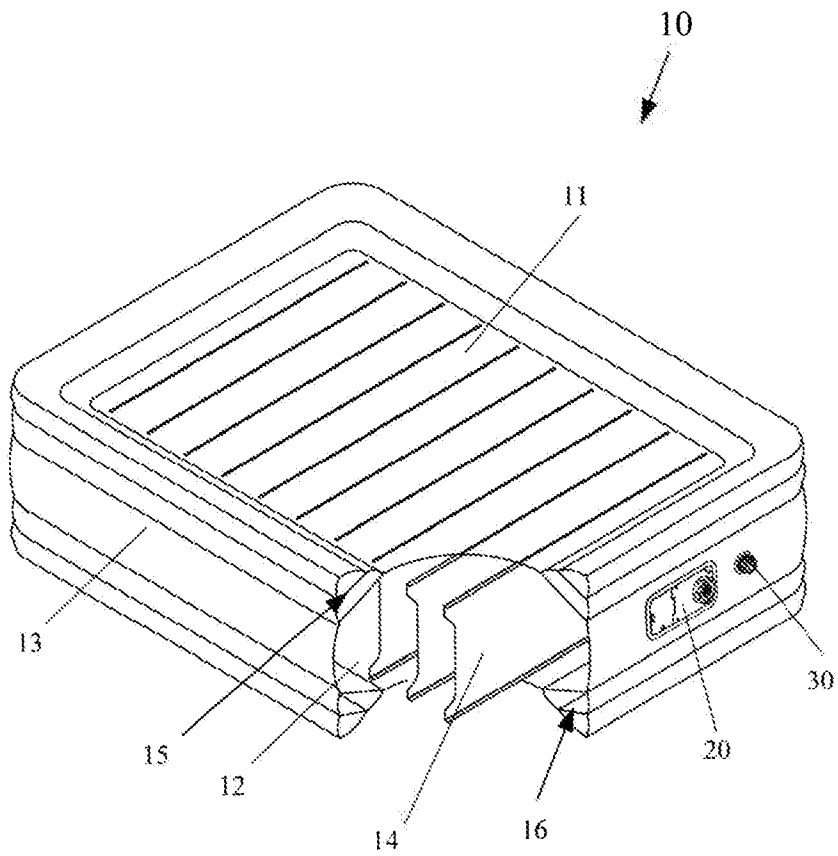


Fig. 6

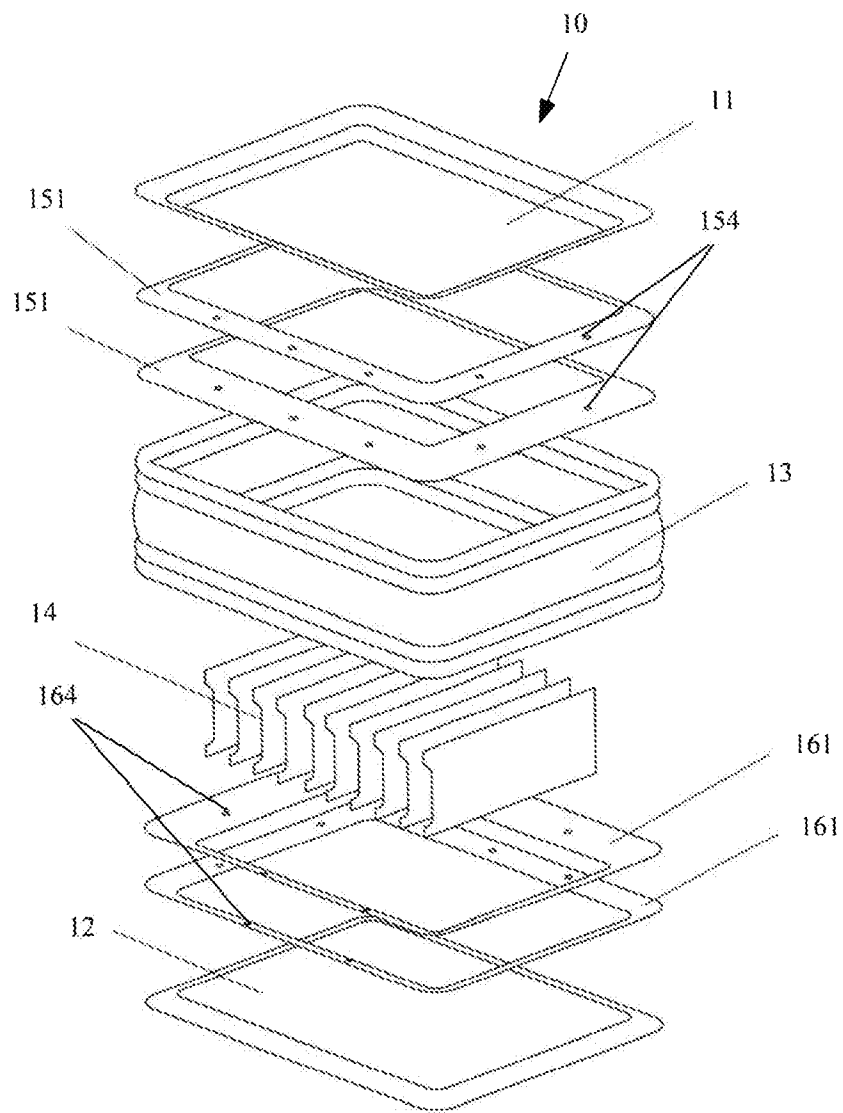


Fig. 7

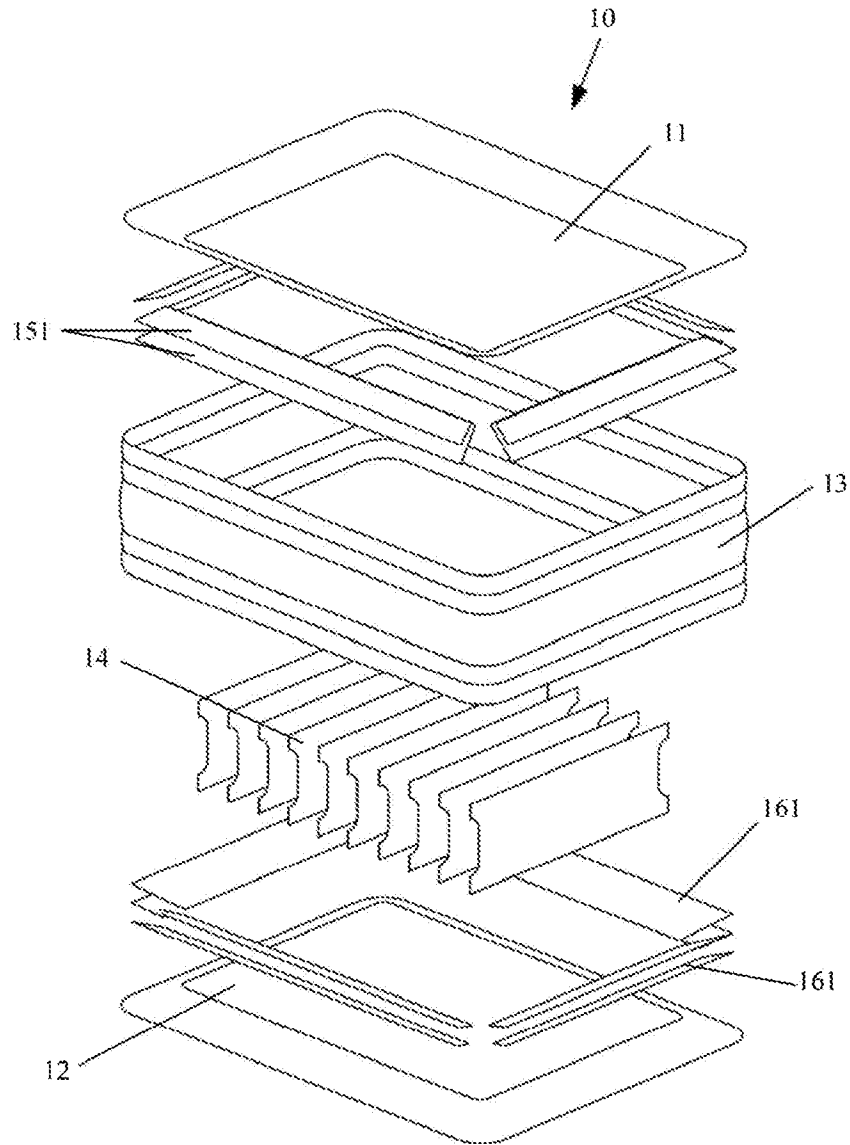


Fig. 8

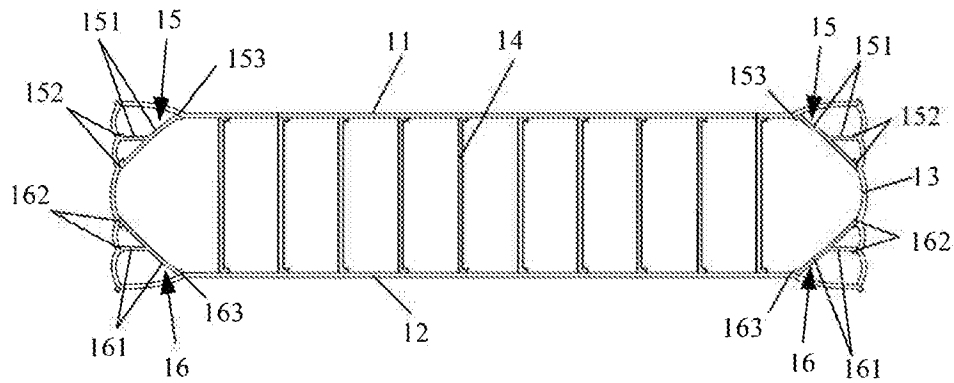


Fig. 9

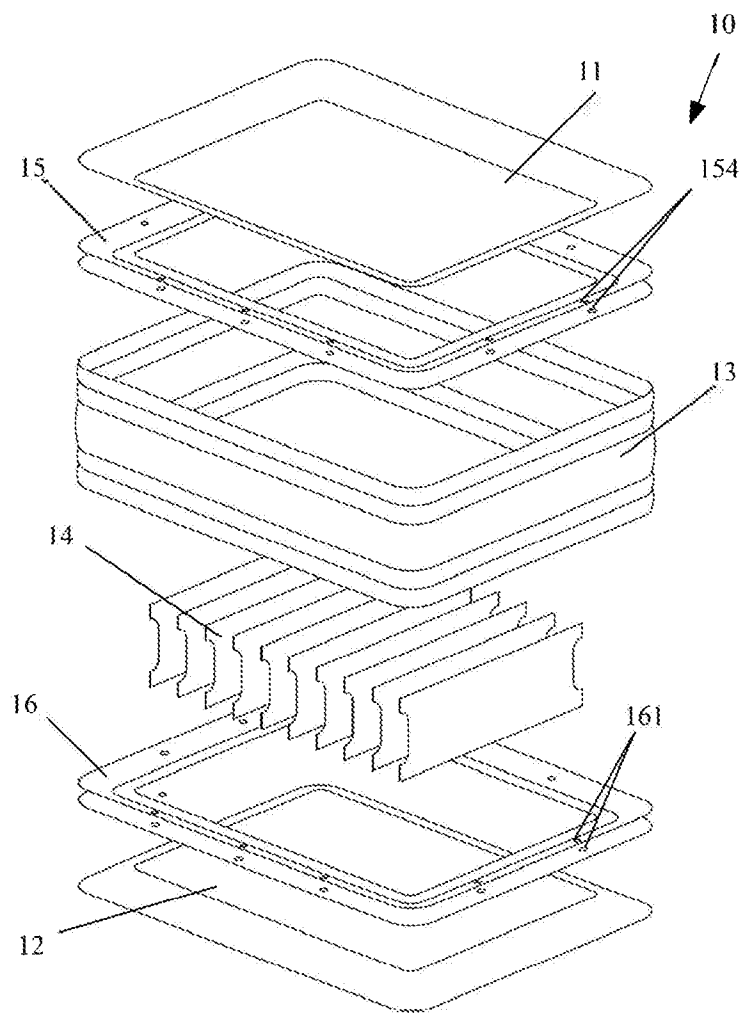


Fig. 10

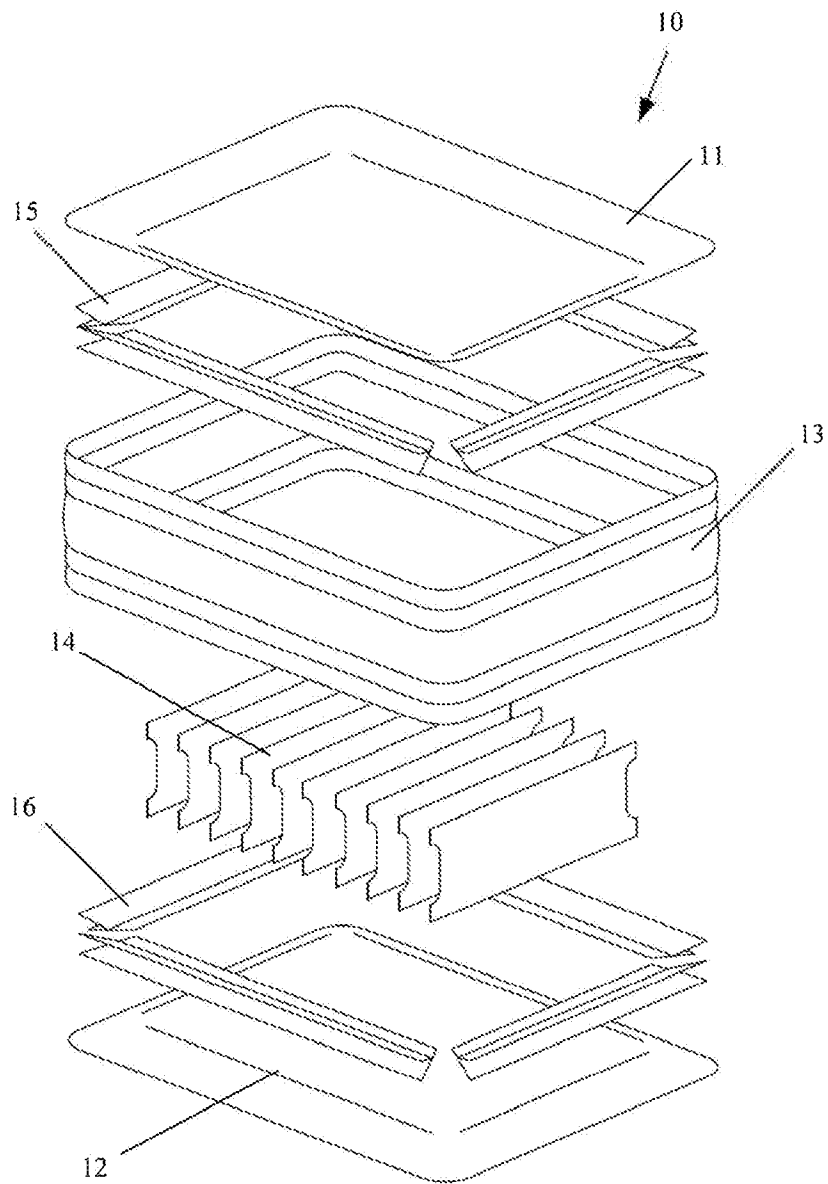


Fig. 11

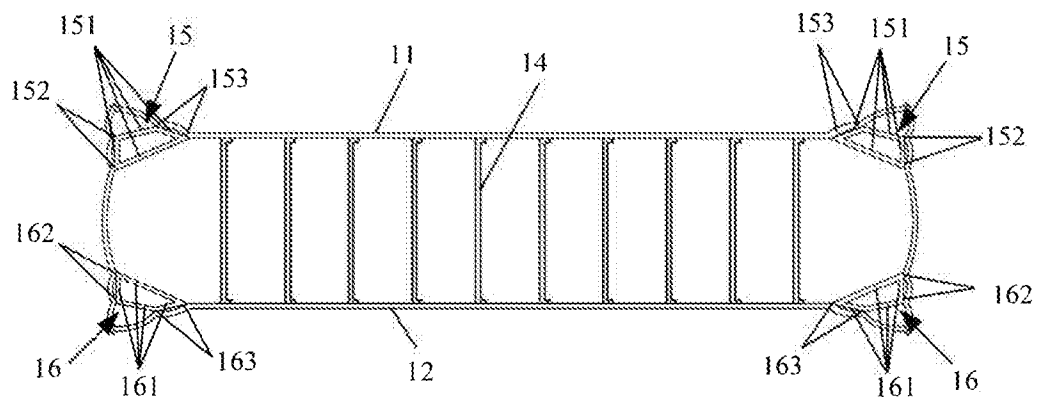


Fig. 12

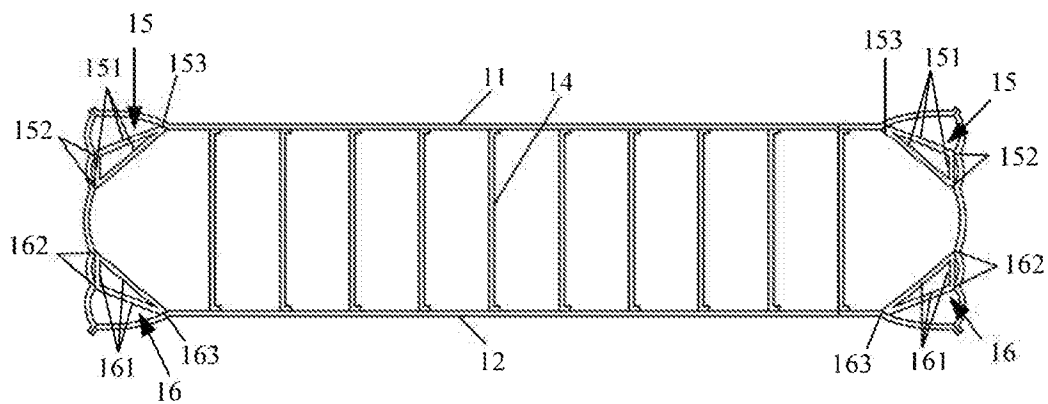


Fig. 13

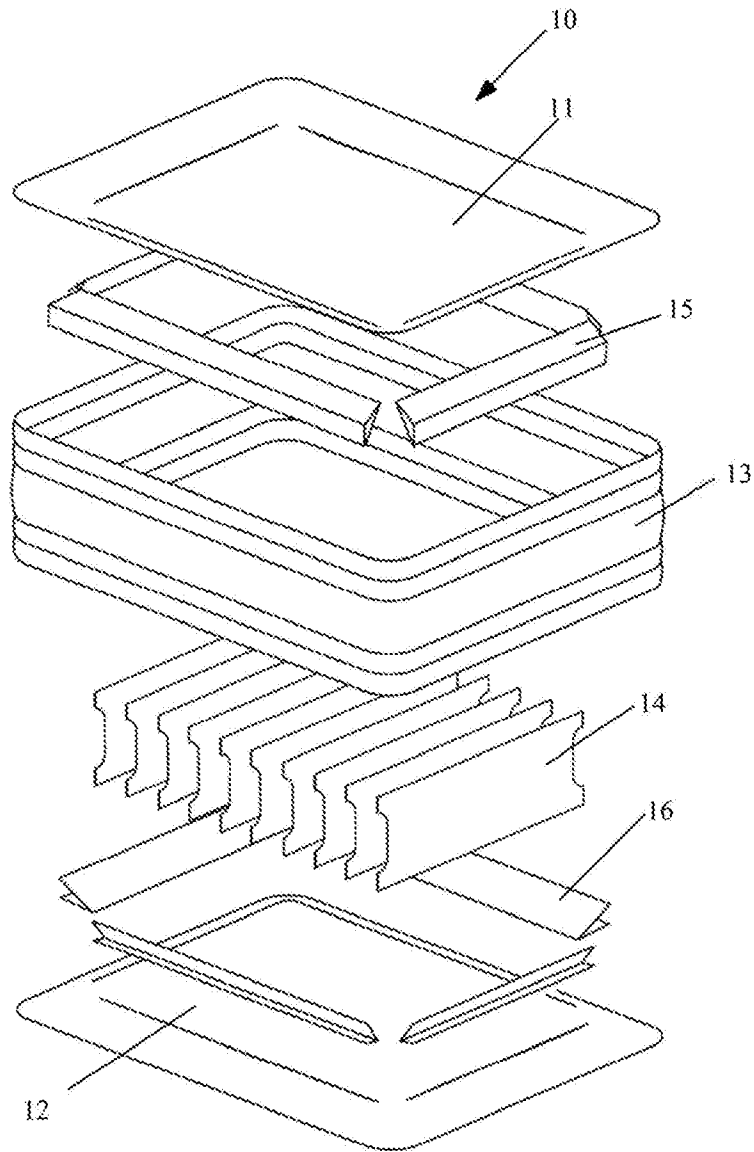


Fig. 14

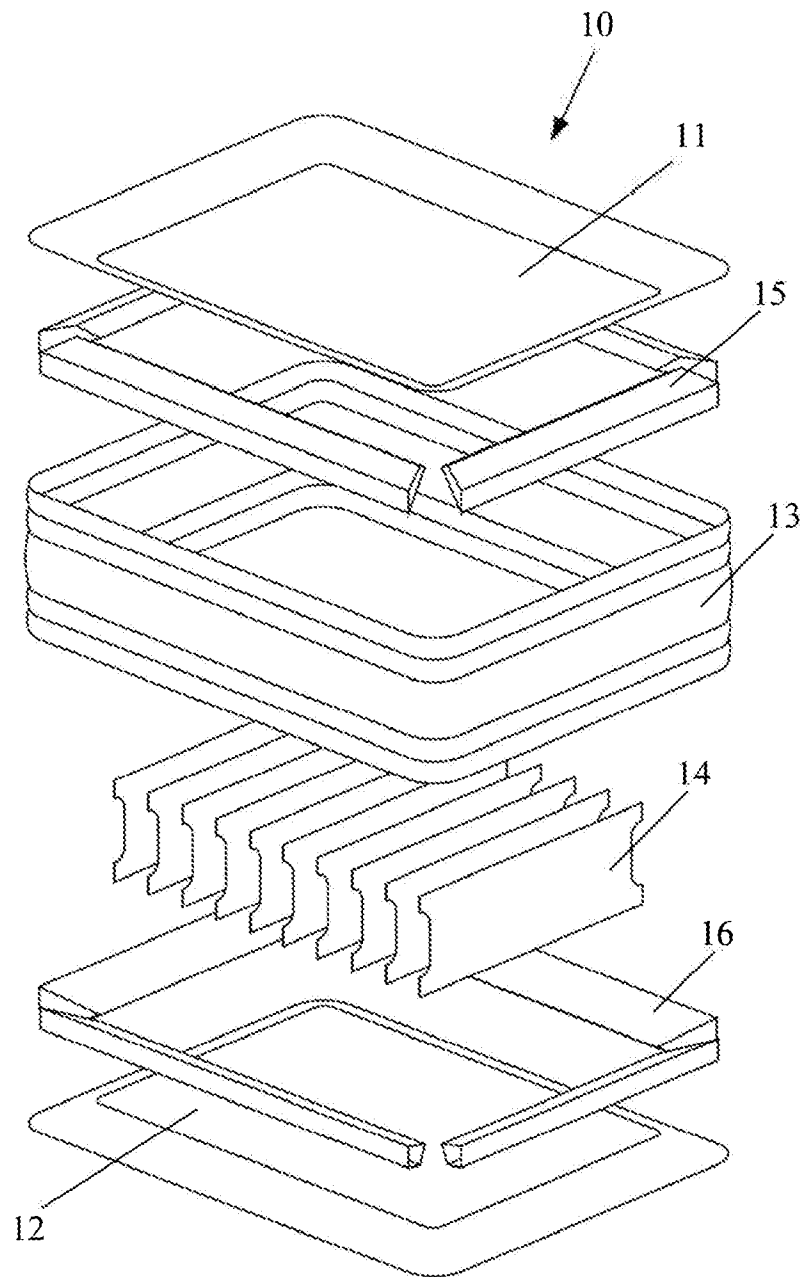


Fig. 15

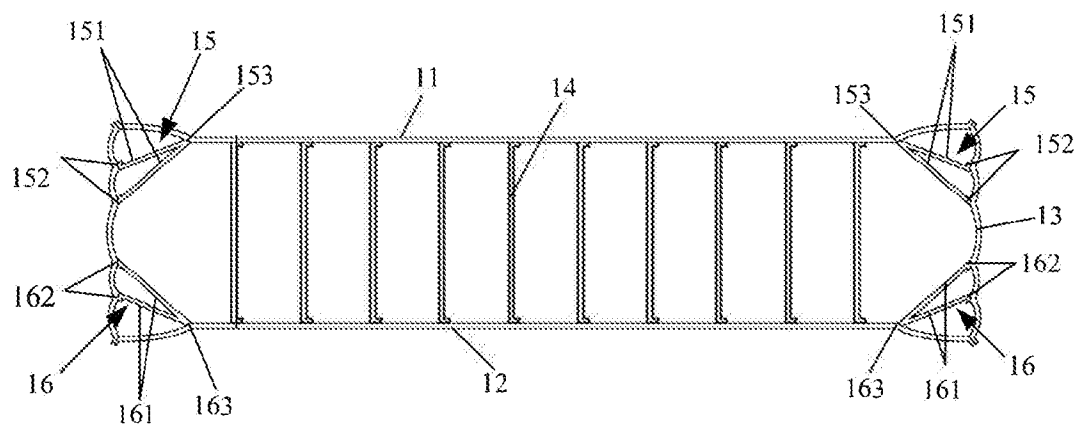


Fig. 16

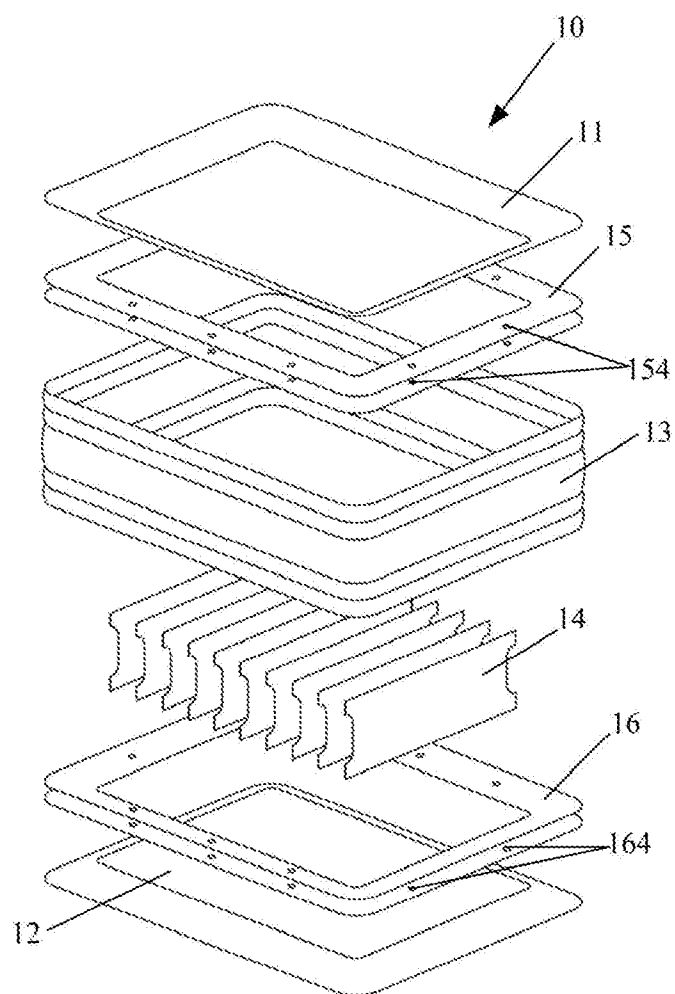


Fig. 17

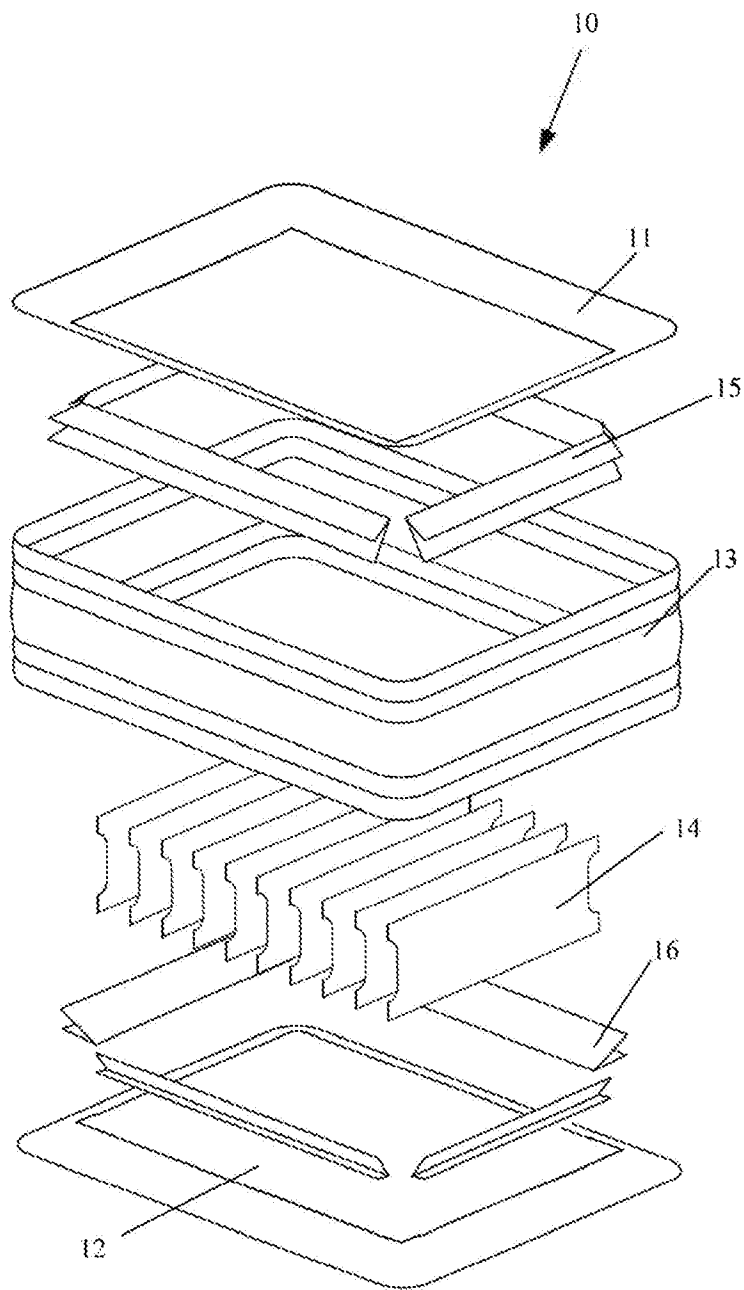


Fig. 18

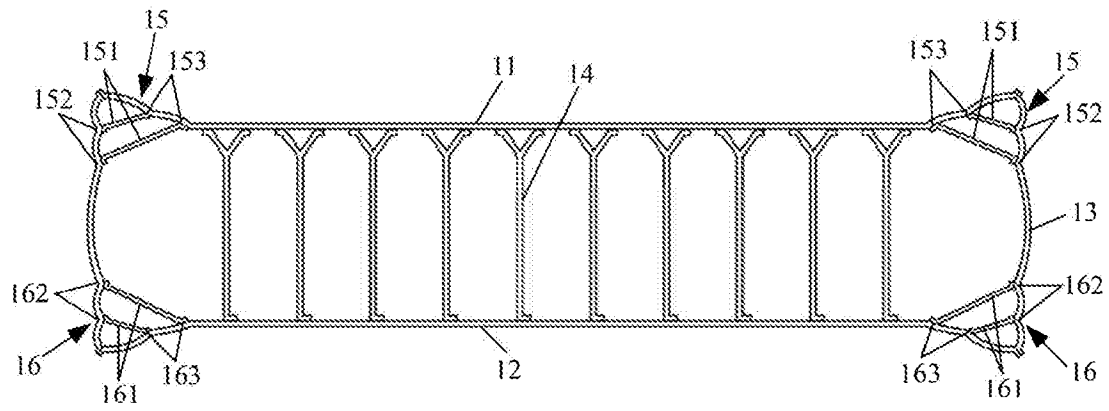


Fig. 19

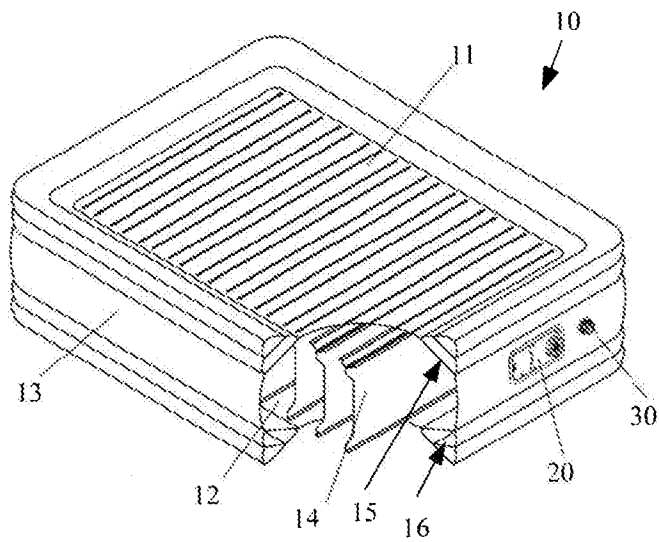


Fig. 20

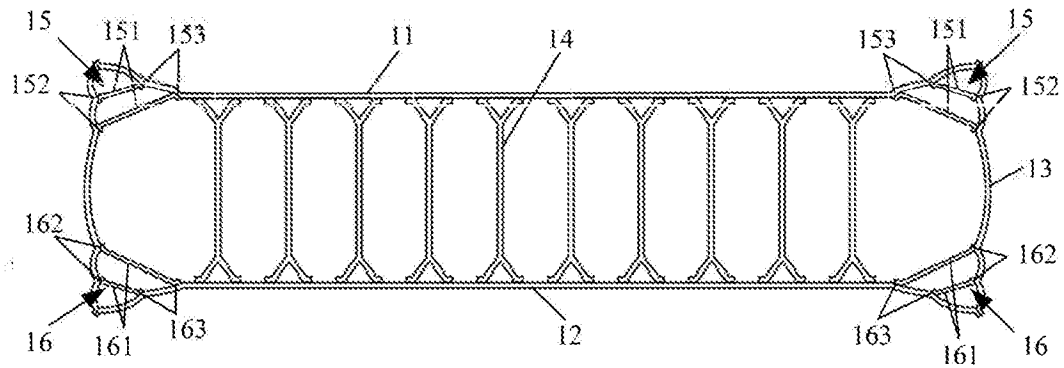


Fig. 21

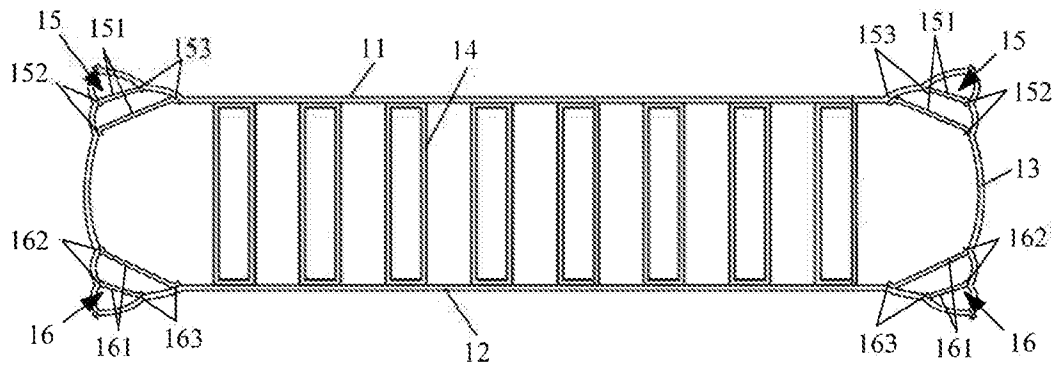


Fig. 22

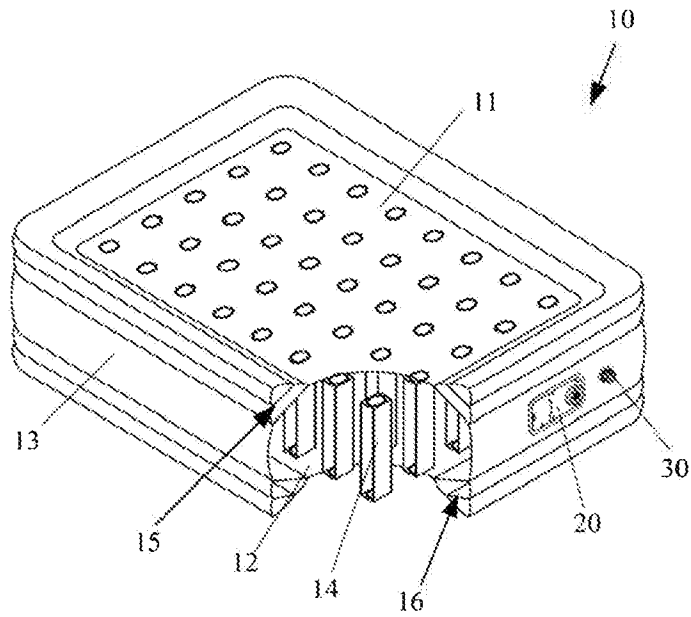


Fig. 23

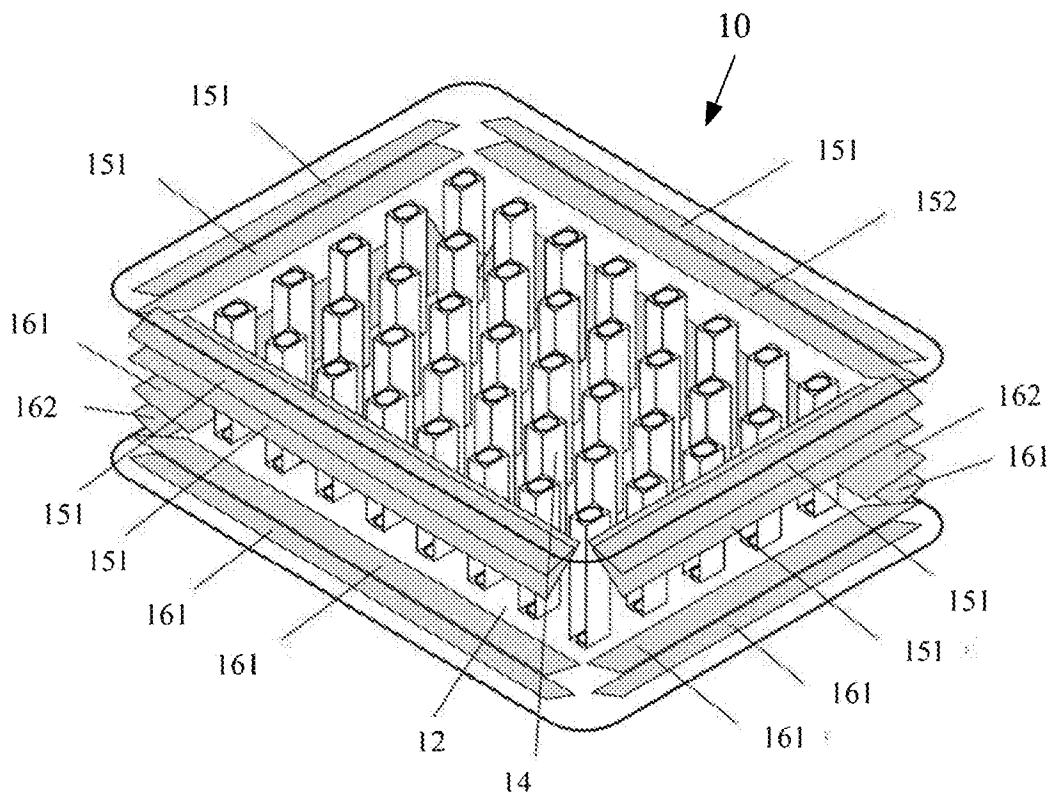


Fig. 24

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		Application Number	
Title of Invention	INFLATABLE BED		
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City	Shanghai		State/Province		
Postal Code	201812		Country ⁱ	CN	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	35161		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	INFLATABLE BED		
Attorney Docket Number	81610.1025/P16-014US-CON	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	16	Suggested Figure for Publication (if any)	

INTEX EX. 1055, Pg. 48

Intex Recreation v. Bestway Inflatables

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	81610.1025/P16-014US-CON
		Application Number	
Title of Invention	INFLATABLE BED		

Filing By Reference:

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

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

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

Publication Information:

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

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

Representative Information:

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

Please Select One:	☒ Customer Number	US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	35161		

Domestic Benefit/National Stage Information:

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

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15280513	2016-09-29

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

[Add](#)

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	81610.1025/P16-014US-CON
		Application Number	
Title of Invention	INFLATABLE BED		

Foreign Priority Information:

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

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
201610020533.5	CN	2016-01-13	
			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
201620031074.6	CN	2016-01-13	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	81610.1025/P16-014US-CON
		Application Number	
Title of Invention	INFLATABLE BED		

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	81610.1025/P16-014US-CON
		Application Number	
Title of Invention	INFLATABLE BED		

Applicant Information:

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

Applicant	1	Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear		
Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
☐ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
Name of the Deceased or Legally Incapacitated Inventor:		
If the Applicant is an Organization check here. ☒		
Organization Name	BESTWAY INFLATABLES & MATERIAL CORP.	
Mailing Address Information For Applicant:		
Address 1	No. 208 Jinyuanwu Road	
Address 2		
City	Shanghai	State/Province
Country	CN	Postal Code
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	81610.1025/P16-014US-CON
		Application Number	
Title of Invention	INFLATABLE BED		

Assignee	1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				Remove
If the Assignee or Non-Applicant Assignee is an Organization check here.				☐
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				Add

Signature:

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

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

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

Signature	/Nan Jiang/		Date (YYYY-MM-DD)	2020-06-22
First Name	Nan	Last Name	Jiang	Registration Number
				73350
Additional Signature may be generated within this form by selecting the Add button.				Add

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	81610.1025/P16-014US-CON
		Application Number	
Title of Invention	INFLATABLE BED		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

**Title of
Invention**

INFLATABLE BED

As the below named inventor, I hereby declare that:

This declaration
is directed to:



The attached application, or



United States application or PCT international application number _____
filed on _____

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

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

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

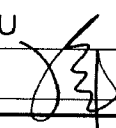
WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: Feng LIU

Date (Optional): June 23, 2016

Signature: 

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

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

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

Privacy Act Statement

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

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

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



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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/907,893	06/22/2020		1720	81610.1025/P16-014US-CON	20	3

CONFIRMATION NO. 5328

FILING RECEIPT



0000000118145129

35161
DICKINSON WRIGHT PLLC
1825 EYE ST., NW
SUITE 900
WASHINGTON, DC 20006

Date Mailed: 07/02/2020

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

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

Inventor(s)

Feng LIU, Shanghai, CHINA;

Applicant(s)

BESTWAY INFLATABLES & MATERIAL CORP., Shanghai, CHINA

Power of Attorney: The patent practitioners associated with Customer Number 35161

Domestic Priority data as claimed by applicant

This application is a CON of 15/280,513 09/29/2016 PAT 10687633

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

CHINA 201610020533.5 01/13/2016 No Access Code Provided

CHINA 201620031074.6 01/13/2016 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

If Required, Foreign Filing License Granted: 06/30/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/907,893**

Projected Publication Date: 10/08/2020

Non-Publication Request: No

Early Publication Request: No
Title

INFLATABLE BED

Preliminary Class

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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

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

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/907,893			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760		
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *			OR	x 100 =	0.00		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *				x 460 =	0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00		
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1720		
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =		
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =		
	Application Size Fee (37 CFR 1.16(s))					OR			
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR			
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE			
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =		
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =		
	Application Size Fee (37 CFR 1.16(s))					OR			
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR			
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/907,893	06/22/2020	Feng LIU	81610.1025/P16-014US-CON

CONFIRMATION NO. 5328

35161
DICKINSON WRIGHT PLLC
1825 EYE ST., NW
SUITE 900
WASHINGTON, DC 20006

PUBLICATION NOTICE



OC000000120508443

Title:INFLATABLE BED

Publication No.US-2020-0315366-A1

Publication Date:10/08/2020

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

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Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: 81610.01025/P16-014US-CON

Feng LIU

Appln. No.: 16/907,893

Group Art Unit: not yet assigned

Confirmation No.: not yet assigned

Examiner: not yet assigned

Filed: June 22, 2020

For: INFLATABLE BED

PRELIMINARY AMENDMENT

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

Commissioner:

Prior to examination on the merits, please amend the above-identified Application as follows on the accompanying pages.

TABLE OF CONTENTS

<u>AMENDMENTS TO THE CLAIMS</u>	2
<u>REMARKS</u>	11

Electronic Patent Application Fee Transmittal

Application Number:	16907893			
Filing Date:	22-Jun-2020			
Title of Invention:	INFLATABLE BED			
First Named Inventor/Applicant Name:	Feng LIU			
Filer:	Allen Jeffrey Moss/Ariana Sanchez			
Attorney Docket Number:	81610.1025/P16-014US-CON			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	7	100	700
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	480	480
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1180

Electronic Acknowledgement Receipt

EFS ID:	43122044
Application Number:	16907893
International Application Number:	
Confirmation Number:	5328
Title of Invention:	INFLATABLE BED
First Named Inventor/Applicant Name:	Feng LIU
Customer Number:	35161
Filer:	Allen Jeffrey Moss/Ariana Sanchez
Filer Authorized By:	Allen Jeffrey Moss
Attorney Docket Number:	81610.1025/P16-014US-CON
Receipt Date:	29-JUN-2021
Filing Date:	22-JUN-2020
Time Stamp:	15:32:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1180
RAM confirmation Number	E20216SF33040103
Deposit Account	041061
Authorized User	Ariana Sanchez

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

INTEX EX. 1055, Pg. 66

Intex Recreation v. Bestway Inflatables

37 CFR 1.19 (Document supply fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Preliminary.pdf	98975	yes	11
			d5b0c517a2cade153652717eb1bb246c56b7c9f9		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Applicant Arguments/Remarks Made in an Amendment		11	11	
	Claims		2	10	
	Preliminary Amendment		1	1	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	31847	no	2
			ad14200ce767934bdc615dd61992b735a123b8bc		
Warnings:					
Information:					
Total Files Size (in bytes):			130822		

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

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New International Application Filed with the USPTO as a Receiving Office

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REMARKS

Entry of these amendments is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 04-1061. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Laura Moskowitz/

Laura Moskowitz, reg. no. 55,470

Dickinson Wright PLLC
1825 Eye St. N.W. Suite 900
Washington, D.C. 20006
202-659-6961

Date: June 29, 2021

AMENDMENTS TO THE CLAIMS

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

LISTING OF CLAIMS:

1. (Original) An inflatable bed, comprising:
 - a top sheet having a generally rectangular shape;
 - a bottom sheet having a generally rectangular shape spaced apart from said top sheet;
 - at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;
 - at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet;
 - a second tensioning structure located in said air chamber and including a first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall, and said top sheet;
 - a third tensioning structure located in said air chamber and including a first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall, and said bottom sheet; and
 - at least one of:

a second upper beam tensioning structure located in said first upper beam space further extending between and drawing together said at least one side wall and said top sheet; and

a second lower beam tensioning structure located in said first lower beam space further extending between and drawing together said at least one side wall and said bottom sheet.

2. (Original) The inflatable bed according claim 1, wherein said second tensioning structure further includes said second upper beam tensioning structure located in said first upper beam space.

3. (Original) The inflatable bed according claim 2, wherein said second upper beam tensioning structure draws together said at least one side wall and said top sheet to form a bulge along said top periphery.

4. (Original) The inflatable bed according to claim 2, wherein said first upper beam tensioning structure forms a first upper oblique angle with respect to said at least one side wall and wherein said second upper beam tensioning structure forms a second upper oblique angle with respect to said at least one side wall, and wherein said first upper oblique angle is different than said second upper oblique angle.

5. (Original) The inflatable bed according to claim 2, wherein said first upper beam tensioning structure is segmented along said at least one side wall.

6. (Original) The inflatable bed according claim 1, wherein said third tensioning structure further includes said second lower beam tensioning structure located in said first lower beam space.

7. (Original) The inflatable bed according claim 6, wherein said second lower beam tensioning structure draws together said at least one side wall and said bottom sheet to form a bulge along said bottom periphery.

8. (Original) The inflatable bed according to claim 6, wherein said first lower beam tensioning structure forms a first lower oblique angle with respect to said at least one side wall and wherein said second lower beam tensioning member forms a second lower oblique angle with respect to said at least one side wall, and wherein said first lower oblique angle is different than said second lower oblique angle.

9. (Original) The inflatable bed according to claim 6, wherein said first lower beam tensioning structure is segmented along said at least one side wall.

10. (Original) The inflatable bed according claim 1, wherein said second tensioning structure further includes said second upper beam tensioning structure located in said first upper beam space, and wherein said third tensioning structure further includes a second lower beam tensioning structure located in said first lower beam space.

11. (Original) The inflatable bed according claim 1, wherein at least one of said first upper beam tensioning structure and said second upper beam tensioning structure extends along said at least one side wall, traversing less than a full periphery of said at least one side wall.

12. (Original) The inflatable bed according claim 1, wherein at least one of said first lower beam tensioning structure and said second lower beam tensioning structure extend along said at least one side wall, traversing less than a full periphery of said at least one side wall.

13. (Original) The inflatable bed according claim 1, wherein said second tensioning structure and said third tensioning structure both extend along said at least one side wall, traversing less than a full periphery of said at least one side wall.

14. (Original) The inflatable bed according claim 1, wherein said side wall defines a width between said top sheet and said bottom sheet, and wherein along said side wall, a first distance is defined between said second upper tensioning structure and said top sheet and a second distance is defined between said second lower tensioning structure and said bottom sheet, wherein said first distance and said second distance are less than half of said width.

15. (Original) The inflatable bed according claim 1, wherein said at least one first tensioning structure extends parallel to a lateral direction of said rectangular shape of said top sheet and said bottom sheet and perpendicular to a longitudinal direction of said rectangular shape of said top sheet and said bottom sheet.

16. (Original) The inflatable bed according claim 15, wherein said at least one first tensioning structure includes a plurality of first tensioning structures spaced in a parallel relationship.

17. (Original) The inflatable bed according claim 16, wherein said plurality of first tensioning structures are spaced from said at least one side wall.

18. (Canceled).

19. (Currently amended) The inflatable bed according ~~claim 18~~claim 10, wherein said first lower beam tensioning structure is segmented along said at least one side wall and said first upper beam tensioning structure is segmented along said at least one side wall.

20. (Original) An inflatable bed, comprising:
a top sheet having a generally rectangular shape;
a bottom sheet having a generally rectangular shape spaced apart from said top sheet;
at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;
at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet;

a second tensioning structure located in said air chamber and including a first upper beam tensioning structure that is segmented, said first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall and said top sheet;

said second tensioning structure further including a second upper beam tensioning structure located in said first upper beam space further drawing together said at least one side wall and said top sheet to form a bulge along said top periphery;

a third tensioning structure located in said air chamber and including a first lower beam tensioning structure that is segmented, said first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall and said bottom sheet;

said third tensioning structure further including a second lower beam tensioning structure located in said second lower beam space further drawing together said at least one side wall and said bottom sheet; and

wherein said at least one first tensioning structure is spaced from said at least one side wall and extends parallel to a lateral direction of said rectangular shape of said top sheet and said bottom sheet and perpendicular to a longitudinal direction of said rectangular shape of said top sheet and said bottom sheet.

21. (New) An inflatable bed comprising:

a top sheet;

a bottom sheet spaced apart from said top sheet;

a side wall coupled to and extending between an outer periphery of said top sheet and an outer periphery of said bottom sheet, thereby defining an air chamber bounded by said top sheet, said bottom sheet, and said side wall;

a first tensioning structure disposed in said air chamber and extending between said top sheet and said bottom sheet;

a second tensioning structure disposed in said air chamber and comprising:

a first upper tensioning structure coupled to and extending between said top sheet and said side wall, thereby defining an upper beam space bounded by said top sheet, said side wall, and said first upper tensioning structure, and

a second upper tensioning structure disposed in said upper beam space and coupled to and extending between said top sheet and said side wall;

a third tensioning structure disposed in said air chamber and comprising:

a first lower tensioning structure coupled to and extending between said bottom sheet and said side wall, thereby defining a lower beam space bounded by said bottom sheet, said side wall, and said first lower tensioning structure, and

a second lower tensioning structure disposed in said lower beam space and coupled to and extending between said bottom sheet and said side wall;

wherein at least one of:

an attachment between said top sheet and said first upper tensioning structure is spaced apart from an attachment between said top sheet and said second upper tensioning structure, and

an attachment between said bottom sheet and said first lower tensioning structure is spaced apart from an attachment between said bottom sheet and said second lower tensioning structure.

22. (New) The inflatable bed according to claim 21, said first tensioning structure comprising a plurality of first tensioning structures evenly spaced within the air chamber.

23. (New) The inflatable bed according to claim 21, each of said top sheet and said bottom sheet being substantially rectangular.

24. (New) The inflatable bed according to claim 21, a coupling between said side wall and said top sheet comprising a welded seam, and a coupling between said side wall and said bottom sheet comprising a welded seam.

25. (New) The inflatable bed according to claim 21, further comprising an upper welded seam connecting said first tensioning structure to said top sheet, and a lower welded seam connecting said first tensioning structure to said bottom sheet.

26. (New) An inflatable bed, comprising:
a top sheet;
a bottom sheet;
at least one side wall extending between said top sheet and said bottom sheet to define an air chamber;

a plurality of first tensioning structures each extending between and drawing together said top sheet and said bottom sheet;

a second tensioning structure comprising:

a first upper beam coupled to said top sheet along a first upper welded seam and coupled to said side wall along a first middle welded seam; and

a second upper beam coupled to said top sheet along a second upper welded seam and coupled to said side wall along a second middle welded seam; and

a third tensioning structure comprising:

a first lower beam coupled to said bottom sheet along a first lower welded seam and coupled to said side wall along a third middle welded seam; and

a second lower beam coupled to said bottom sheet along a second lower welded seam and coupled to said side wall along a fourth middle welded seam.

27. (New) The inflatable bed according claim 26, wherein the first upper welded seam is spaced apart from the second upper welded seam.

28. (New) The inflatable bed according claim 26, wherein the first upper welded seam is in same position to the second upper welded seam.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/907,893		Filing Date 06/22/2020		☐ To be Mailed			
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO											
APPLICATION AS FILED - PART I											
		(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 = *				x \$100 =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *				x \$460 =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))											
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL					
APPLICATION AS AMENDED - PART II											
		(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	06/29/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 27	Minus	** 20	= 7		x \$100 =		700		
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 3	= 1		x \$480 =		480		
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
								TOTAL ADD'L FEE		1180	
		(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=		x \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x \$0 =				
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
								TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.								LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".								/DEBORAH D SCOTT/			
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The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.											

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/907,893	06/22/2020		1720	81610.1025/P16-014US-CON	20	3

CONFIRMATION NO. 5328

FILING RECEIPT



0000000118145129

35161
DICKINSON WRIGHT PLLC
1825 EYE ST., NW
SUITE 900
WASHINGTON, DC 20006

Date Mailed: 07/02/2020

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

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Inventor(s)

Feng LIU, Shanghai, CHINA;

Applicant(s)

BESTWAY INFLATABLES & MATERIAL CORP., Shanghai, CHINA

Power of Attorney: The patent practitioners associated with Customer Number 35161

Domestic Priority data as claimed by applicant

This application is a CON of 15/280,513 09/29/2016 PAT 10687633

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CHINA 201610020533.5 01/13/2016 ~~No Access Code Provided~~

CHINA 201620031074.6 01/13/2016 ~~No Access Code Provided~~

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Permission to Access Application via Priority Document Exchange: Yes

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

If Required, Foreign Filing License Granted: 06/30/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/907,893**

Projected Publication Date: 10/08/2020

Non-Publication Request: No

Early Publication Request: No
Title

INFLATABLE BED

Preliminary Class

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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NOT GRANTED

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

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Confirmation No. 5328

Application No.: 16/907,893
Filing Date: 06-22-2020
Inventors: Feng LIU
Group Art Unit: Not yet assigned

Examiner: Not yet assigned
Title: INFLATABLE BED
Attorney Docket No. 81610.01025

REQUEST FOR CORRECTED FILING RECEIPT

Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Commissioner:

Applicant hereby requests that a Corrected Filing Receipt be issued in the above-identified patent application. The Filing Receipt received by Applicant has an error in:

Foreign Applications:

Currently reads: "CHINA 201620031074.6 01-13-2016 No Access Code Provided"
"CHINA 201610020533.5 01-13-2016 No Access Code Provided"

Should read: --CHINA 201620031074.6 01-13-2016 Access Code Provided--
--CHINA 201610020533.5 01-13-2016 Access Code Provided--

A copy of the marked-up Filing Receipt and an Application Data Sheet are attached.

Applicant additionally requests that all pertinent U.S. Patent and Trademark Office records relating to the subject application be changed to reflect this correction.

Respectfully submitted,

September 28, 2021
Date

By: /Laura E. Moskowitz/
Laura E. Moskowitz
Attorney for Applicant
Reg. No. 55470

Dickinson Wright PLLC
1825 Eye St. N.W. Suite 900
Washington, D.C. 20006
202-659-6961

4838-1579-5708 v1 [81610-1025]

Application Data Sheet

Application Information

Application number::	16/907,893
Filing Date::	06-22-2020
Application Type::	Regular
Subject Matter::	Utility
Suggested Group Art Unit::	None
CD-ROM or CD-R?::	None
Sequence submission?::	None
Computer Readable Form (CRF)?::	No
Title::	INFLATABLE BED
Attorney Docket Number::	81610.01025
Request for Early Publication?::	No
Request for Non-Publication?::	No
Total Drawing Sheets::	16
Small Entity?::	No
Petition included?::	No
Secrecy Order in Parent Appl.?::	No

Foreign Priority Information

Country::	Application number::	Filing Date::	Access Code (if applicable)
CN	201620031074.6	01-13-2016	<u>9EF8</u>
CN	201610020533.5	01-13-2016	<u>9EE1</u>

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.			
Signature	/Laura E. Moskowitz/	Date	September 28, 2021
Name (Print/Type)	Laura E. Moskowitz	Registration No. (Attorney/Agent)	55470

Electronic Acknowledgement Receipt

EFS ID:	43889344
Application Number:	16907893
International Application Number:	
Confirmation Number:	5328
Title of Invention:	INFLATABLE BED
First Named Inventor/Applicant Name:	Feng LIU
Customer Number:	35161
Filer:	Allen Jeffrey Moss/Ariana Sanchez
Filer Authorized By:	Allen Jeffrey Moss
Attorney Docket Number:	81610.1025/P16-014US-CON
Receipt Date:	28-SEP-2021
Filing Date:	22-JUN-2020
Time Stamp:	15:48:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	Filing.pdf	189369	no	3
			9e41a23f8007296c171e47f209eac6eb6fda a921		

Warnings:

Information:					
2	Request for Corrected Filing Receipt	Request.pdf	100596	no	2
			d846b3ef5fd9917aac575e97e611521011bf07bd		
Warnings:					
Information:					
3	Application Data Sheet	Supplemental.pdf	61787	no	2
			21f8fd7ecf349b3b67ad3795aa28db843938bcea		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			351752		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

CERTIFICATE OF AVAILABILITY OF A CERTIFIED UTILITY MODEL DOCUMENT IN A DIGITAL LIBRARY

The International Bureau certifies that a copy of the utility model application indicated below has been available to the WIPO Digital Access Service since the date of availability indicated, and that the utility model application has been available to the indicated Office(s) as of the date specified following the relevant Office code:

Document details: Country/Office: CN

Filing date: 13 Jan 2016 (13.01.2016)

Application number: 2016200310746

Date of availability of document: 23 Sep 2021 (23.09.2021)

The following Offices can retrieve this document by using the access code:

AR, AT, AU, CL, CN, CO, DK, EE, ES, FI, GE, IB, JP, KR, MX, NL

Date of issue of this certificate: 30 Sep 2021 (30.09.2021)



证 明

本证明之附件是向本局提交的下列专利申请文件副本。

申 请 号：201620031074.6

申 请 类 型：实用新型专利

发 明 创 造 名 称：充气床

申 请 日：2016 年 01 月 13 日

申 请 人：上海荣威塑胶工业有限公司

发明人或设计人：刘峰

局长

申长雨

2016 年 11 月 08 日

权 利 要 求 书

1、一种充气床，其特征在于，所述充气床包括：

顶片和底片，所述底片与所述顶片上下间隔布置；

至少一侧壁，所述侧壁的上边缘与所述顶片的外边缘连接，所述侧壁的下边缘与所述底片的外边缘连接，所述顶片、所述底片和所述侧壁之间形成一个气室；

至少一第一拉带结构，所述第一拉带结构设置在所述气室内，且所述第一拉带结构的上下两端分别与所述顶片和所述底片连接；以及

至少一支撑结构，设置在所述气室内，所述支撑结构沿至少一所述侧壁的长度方向设置，所述支撑结构中至少两个外侧边缘分别与相邻的所述侧壁连接，所述支撑结构中至少一个内侧边缘与相邻的所述顶片或所述底片连接。

2、如权利要求 1 所述的充气床，其特征在于，所述支撑结构包括第二拉带结构和第三拉带结构，所述第二拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第二拉带结构中至少一个内侧边缘与相邻的所述顶片连接；以及

所述第三拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第三拉带结构中至少一个内侧边缘与相邻的所述底片连接。

3、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构和所述第三拉带结构上分别设有多个气孔，所述气室通过所述气孔形成空气流通。

4、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构和所述第三拉带结构在垂直方向间隔布置。

5、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少两个第一 I 型拉带，每一所述第一 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述顶片连接，且至少两个所述第一 I 型拉带间隔布置。

6、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少



两个第二 I 型拉带，每一所述第二 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述底片连接，且至少两个所述第二 I 型拉带间隔布置。

7、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少一个第一 Y 型拉带，其中，所述第一 Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述顶片连接。

8、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少一个第二 Y 型拉带，其中，所述第二 Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述底片连接。

9、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少一个第一管型拉带，所述第一管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述顶片连接。

10、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少一个第二管型拉带，所述第二管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述底片连接。

11、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少一个第一 V 型拉带，其中，所述第一 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述顶片连接。

12、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少一个第二 V 型拉带，其中，所述第二 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述底片连接。

13、如权利要求 5 所述的充气床，其特征在于，所述至少两个第一 I 型拉带相互间隔地排布于所述顶片的下表面。

14、如权利要求 6 所述的充气床，其特征在于，所述至少两个第二 I 型拉



带相互间隔地排布于所述底片的上表面。

15、如权利要求 5 所述的充气床，其特征在于，所述至少两个第一 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

16、如权利要求 6 所述的充气床，其特征在于，所述至少两个第二 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

17、如权利要求 7 所述的充气床，其特征在于，所述至少一个第一 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

18、如权利要求 8 所述的充气床，其特征在于，所述至少一个第二 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

19、如权利要求 9 所述的充气床，其特征在于，所述至少一个第一管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

20、如权利要求 10 所述的充气床，其特征在于，所述至少一个第二管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

21、如权利要求 11 所述的充气床，其特征在于，所述至少一个第一 V 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

22、如权利要求 12 所述的充气床，其特征在于，所述至少一个第二 V 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

23、如权利要求 5 所述的充气床，其特征在于，所述至少两个第一 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

24、如权利要求 6 所述的充气床，其特征在于，所述至少两个第二 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

25、如权利要求 7 所述的充气床，其特征在于，所述至少一个第一 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

26、如权利要求 8 所述的充气床，其特征在于，所述至少一个第二 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

27、如权利要求 9 所述的充气床，其特征在于，所述至少一个第一管型拉带整体为一个间断的环形结构。

28、如权利要求 10 所述的充气床，其特征在于，所述至少一个第二管型拉带整体为一个间断的环形结构。

29、如权利要求 11 所述的充气床，其特征在于，所述至少一个第一 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

30、如权利要求 12 所述的充气床，其特征在于，所述至少一个第二 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

31、如权利要求 1 所述的充气床，其特征在于，所述第一拉带结构为直拉带、圆孔拉带、Y 型拉带或 X 型拉带其中一种拉带或多种拉带。

32、如权利要求 2 所述的充气床，其特征在于，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构均采用热塑性塑胶布制成。

33、如权利要求 2 所述的充气床，其特征在于，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构中的一个或多个至少部分地包括网布、夹网布或者线体。



34、如权利要求 33 所述的充气床，其特征在于，所述网布或者所述线体至少部分两侧表面分别与两片相对的胶布片条连接为一体，所述网布和所述线体夹设于两片相对的胶布条之间。

35、如权利要求 33 所述的充气床，其特征在于，所述网布、或者所述线体至少部分两侧表面与 U 型胶布片条连接为一体，所述网布和所述线体夹设于所述 U 型胶布条中间。

36、如权利要求 2 所述的充气床，其特征在于，所述第一拉带结构通过高频焊接的方式与所述顶片和所述底片连接；所述第二拉带结构通过高频焊接的方式与所述顶片和所述侧壁连接；所述第三拉带结构通过高频焊接的方式与所述底片和所述侧壁连接。

37、如权利要求 2 所述的充气床，其特征在于，所述顶片位于所述第二拉带结构的上边缘内侧部分的高度低于所述顶片位于所述第二拉带结构的上边缘外侧部分的高度。

38、如权利要求 2 所述的充气床，其特征在于，所述底片位于所述第三拉带结构的下边缘内侧部分的高度低于所述底片位于所述第三拉带结构的下边缘外侧部分的高度。

39、如权利要求 2 所述的充气床，其特征在于，所述充气床还包括内置气泵，所述内置气泵设置在所述侧壁上，且位于所述第二拉带结构的下边缘和所述第三拉带结构的上边缘之间，用以供所述气室充气。

40、如权利要求 1 所述的充气床，其特征在于，所述充气床还包括气阀，所述气阀设置在所述侧壁上，用于所述充气床的充气或放气。

说明书

充气床

技术领域

本实用新型涉及充气床或充气床垫领域，特别涉及一种充气床，其结构设置为可限制侧壁向外膨胀或变形。

背景技术

目前，充气床和充气床垫已经非常流行。充气床和充气床垫具有重量轻、便于携带和收藏等优点，因而被广泛应用于各种不同的场合。例如，在家庭充气床和充气床垫通常可以作为临时的床，供来访的客人使用。另外还非常适合在户外野营时使用。

在现有技术中，充气床和充气床垫一般由 PVC 胶布、PU 胶布等制成，且具有许多不同的结构，其中比较典型的机构是由顶片、底片，以及与顶片和底片相连接的侧壁构成可充气的气室。在气室内部设有连接顶片和底片且间隔排列的拉带，以构成具有一定高度且上表面大致平坦的可供人躺在上面的形状。

在现有的充气床和充气床垫中，有的具有较高的高度，充气床和充气床垫充气后的侧壁容易膨胀和变形，影响到充气床和充气床垫外观的美观，充气床和充气床垫的膨胀和变形也会造成气室内的气压衰减，使得充气床和充气床垫偏软降低了充气床和充气床垫的舒适性。

因此，为了解决上述侧壁膨胀的问题，有的充气床和充气床垫在顶片和底片之间设置了中层片，并将中层片与侧壁连接。这种结构的充气床和充气床垫虽然使侧壁膨胀和变形的问题略有改善，但仍然没有达到理想的效果。而且由于顶片与中层片之间，以及中层片与底片之间都需要设置连接拉带，使得充气床和充气床垫的制造过程更加复杂，即所需胶布也更多。

另外，在现有技术中，高度较高的充气床和充气床垫存在稳定性方面的缺陷。当用户躺在或者坐在靠近充气床和充气床垫的边缘处时，充气床和充气床垫容易发生侧翻。为了改善其稳定性，美国专利 US 6671910 在充气床底片的外围设置了充气的稳定管。然而，这种结构不仅会影响充气床的外观美观，也给用户带来了使用的不便。

实用新型内容

本实用新型要解决的技术问题是为了克服现有技术中充气床和充气床垫的侧壁容易膨胀、变形以及充气床和充气床垫稳定性差，容易侧翻的缺陷，提供一种充气床。

本实用新型是通过下述技术方案来解决上述技术问题的：一种充气床，其特点在于，所述充气床包括：顶片和底片，所述底片与所述顶片上下间隔布置；

至少一侧壁，所述侧壁的上边缘与所述顶片的外边缘连接，所述侧壁的下边缘与所述底片的外边缘连接，所述顶片、所述底片和所述侧壁之间形成一个气室；

至少一第一拉带结构，所述第一拉带结构设置在所述气室内，且所述第一拉带结构的上下两端分别与所述顶片和所述底片连接；以及

至少一支撑结构，设置在所述气室内，所述支撑结构沿至少一所述侧壁的长度方向设置，所述支撑结构中至少两个外侧边缘分别与相邻的所述侧壁连接，所述支撑结构中至少一个内侧边缘与相邻的所述顶片或所述底片连接。

较佳地，所述支撑结构包括第二拉带结构和第三拉带结构，所述第二拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第二拉带结构中至少一个内侧边缘与相邻的所述顶片连接；以及

所述第三拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第三拉带结构中至少一个内侧边缘与相邻的所述底片连接。

较佳地，所述第二拉带结构和所述第三拉带结构上分别设有多个气孔，所述气室通过所述气孔形成空气流通。

较佳地，所述第二拉带结构和所述第三拉带结构在垂直方向间隔布置。

较佳地，所述第二拉带结构包括至少两个第一 I 型拉带，每一所述第一 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述顶片连接，且至少两个所述第一 I 型拉带间隔布置。

较佳地，所述第三拉带结构包括至少两个第二 I 型拉带，每一所述第二 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述底片连接，且至少两个所述第二 I 型拉带间隔布置。

较佳地，所述第二拉带结构包括至少一个第一 Y 型拉带，其中，所述第一

Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述顶片连接。

较佳地，所述第三拉带结构包括至少一个第二 Y 型拉带，其中，所述第二 Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述底片连接。

较佳地，所述第二拉带结构包括至少一个第一管型拉带，所述第一管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述顶片连接。

较佳地，所述第三拉带结构包括至少一个第二管型拉带，所述第二管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述底片连接。

较佳地，所述第二拉带结构包括至少一个第一 V 型拉带，其中，所述第一 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述顶片连接。

较佳地，所述第三拉带结构包括至少一个第二 V 型拉带，其中，所述第二 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述底片连接。

较佳地，所述至少两个第一 I 型拉带相互间隔地排布于所述顶片的下表面。

较佳地，所述至少两个第二 I 型拉带相互间隔地排布于所述底片的上表面。

较佳地，所述至少两个第一 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少两个第二 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第一 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第二 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第一管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第二管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第一 V 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第二 V 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少两个第一 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少两个第二 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第一 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第二 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第一管型拉带整体为一个间断的环形结构。

较佳地，所述至少一个第二管型拉带整体为一个间断的环形结构。

较佳地，所述至少一个第一 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第二 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述第一拉带结构为直拉带、圆孔拉带、Y 型拉带或 X 型拉带其中一种拉带或多种拉带。

较佳地，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构均采用热塑性塑胶布制成。

较佳地，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构中的一个或多个至少部分地包括网布、夹网布或者线体。

较佳地，所述网布或者所述线体至少部分两侧表面分别与两片相对的胶布片条连接为一体，所述网布和所述线体夹设于两片相对的胶布条之间。

较佳地，所述网布、或者所述线体至少部分两侧表面与 U 型胶布片条连接为一体，所述网布和所述线体夹设于所述 U 型胶布条中间。

较佳地，所述第一拉带结构通过高频焊接的方式与所述顶片和所述底片连接；所述第二拉带结构通过高频焊接的方式与所述顶片和所述侧壁连接；所述第三拉带结构通过高频焊接的方式与所述底片和所述侧壁连接。

较佳地，所述顶片位于所述第二拉带结构的上边缘内侧部分的高度低于所述顶片位于所述第二拉带结构的上边缘外侧部分的高度。

较佳地，所述底片位于所述第三拉带结构的下边缘内侧部分的高度低于所述底片位于所述第三拉带结构的下边缘外侧部分的高度。

较佳地，所述充气床还包括内置气泵，所述内置气泵设置在所述侧壁上，且位于所述第二拉带结构的下边缘和所述第三拉带结构的的上边缘之间，用以供所述气室充气。

较佳地，所述充气床还包括气阀，所述气阀设置在所述侧壁上，用于所述充气床的充气或放气。

本实用新型的积极进步效果在于：

本实用新型充气床克服了现有技术中具有较高高度的充气床和充气床垫侧壁向外膨胀变形的缺陷，外观更加美观。其具有很好的稳定性，克服了现有技术的充气床和充气床垫容易侧翻的问题。此外，本实用新型充气床还可以防止用户在使用过程中滚落。

附图说明

本实用新型上述的以及其他的特征、性质和优势将通过下面结合附图和实施例的描述而变的更加明显，在附图中相同的附图标记始终表示相同的特征，其中：

图 1 为本实用新型充气床的立体图。

图 2 为本实用新型充气床的主视图。

图 3 为本实用新型充气床的右视图。

图 4 为本实用新型充气床的俯视图。

图 5 为图 4 中沿 A-A 线剖开的实施例一的剖视图。

图 6 为本实用新型充气床的实施例一的局部解剖结构示意图。

图 7 为本实用新型充气床的实施例一的爆炸图一。

图 8 为本实用新型充气床的实施例一的爆炸图二。

图 9 为图 4 中沿 A-A 线剖开的实施例二的剖视图。

图 10 为本实用新型充气床的实施例二的爆炸图一。

图 11 为本实用新型充气床的实施例二的爆炸图二。

图 12 为图 4 中沿 A-A 线剖开的实施例三的剖视图一。

图 13 为图 4 中沿 A-A 线剖开的实施例三的剖视图二。

图 14 为本实用新型充气床的实施例三的爆炸图一。

图 15 为本实用新型充气床的实施例三的爆炸图二。

图 16 为图 4 中沿 A-A 线剖开的实施例四的剖视图。

图 17 为本实用新型充气床的实施例四的爆炸图一。

图 18 为本实用新型充气床的实施例四的爆炸图二。

图 19 为图 4 中沿 A-A 线剖开的实施例五的剖视图。

图 20 为本实用新型充气床的实施例五的局部解剖结构示意图。

图 21 为图 4 中沿 A-A 线剖开的实施例六的剖视图。

图 22 为图 4 中沿 A-A 线剖开的实施例七的剖视图。

图 23 为本实用新型充气床的实施例七的局部解剖结构示意图。

图 24 为本实用新型充气床的实施例七的内部结构示意图。

具体实施方式

为了让本实用新型的上述目的、特征和优点能更明显易懂，以下结合附图对本实用新型的具体实施方式作详细说明。

在下面的描述中阐述了很多具体细节以便于充分理解本实用新型，但是本实用新型还可以采用其它不同于在此描述的其它方式来实施，因此本实用新型不受下面公开的具体实施例的限制。

实施例一：

图 1 为本实用新型充气床的立体图。图 2 为本实用新型充气床的主视图。图 3 为本实用新型充气床的右视图。图 4 为本实用新型充气床的俯视图。图 5 为图 4 中沿 A-A 线剖开的实施例一的剖视图。图 6 为本实用新型充气床的实施例一的局部解剖结构示意图。图 7 为本实用新型充气床的实施例一的爆炸图。

如图 1 至图 7 所示，本实用新型的实施例一中公开了一种充气床 10，其包括顶片 11、底片 12、至少一侧壁 13、至少一第一拉带结构 14 及至少一支撑结构。其中，底片 12 与顶片 11 上下间隔布置，侧壁 13 的上边缘与顶片 11 的外边缘连接，侧壁 13 的下边缘与底片 12 的外边缘连接，顶片 11、底片 12 和侧壁 13 之间形成一个气室。同时将第一拉带结构 14 设置在所述气室内，且第一拉带结构 14 的上下两端分别与顶片 11 和底片 12 连接。其作用在于，当所述

气室充气后，通过第一拉带结构 14 来限制顶片 11 和底片 12 分别向上和向下膨胀。特别地，顶片 11 和底片 12 均可以设置为双层结构，所述双层结构可以通过至少两个两片相互焊接以形成不同的图案。或者进一步地，在所述双层结构中还夹设有海绵的结构。

此处的所述支撑结构设置在所述气室内，所述支撑结构沿至少一侧壁 13 的长度方向设置，所述支撑结构中至少两个外侧边缘分别与相邻的侧壁 13 连接，所述支撑结构中至少一个内侧边缘与相邻的顶片 11 或底片 12 连接。

优选地，所述支撑结构包括第二拉带结构 15 和第三拉带结构 16。其中，第二拉带结构 15 中至少两个外侧边缘与相邻的侧壁 13 连接，第二拉带结构中至少一个内侧边缘与相邻的顶片 11 连接。第二拉带结构 15 设置为当所述气室充气后限制顶片 11 和侧壁 13 向上和侧向膨胀。

同时，第三拉带结构 16 中至少两个外侧边缘与相邻的侧壁 13 连接，第三拉带结构 16 中至少一个内侧边缘与相邻的底片 12 连接。第三拉带结构 16 设置为当所述气室充气后分别限制底片 12 和侧壁 13 向下和侧向膨胀。

在本实施例中，第二拉带结构 15 包括至少两个第一 I 型拉带 151，每一第一 I 型拉带 151 的一个外侧边缘 152 与相邻的侧壁 13 连接，另一个内侧边缘 153 与相邻的顶片 11 连接，且至少两个第一 I 型拉带 151 间隔布置。第三拉带结构 16 包括至少两个第二 I 型拉带 161，每一第二 I 型拉带 161 的一个外侧边缘 162 与相邻的侧壁 13 连接，另一个内侧边缘 163 与相邻的底片 12 连接，且至少两个第二 I 型拉带 161 间隔布置。本实施例中第一 I 型拉带 151 和第二 I 型拉带 161 均以两个为例，但其数量并不受本实施例限制，其可以采用多于两个的数量，均属于本实用新型的保护范围内。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。例如本实施例中第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式，从而使第二拉带结构 15 设置为当所述气室充气后，限制顶片 11 和侧壁 13 向上和侧向膨胀，使第三拉带结构 16 设置为当所述气室充气后，分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然，第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构，本实施例仅为举例，并不局限于此，其他大于等于四段式的结构都属于本实用新型的保护范围内。

进一步地，至少两个第一 I 型拉带 151 相互间隔地排布于顶片 11 的下表面，

且至少两个第二 I 型拉带 161 相互间隔地排布于底片 12 的上表面。至少两个第一 I 型拉带 151 在侧壁 13 的内表面上沿垂直方向间隔排布。至少两个第二 I 型拉带 161 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处，至少两个第一 I 型拉带 151 整体为一个闭合的环形结构或一个间断的环形结构。至少两个第二 I 型拉带 161 整体为一个闭合的环形结构或一个间断的环形结构。同时，在至少两个第一 I 型拉带 151 上设有气孔 154，使所述气室通过气孔 154 形成空气流通。至少两个第二 I 型拉带 161 设有气孔 164，使所述气室通过气孔 164 形成空气流通（如图 7 和图 8 所示）。

本实用新型中的第一拉带结构 14 可以采用直拉带、圆孔拉带、Y 型拉带或 X 型拉带其中一种拉带或多种拉带。同时，第一拉带结构 14、第二拉带结构 15 及第三拉带结构 16 均可以采用热塑性塑胶布制成，且第一拉带结构 14、第二拉带结构 15 及第三拉带结构 16 中的一个或多个至少部分地包括网布、夹网布或者线体。

其结构形式可以采用多种方式。例如，所述网布或者所述线体至少部分两侧表面分别与两片相对的胶布片条连接为一体，所述网布和所述线体夹设于两片相对的胶布条之间。

再例如，所述网布、或者所述线体至少部分两侧表面与 U 型胶布片条连接为一体，所述网布和所述线体夹设于所述 U 型胶布条中间。这些连接结构都可以有效地制成本实用新型充气床所需的拉带，这里仅为举例，但不局限于本实施例中的方案，其他可实现拉带形式的结构均在本实用新型的保护范围内。

在上述拉带的结构基础上，为了保证各个部件之间的牢固连接，第一拉带结构 14 通过高频焊接的方式连接在顶片 11 和底片 12 之间。同理，第二拉带结构 15 也通过高频焊接的方式连接在顶片 11 和侧壁 13 之间。第三拉带结构 16 通过高频焊接的方式连接在底片 12 和侧壁 13 之间。

通过上述结构形成的本实用新型充气床，其顶片 11 位于第二拉带结构 15 的上边缘内侧部分的高度低于顶片 11 位于第二拉带结构 15 的上边缘外侧部分的高度。底片 12 位于第三拉带结构 16 的下边缘内侧部分的高度低于底片 12 位于第三拉带结构 16 的下边缘外侧部分的高度。

此外，在充气床 10 上还包括内置气泵 20，将内置气泵 20 设置在侧壁 13 上，且位于第二拉带结构 15 的下边缘和第三拉带结构 16 的上边缘之间，用以供所述气室充气。同时，在充气床 10 上还设置有气阀 30，将气阀 30 设置在侧

壁 13 上, 用以供充气床 10 的充气或放气。

实施例二:

图 9 为图 4 中沿 A-A 线剖开的实施例二的剖视图。图 10 为本实用新型充气床的实施例二的爆炸图一。图 11 为本实用新型充气床的实施例二的爆炸图二。

如图 9 至图 11 所示, 本实施例的结构与实施例一基本相同, 其不同之处在于: 第二拉带结构 15 包括至少一个第一 Y 型拉带 151, 其中第一 Y 型拉带 151 的两个外侧边缘 152 分别与相邻的侧壁 13 连接, 另一个内侧边缘 153 与顶片 11 连接。同理, 第三拉带结构 16 包括至少一个第二 Y 型拉带 161, 其中第二 Y 型拉带 161 的两个外侧边缘 162 分别与相邻的侧壁 13 连接, 另一个内侧边缘 163 与底片 12 连接。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。本实施例中的第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式, 从而将第二拉带结构 15 设置为当所述气室充气后, 限制顶片 11 和侧壁 13 向上和侧向膨胀, 将第三拉带结构 16 设置为当所述气室充气后, 分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然, 第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构, 本实施例仅为举例, 并不局限于此, 其他大于等于四段式的结构都属于本实用新型的保护范围内。

进一步地, 至少一个第一 Y 型拉带 151 的两个外侧边缘 152 在侧壁 13 的内表面上沿垂直方向间隔排布。至少一个第二 Y 型拉带 161 的两个外侧边缘 162 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处, 至少一个第一 Y 型拉带 151 整体为一个闭合的环形结构或一个间断的环形结构。至少一个第二 Y 型拉带 161 整体为一个闭合的环形结构或一个间断的环形结构。同时, 至少一个第一 Y 型拉带 151 上还设有气孔 154, 使所述气室通过气孔 154 形成空气流通。至少一个第二 Y 型拉带 161 上还设有气孔 164, 使所述气室通过气孔 164 形成空气流通 (如图 10 和图 11 所示)。

实施例三:

图 12 为图 4 中沿 A-A 线剖开的实施例三的剖视图一。图 13 为图 4 中沿

A-A 线剖开的实施例三的剖视图二。图 14 为本实用新型充气床的实施例三的爆炸图一。图 15 为本实用新型充气床的实施例三的爆炸图二。

如图 12 至图 15 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第二拉带结构 15 包括至少一个第一管型拉带 151，其中第一管型拉带 151 上具有至少两个外侧边缘 152 分别与相邻的侧壁 13 连接，且至少另一个内侧边缘 153 与顶片 11 连接。第三拉带结构 16 包括至少一个第二管型拉带 161，第二管型拉带 161 上具有至少两个外侧边缘 162 分别与相邻的侧壁 13 连接，且至少另一个内侧边缘 163 与底片 12 连接。此处的第一管型拉带 151 和第二管型拉带 161 可以采用多种管型结构，例如呈三角形的管型结构，呈四边形的管型结构（如图 13 和图 14 所示）。

进一步地，至少一个第一管型拉带 151 与相邻的侧壁 13 连接的至少两个外侧边缘 152 在侧壁 13 的内表面上沿垂直方向间隔排布。至少一个第二管型拉带 161 与相邻的侧壁 13 连接的至少两个外侧边缘 162 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处，至少一个第一管型拉带 151 整体为一个间断的环形结构。至少一个第二管型拉带 161 整体为一个间断的环形结构（如图 13 和图 14 所示）。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。本实施例中的第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式，从而将第二拉带结构 15 设置为当所述气室充气后，限制顶片 11 和侧壁 13 向上和侧向膨胀，将第三拉带结构 16 设置为当所述气室充气后，分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然，第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构，本实施例仅为举例，并不局限于此，其他大于等于四段式的结构都属于本实用新型的保护范围内。

实施例四：

图 16 为图 4 中沿 A-A 线剖开的实施例四的剖视图。图 17 为本实用新型充气床的实施例四的爆炸图一。图 18 为本实用新型充气床的实施例四的爆炸图二。

如图 16 至图 18 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第二拉带结构 15 包括至少一个第一 V 型拉带 151，其中第一 V 型拉带

151 的两个外侧边缘 152 分别与相邻的侧壁 13 连接, 且另一内侧边缘 153 与顶片 11 连接。第三拉带结构 16 包括至少一个第二 V 型拉带 161, 其中第二 V 型拉带 161 的两个外侧边缘 162 分别与相邻的侧壁 13 连接, 且另一内侧边缘 163 与顶片 11 连接。

进一步地, 至少一个第一 V 型拉带 151 的两个外侧边缘 152 在侧壁 13 的内表面上沿垂直方向间隔排布。至少一个第二 V 型拉带 161 的两个外侧边缘 162 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处, 至少一个第一 V 型拉带 151 整体为一个闭合的环形结构或一个间断的环形结构。至少一个第二 V 型拉带 161 整体为一个闭合的环形结构或一个间断的环形结构。同时, 至少一个第一 V 型拉带 151 上设有气孔 154, 使所述气室通过气孔 154 形成空气流通。至少一个第二 V 型拉带 161 上设有气孔 164, 使所述气室通过气孔 164 形成空气流通。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。本实施例中的第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式, 从而将第二拉带结构 15 设置为当所述气室充气后, 限制顶片 11 和侧壁 13 向上和侧向膨胀, 将第三拉带结构 16 设置为当所述气室充气后, 分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然, 第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构, 本实施例仅为举例, 并不局限于此, 其他大于等于四段式的结构都属于本实用新型的保护范围内。

实施例五:

图 19 为图 4 中沿 A-A 线剖开的实施例五的剖视图。图 20 为本实用新型充气床的实施例五的局部解剖结构示意图。

如图 19 和图 20 所示, 本实施例的结构与实施例一基本相同, 其不同之处在于: 第一拉带结构 14 采用 Y 型拉带, 且第一拉带结构 14 的上下两端分别与顶片 11 和底片 12 连接。第一拉带结构 14 中若干拉带之间相互间隔排布。第一拉带结构 14 中每一个拉带的上端呈分叉型, 连接支撑顶片 11, 下端为直拉带型, 向下连接底片 12。当所述气室充气后, 这种结构可以更有效地限制顶片 11 和底片 12 分别向上和向下膨胀。

实施例六：

图 21 为图 4 中沿 A-A 线剖开的实施例六的剖视图。

如图 21 所示，本实施例的结构与实施例五基本相同，其不同之处在于：第一拉带结构 14 采用上下两端都呈 X 型的拉带，并且第一拉带结构 14 的上下两端分别与顶片 11 和底片 12 连接。第一拉带结构 14 中若干拉带之间相互间隔排布。第一拉带结构 14 中每一个拉带的上端呈分叉型，向上连接顶片 11，下端同样也呈分叉型，向下连接底片 12。当所述气室充气后，这种结构可以更有效地限制顶片 11 和底片 12 分别向上和向下膨胀。

实施例七：

图 22 为图 4 中沿 A-A 线剖开的实施例七的剖视图。图 23 为本实用新型充气床的实施例七的局部解剖结构示意图。图 24 为本实用新型充气床的实施例七的内部结构示意图。

如图 22 至图 24 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第一拉带结构 14 中的若干拉带均采用圆孔拉带，且第一拉带结构 14 中每一个拉带的上下两端分别与顶片 11 和底片 12 连接。第一拉带结构 14 中若干拉带之间相互间隔排布。当所述气室充气后，其可以有效地限制顶片 11 和底片 12 分别向上和向下膨胀。

根据上述结构描述，上述各实施例之间的结构变化可以任意组合，并不受上述具体实施例的限制，即有关第二拉带结构 15 包含拉带的数量和第三拉带结构 16 包含拉带的数量不受限制，根据实际需求进行调整。

同理，第二拉带结构 15 中若干拉带之间的连接方式，以及第三拉带结构 16 中若干拉带之间的连接方式也不受上述实施例的局限，只要将侧壁 13 分隔成至少五段式（或大于等于四段）的形式即可，例如可以通过改变第二拉带结构 15 和第三拉带结构 16 中包含拉带的数量及连接方式将侧壁 13 分隔成六段、七段等多段形式。

当然，有关第一拉带结构 14 的结构形式可以在各种情况下通用，同样起到支撑顶片 11 和底片 12 的作用，有效限制顶片 11 和底片 12 分别向上和向下膨胀。

综上所述，本实用新型充气床通过采用各种类型的拉带结构，可以限制充气床的侧壁向外膨胀或变形。本实用新型充气床的结构有效地克服了现有技术



中具有较高高度的充气床和充气床垫侧壁向外膨胀变形的缺陷，外观更加美观。其具有很好的稳定性，克服了现有技术的充气床和充气床垫容易侧翻的问题。此外，本实用新型充气床还可以防止用户在使用过程中滚落。

虽然以上描述了本实用新型的具体实施方式，但是本领域的技术人员应当理解，这些仅是举例说明，本实用新型的保护范围是由所附权利要求书限定的。本领域的技术人员在不背离本实用新型的原理和实质的前提下，可以对这些实施方式作出多种变更或修改，但这些变更和修改均落入本实用新型的保护范围。



说明书附图

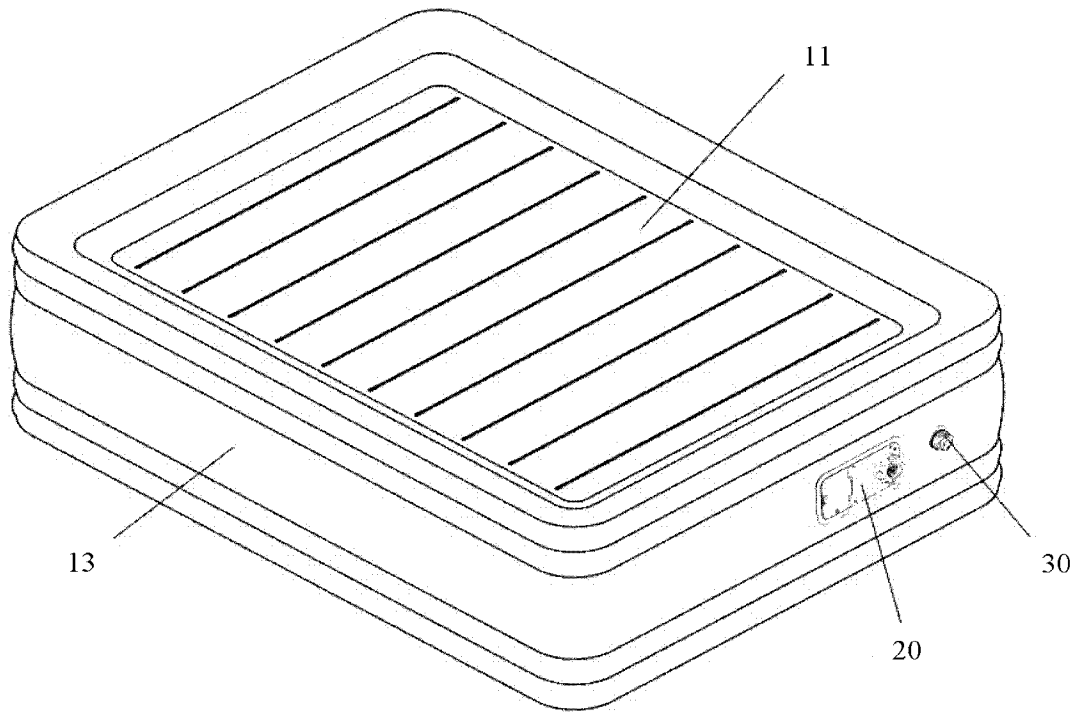


图 1

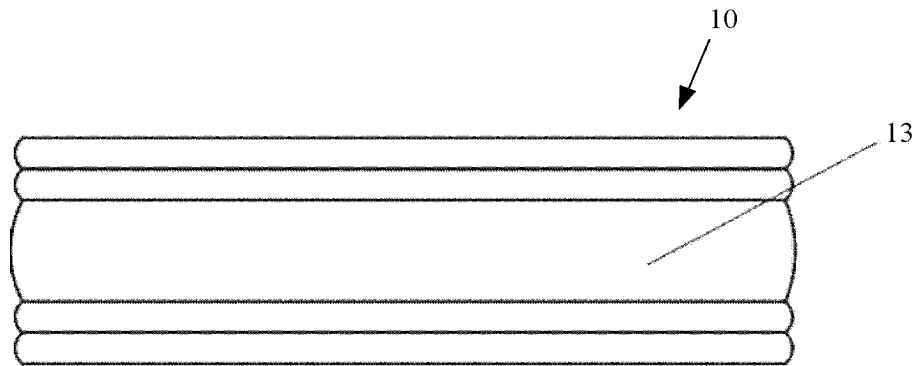


图 2

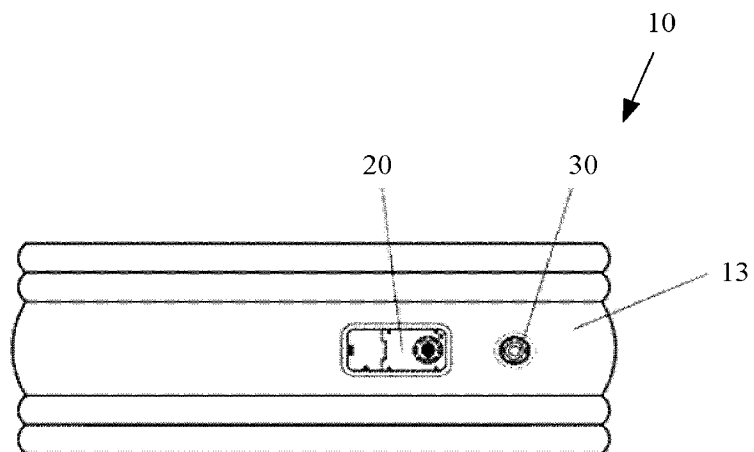


图 3

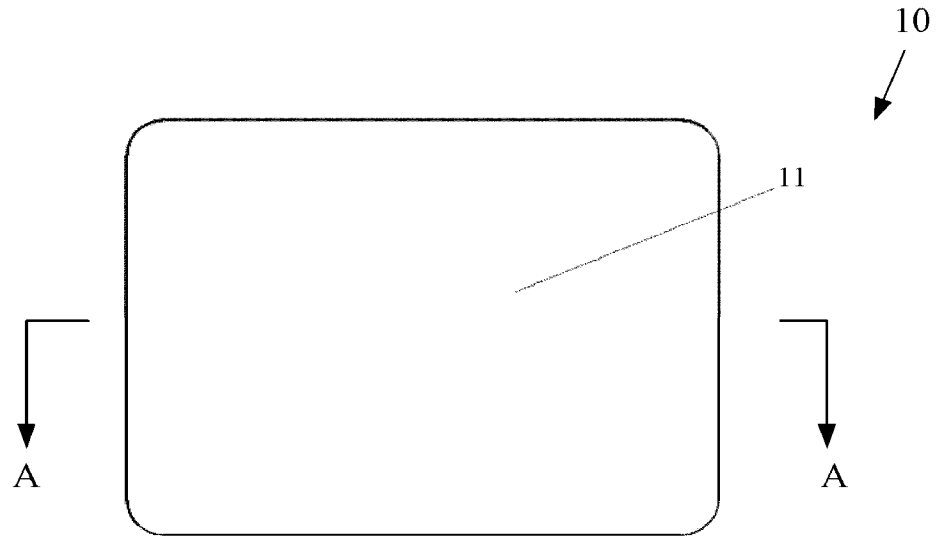


图 4

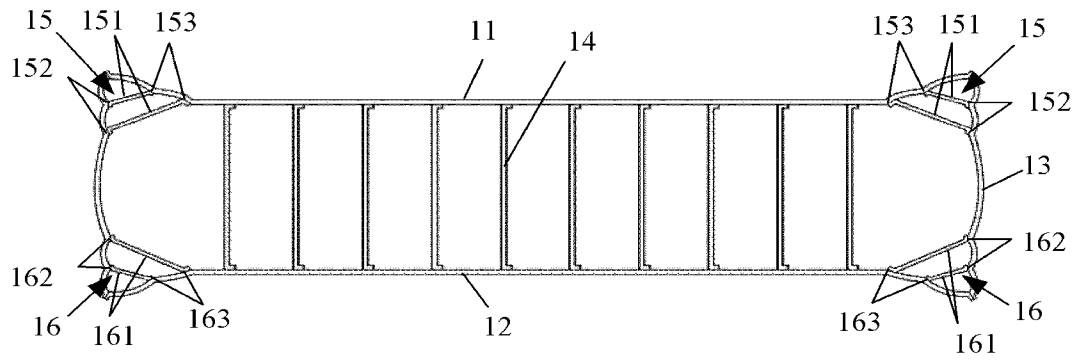


图 5

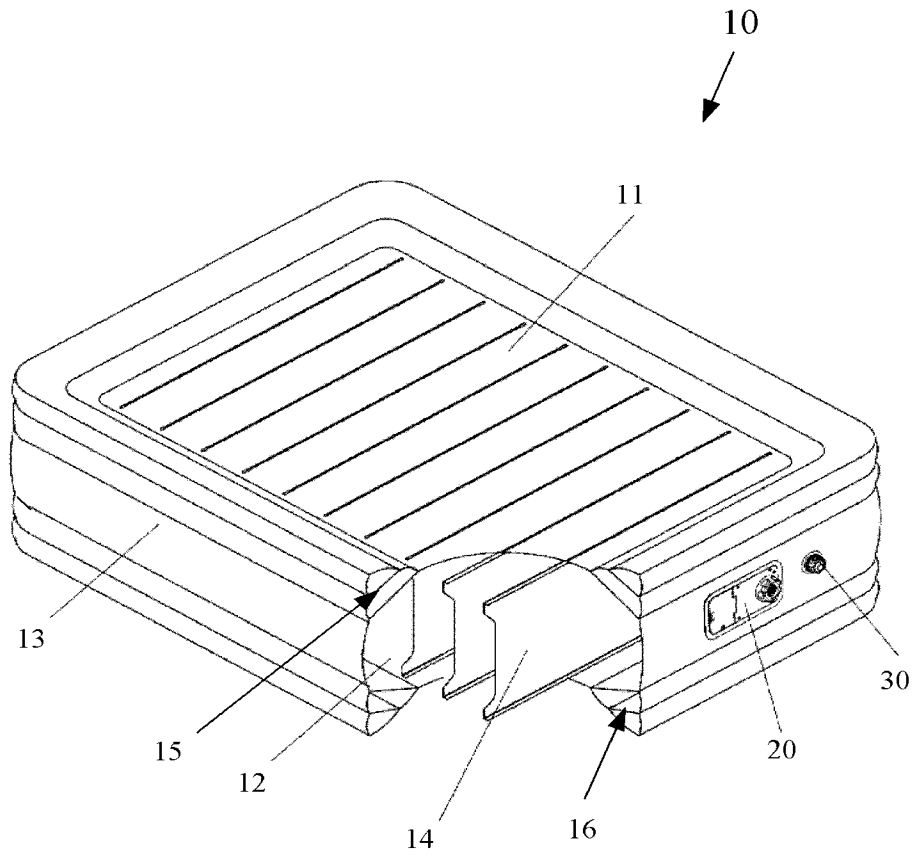


图 6

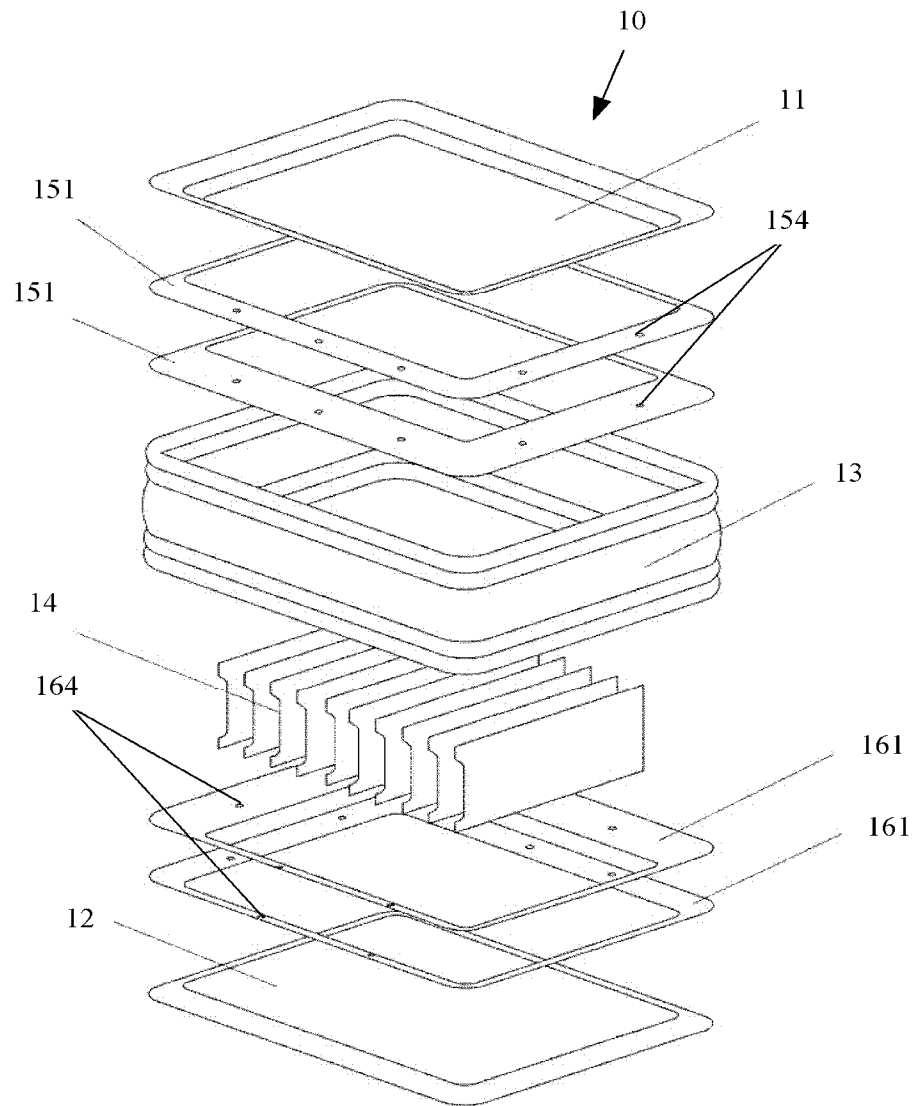


图 7

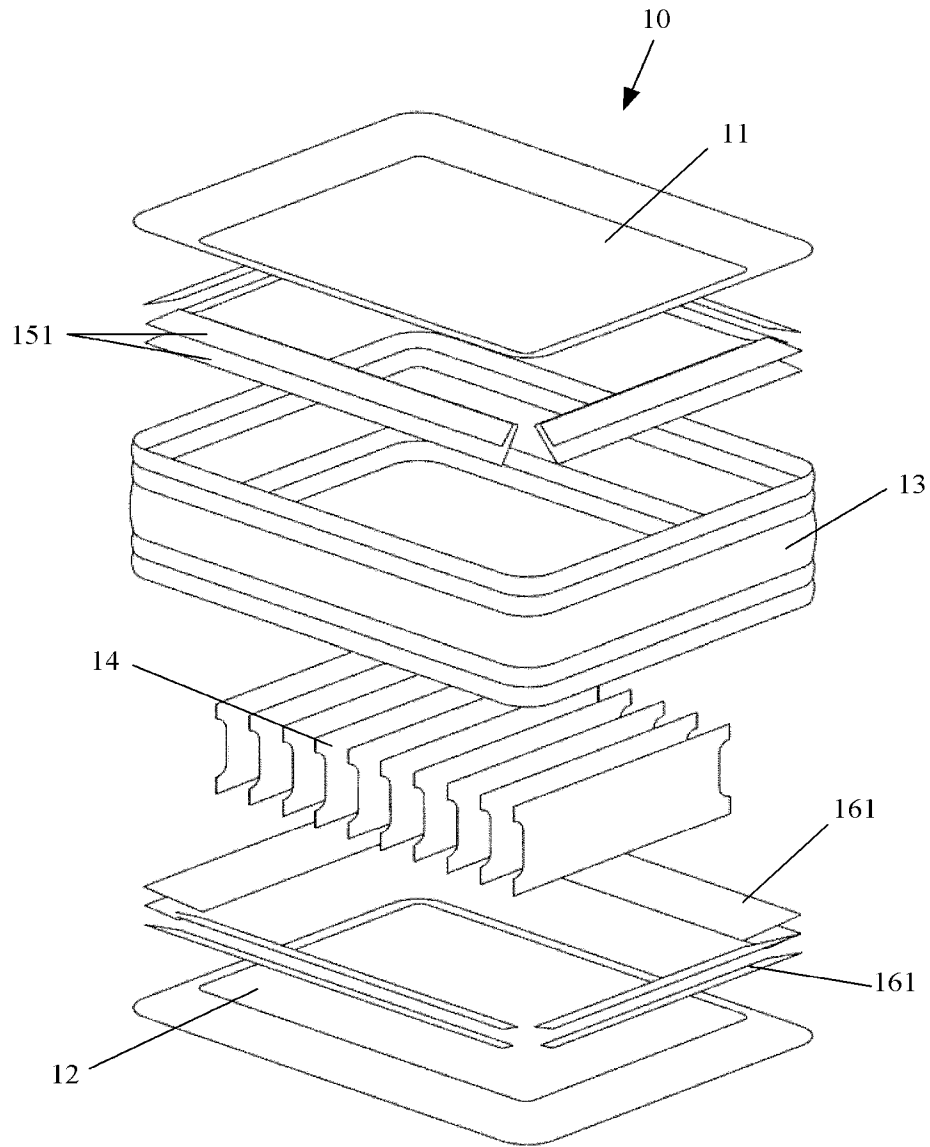


图 8

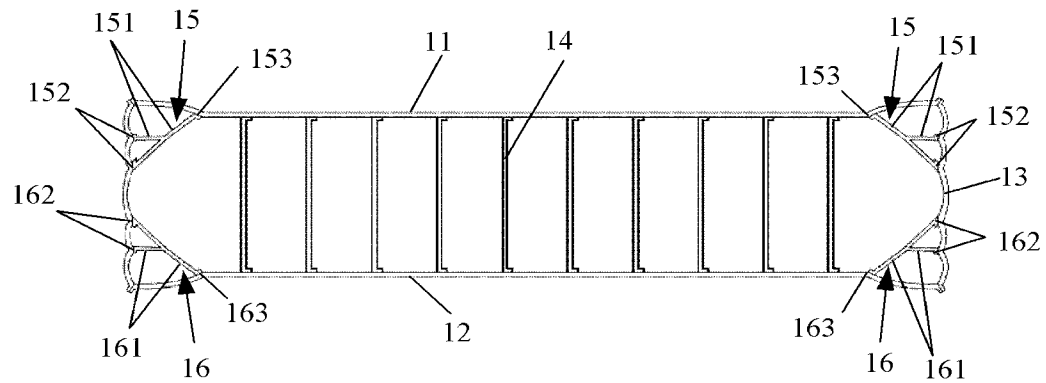


图 9

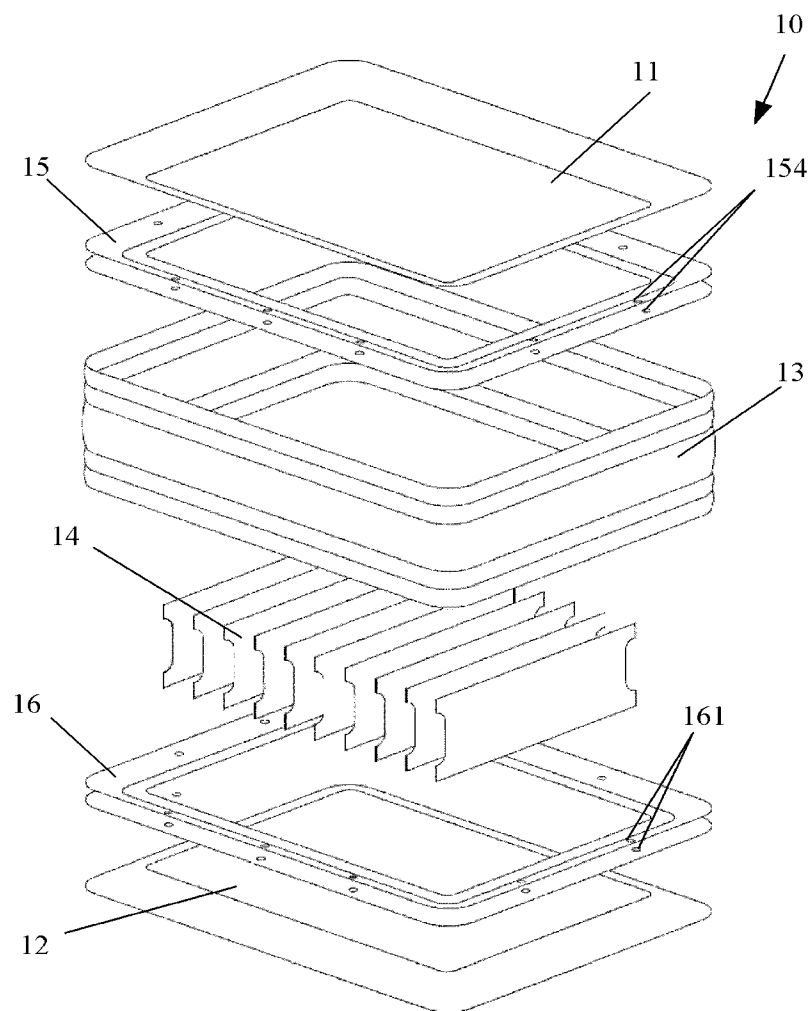


图 10

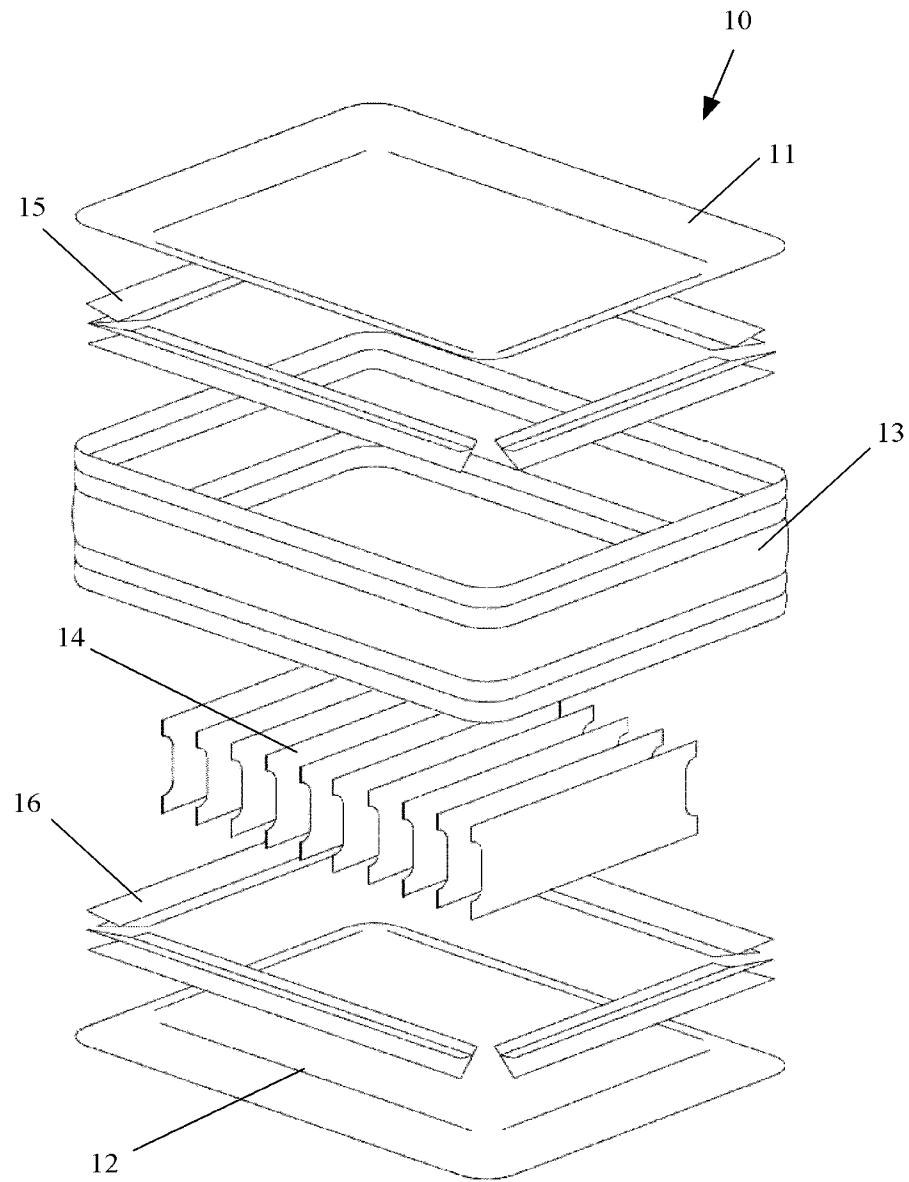


图 11

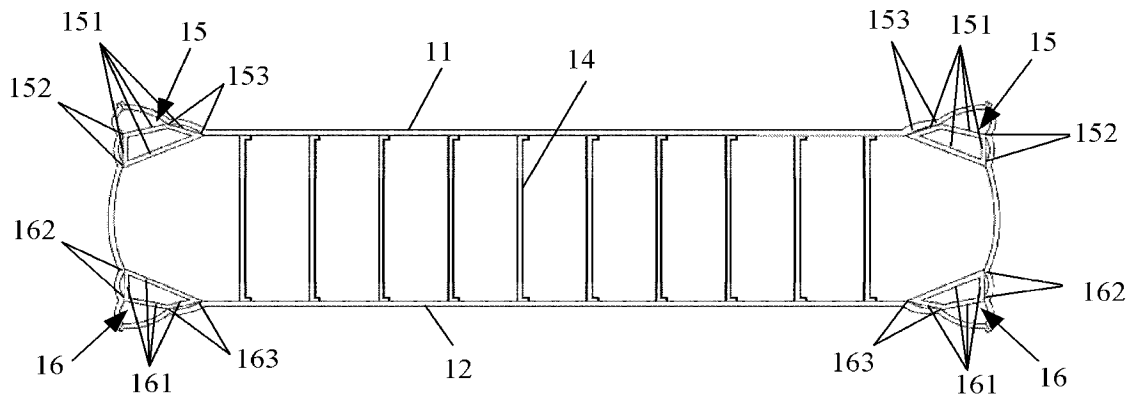


图 12

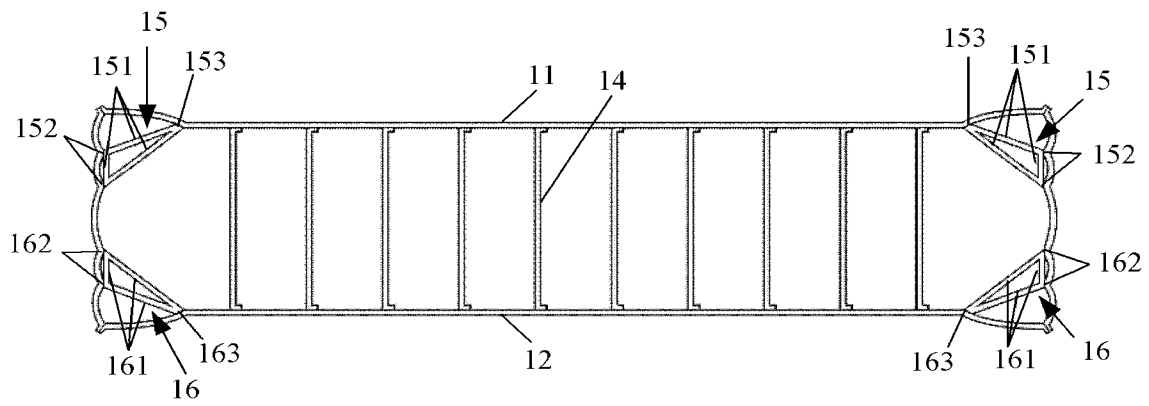


图 13

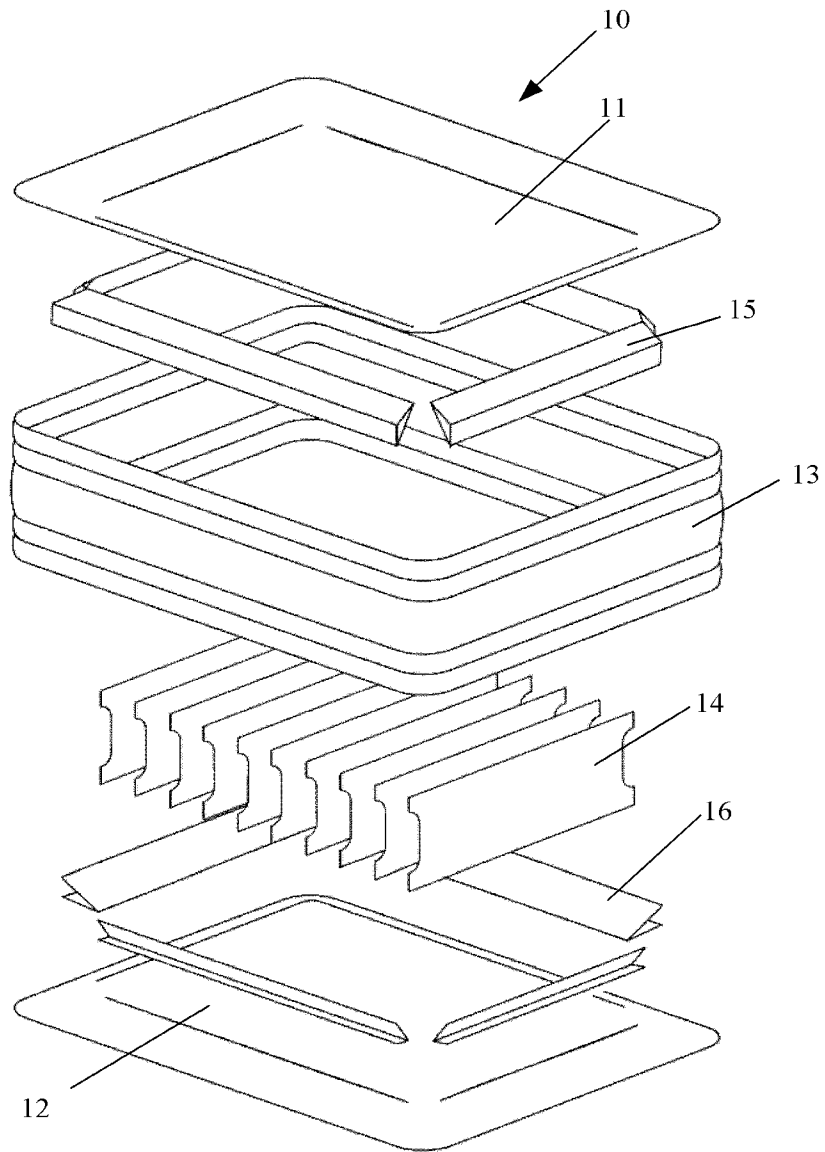


图 14

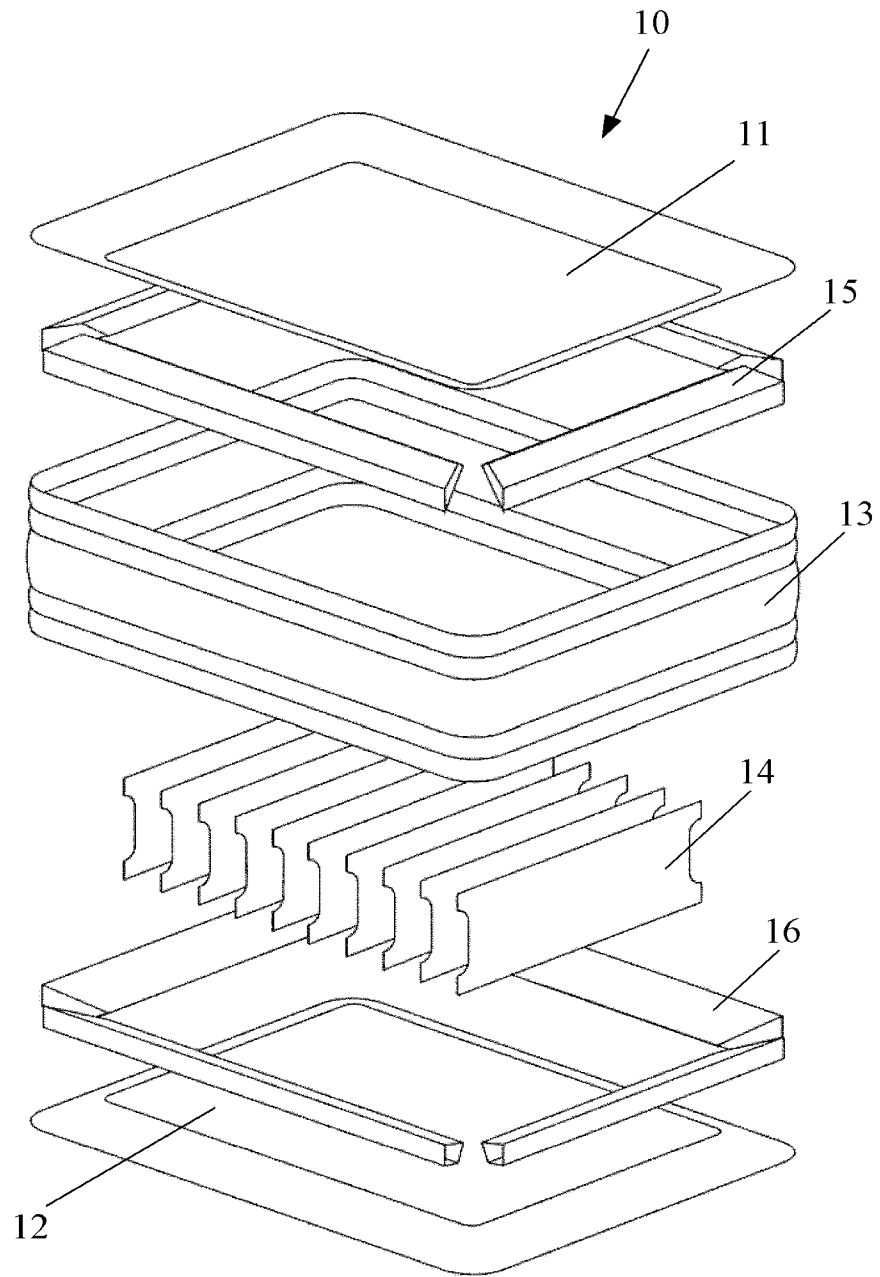


图 15

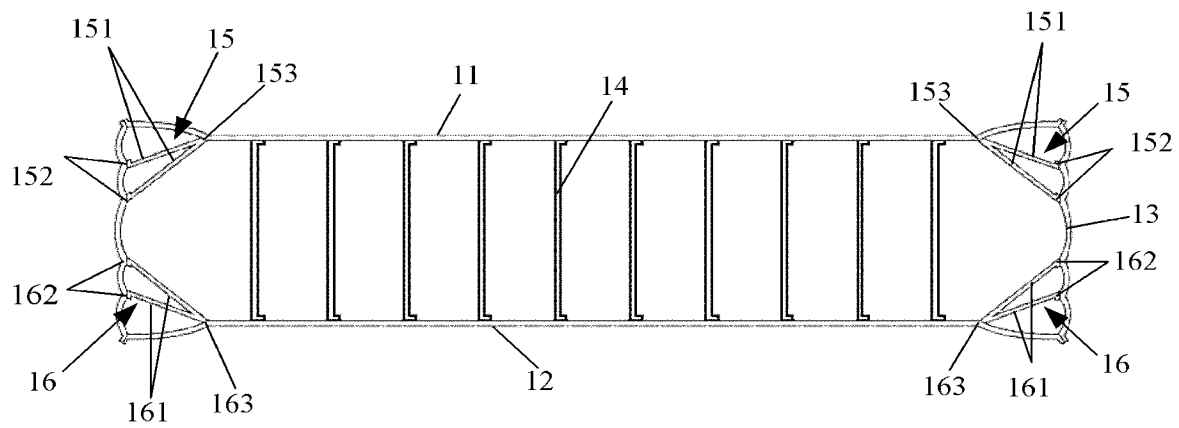


图 16

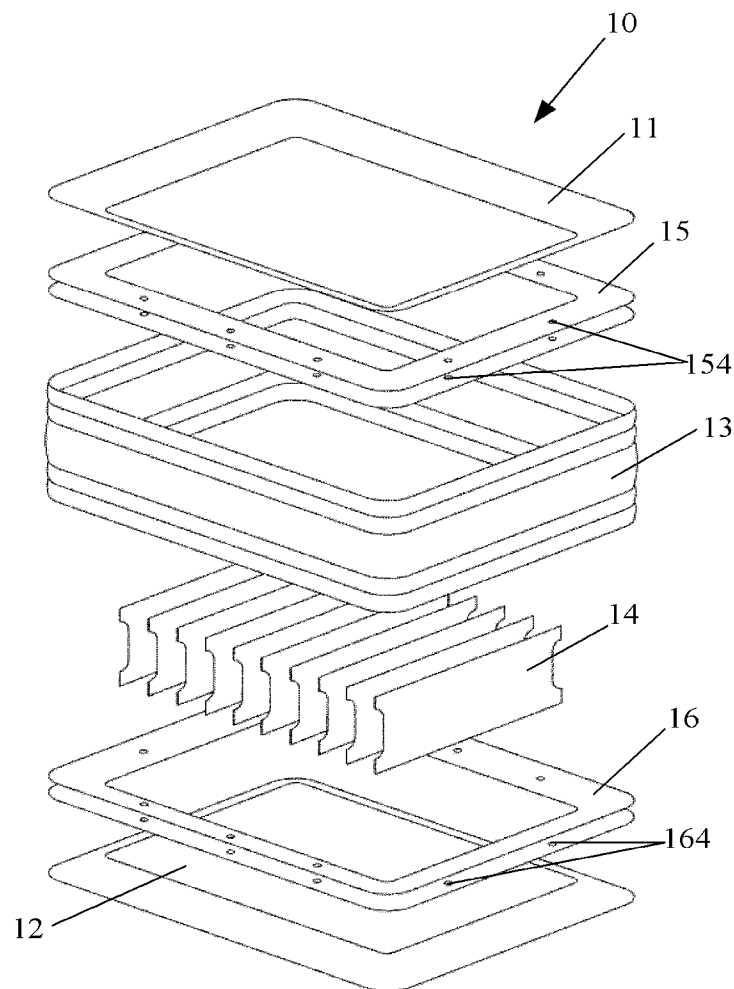


图 17

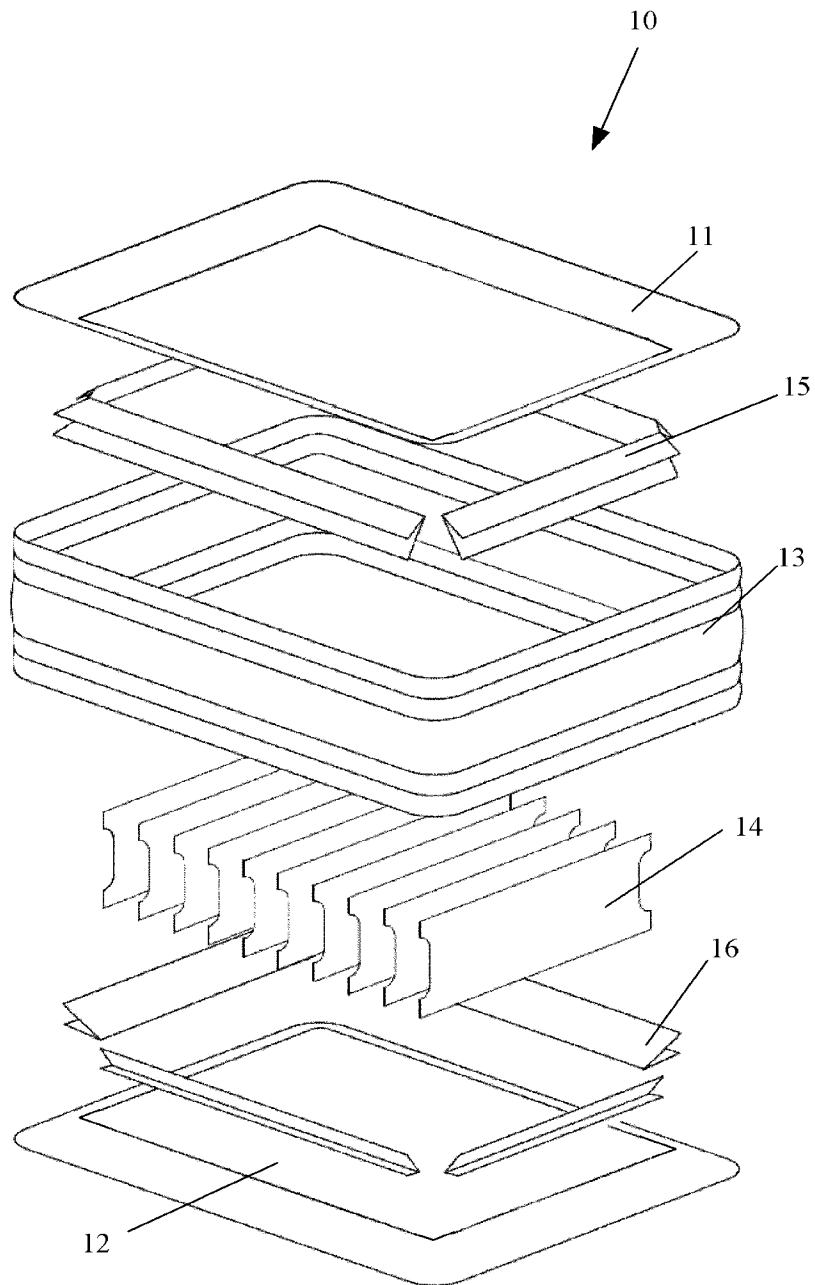


图 18

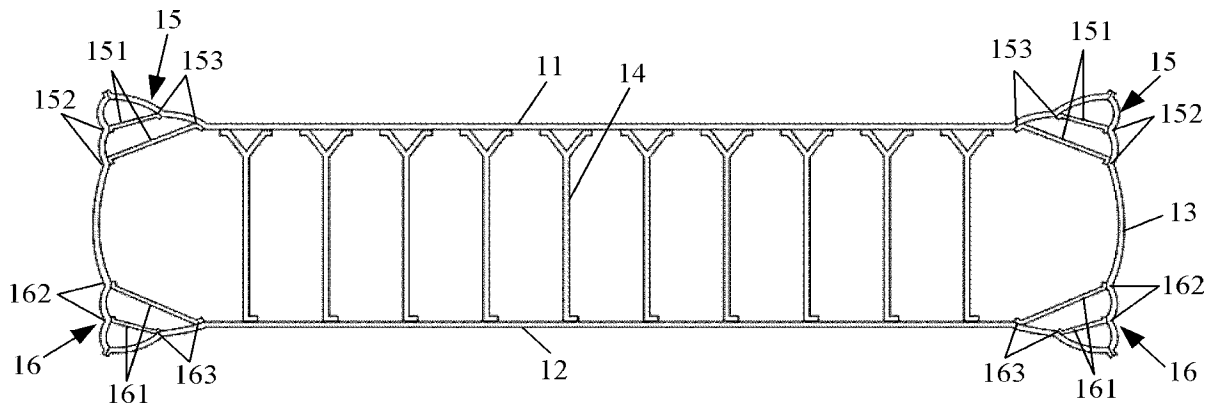


图 19

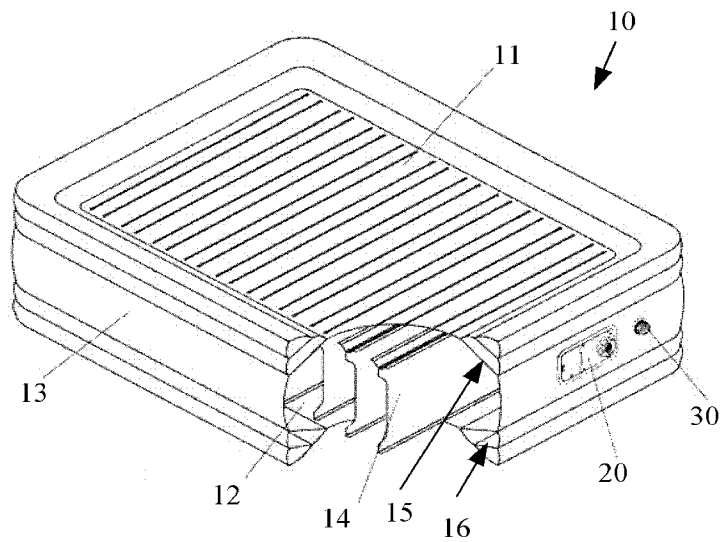


图 20

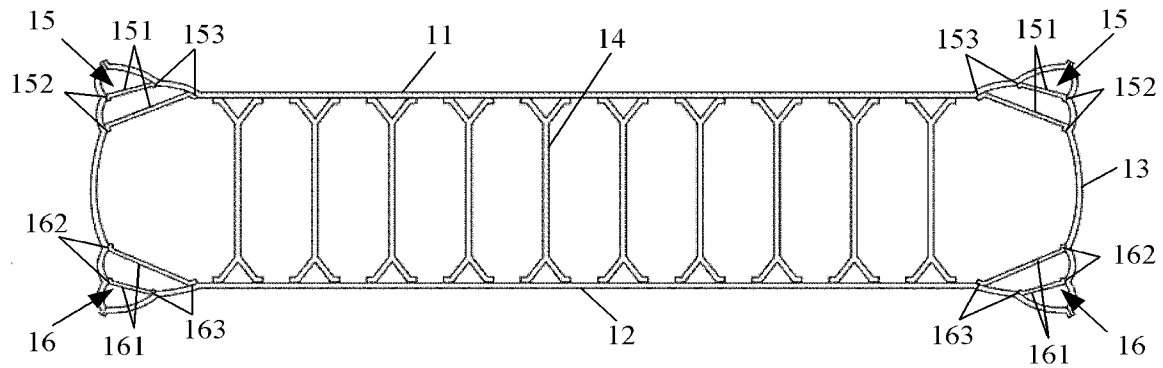


图 21

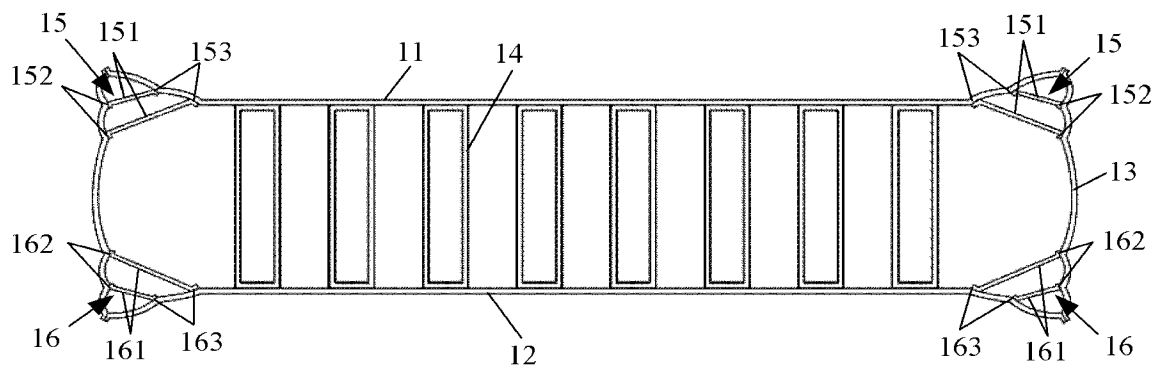


图 22

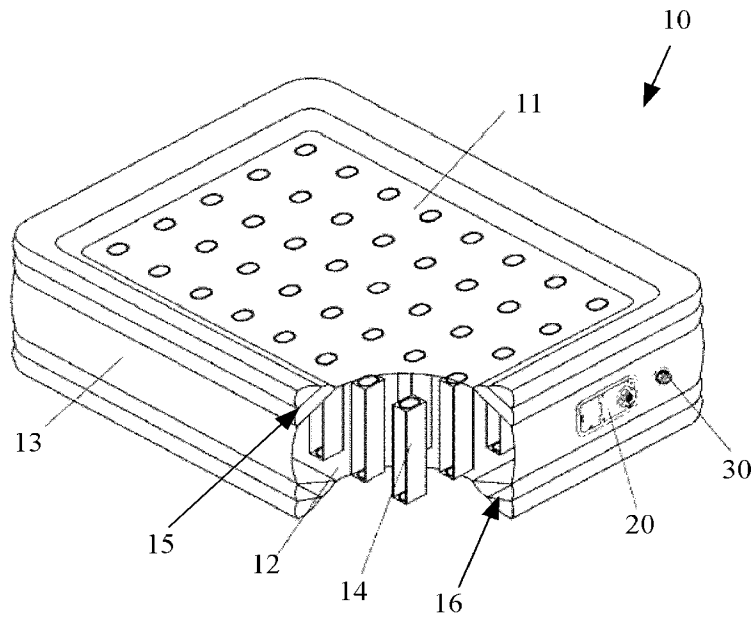


图 23

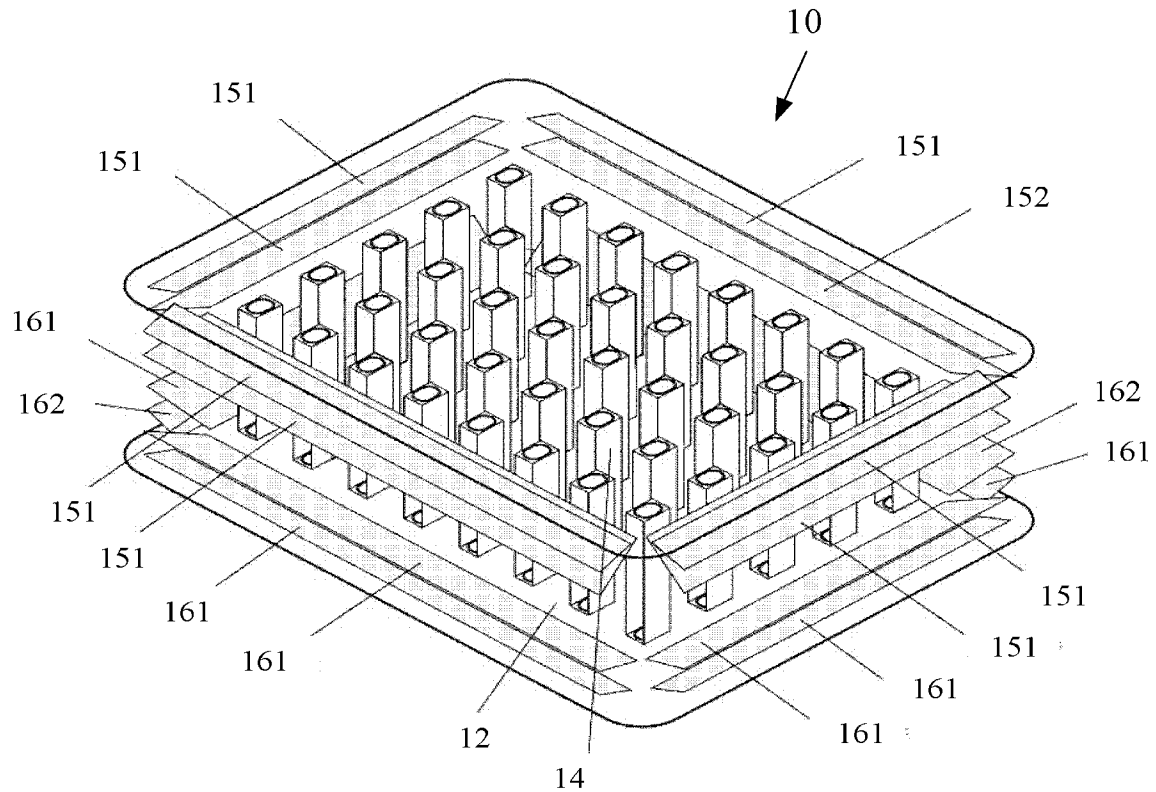


图 24

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证 明

本证明之附件是向本局提交的下列专利申请文件副本。

申 请 号：201610020533.5

申 请 类 型：发明专利

发 明 创 造 名 称：充气床

申 请 日：2016 年 01 月 13 日

申 请 人：上海荣威塑胶工业有限公司

发明人或设计人：刘峰

局长

申长雨

2016 年 11 月 08 日

权 利 要 求 书

1、一种充气床，其特征在于，所述充气床包括：

顶片和底片，所述底片与所述顶片上下间隔布置；

至少一侧壁，所述侧壁的上边缘与所述顶片的外边缘连接，所述侧壁的下边缘与所述底片的外边缘连接，所述顶片、所述底片和所述侧壁之间形成一个气室；

至少一第一拉带结构，所述第一拉带结构设置在所述气室内，且所述第一拉带结构的上下两端分别与所述顶片和所述底片连接；以及

至少一支撑结构，设置在所述气室内，所述支撑结构沿至少一所述侧壁的长度方向设置，所述支撑结构中至少两个外侧边缘分别与相邻的所述侧壁连接，所述支撑结构中至少一个内侧边缘与相邻的所述顶片或所述底片连接。

2、如权利要求 1 所述的充气床，其特征在于，所述支撑结构包括第二拉带结构和第三拉带结构，所述第二拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第二拉带结构中至少一个内侧边缘与相邻的所述顶片连接；以及

所述第三拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第三拉带结构中至少一个内侧边缘与相邻的所述底片连接。

3、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构和所述第三拉带结构上分别设有多个气孔，所述气室通过所述气孔形成空气流通。

4、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构和所述第三拉带结构在垂直方向间隔布置。

5、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少两个第一 I 型拉带，每一所述第一 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述顶片连接，且至少两个所述第一 I 型拉带间隔布置。

6、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少

两个第二 I 型拉带，每一所述第二 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述底片连接，且至少两个所述第二 I 型拉带间隔布置。

7、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少一个第一 Y 型拉带，其中，所述第一 Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述顶片连接。

8、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少一个第二 Y 型拉带，其中，所述第二 Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述底片连接。

9、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少一个第一管型拉带，所述第一管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述顶片连接。

10、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少一个第二管型拉带，所述第二管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述底片连接。

11、如权利要求 2 所述的充气床，其特征在于，所述第二拉带结构包括至少一个第一 V 型拉带，其中，所述第一 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述顶片连接。

12、如权利要求 2 所述的充气床，其特征在于，所述第三拉带结构包括至少一个第二 V 型拉带，其中，所述第二 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述底片连接。

13、如权利要求 5 所述的充气床，其特征在于，所述至少两个第一 I 型拉带相互间隔地排布于所述顶片的下表面。

14、如权利要求 6 所述的充气床，其特征在于，所述至少两个第二 I 型拉

带相互间隔地排布于所述底片的上表面。

15、如权利要求 5 所述的充气床，其特征在于，所述至少两个第一 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

16、如权利要求 6 所述的充气床，其特征在于，所述至少两个第二 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

17、如权利要求 7 所述的充气床，其特征在于，所述至少一个第一 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

18、如权利要求 8 所述的充气床，其特征在于，所述至少一个第二 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

19、如权利要求 9 所述的充气床，其特征在于，所述至少一个第一管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

20、如权利要求 10 所述的充气床，其特征在于，所述至少一个第二管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

21、如权利要求 11 所述的充气床，其特征在于，所述至少一个第一 V 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

22、如权利要求 12 所述的充气床，其特征在于，所述至少一个第二 V 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

23、如权利要求 5 所述的充气床，其特征在于，所述至少两个第一 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

24、如权利要求 6 所述的充气床，其特征在于，所述至少两个第二 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

25、如权利要求 7 所述的充气床，其特征在于，所述至少一个第一 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

26、如权利要求 8 所述的充气床，其特征在于，所述至少一个第二 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

27、如权利要求 9 所述的充气床，其特征在于，所述至少一个第一管型拉带整体为一个间断的环形结构。

28、如权利要求 10 所述的充气床，其特征在于，所述至少一个第二管型拉带整体为一个间断的环形结构。

29、如权利要求 11 所述的充气床，其特征在于，所述至少一个第一 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

30、如权利要求 12 所述的充气床，其特征在于，所述至少一个第二 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

31、如权利要求 1 所述的充气床，其特征在于，所述第一拉带结构为直拉带、圆孔拉带、Y 型拉带或 X 型拉带其中一种拉带或多种拉带。

32、如权利要求 2 所述的充气床，其特征在于，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构均采用热塑性塑胶布制成。

33、如权利要求 2 所述的充气床，其特征在于，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构中的一个或多个至少部分地包括网布、夹网布或者线体。



34、如权利要求 33 所述的充气床，其特征在于，所述网布或者所述线体至少部分两侧表面分别与两片相对的胶布片条连接为一体，所述网布和所述线体夹设于两片相对的胶布条之间。

35、如权利要求 33 所述的充气床，其特征在于，所述网布、或者所述线体至少部分两侧表面与 U 型胶布片条连接为一体，所述网布和所述线体夹设于所述 U 型胶布条中间。

36、如权利要求 2 所述的充气床，其特征在于，所述第一拉带结构通过高频焊接的方式与所述顶片和所述底片连接；所述第二拉带结构通过高频焊接的方式与所述顶片和所述侧壁连接；所述第三拉带结构通过高频焊接的方式与所述底片和所述侧壁连接。

37、如权利要求 2 所述的充气床，其特征在于，所述顶片位于所述第二拉带结构的上边缘内侧部分的高度低于所述顶片位于所述第二拉带结构的上边缘外侧部分的高度。

38、如权利要求 2 所述的充气床，其特征在于，所述底片位于所述第三拉带结构的下边缘内侧部分的高度低于所述底片位于所述第三拉带结构的下边缘外侧部分的高度。

39、如权利要求 2 所述的充气床，其特征在于，所述充气床还包括内置气泵，所述内置气泵设置在所述侧壁上，且位于所述第二拉带结构的下边缘和所述第三拉带结构的上边缘之间，用以供所述气室充气。

40、如权利要求 1 所述的充气床，其特征在于，所述充气床还包括气阀，所述气阀设置在所述侧壁上，用于所述充气床的充气或放气。

说明书

充气床

技术领域

本发明涉及充气床或充气床垫领域，特别涉及一种充气床，其结构设置为可限制侧壁向外膨胀或变形。

背景技术

目前，充气床和充气床垫已经非常流行。充气床和充气床垫具有重量轻、便于携带和收藏等优点，因而被广泛应用于各种不同的场合。例如，在家庭充气床和充气床垫通常可以作为临时的床，供来访的客人使用。另外还非常适合在户外野营时使用。

在现有技术中，充气床和充气床垫一般由 PVC 胶布、PU 胶布等制成，且具有许多不同的结构，其中比较典型的机构是由顶片、底片，以及与顶片和底片相连接的侧壁构成可充气的气室。在气室内部设有连接顶片和底片且间隔排列的拉带，以构成具有一定高度且上表面大致平坦的可供人躺在上面的形状。

在现有的充气床和充气床垫中，有的具有较高的高度，充气床和充气床垫充气后的侧壁容易膨胀和变形，影响到充气床和充气床垫外观的美观，充气床和充气床垫的膨胀和变形也会造成气室内的气压衰减，使得充气床和充气床垫偏软降低了充气床和充气床垫的舒适性。

因此，为了解决上述侧壁膨胀的问题，有的充气床和充气床垫在顶片和底片之间设置了中层片，并将中层片与侧壁连接。这种结构的充气床和充气床垫虽然使侧壁膨胀和变形的问题略有改善，但仍然没有达到理想的效果。而且由于顶片与中层片之间，以及中层片与底片之间都需要设置连接拉带，使得充气床和充气床垫的制造过程更加复杂，即所需胶布也更多。

另外，在现有技术中，高度较高的充气床和充气床垫存在稳定性方面的缺陷。当用户躺在或者坐在靠近充气床和充气床垫的边缘处时，充气床和充气床垫容易发生侧翻。为了改善其稳定性，美国专利 US 6671910 在充气床底片的外围设置了充气的稳定管。然而，这种结构不仅会影响充气床的外观美观，也给用户带来了使用的不便。

发明内容

本发明要解决的技术问题是为了克服现有技术中充气床和充气床垫的侧壁容易膨胀、变形以及充气床和充气床垫稳定性差，容易侧翻的缺陷，提供一种充气床。

本发明是通过下述技术方案来解决上述技术问题的：一种充气床，其特点在于，所述充气床包括：顶片和底片，所述底片与所述顶片上下间隔布置；

至少一侧壁，所述侧壁的上边缘与所述顶片的外边缘连接，所述侧壁的下边缘与所述底片的外边缘连接，所述顶片、所述底片和所述侧壁之间形成一个气室；

至少一第一拉带结构，所述第一拉带结构设置在所述气室内，且所述第一拉带结构的上下两端分别与所述顶片和所述底片连接；以及

至少一支撑结构，设置在所述气室内，所述支撑结构沿至少一所述侧壁的长度方向设置，所述支撑结构中至少两个外侧边缘分别与相邻的所述侧壁连接，所述支撑结构中至少一个内侧边缘与相邻的所述顶片或所述底片连接。

较佳地，所述支撑结构包括第二拉带结构和第三拉带结构，所述第二拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第二拉带结构中至少一个内侧边缘与相邻的所述顶片连接；以及

所述第三拉带结构中至少两个外侧边缘与相邻的所述侧壁连接，所述第三拉带结构中至少一个内侧边缘与相邻的所述底片连接。

较佳地，所述第二拉带结构和所述第三拉带结构上分别设有多个气孔，所述气室通过所述气孔形成空气流通。

较佳地，所述第二拉带结构和所述第三拉带结构在垂直方向间隔布置。

较佳地，所述第二拉带结构包括至少两个第一 I 型拉带，每一所述第一 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述顶片连接，且至少两个所述第一 I 型拉带间隔布置。

较佳地，所述第三拉带结构包括至少两个第二 I 型拉带，每一所述第二 I 型拉带的外侧边缘和内侧边缘分别与相邻的所述侧壁和所述底片连接，且至少两个所述第二 I 型拉带间隔布置。

较佳地，所述第二拉带结构包括至少一个第一 Y 型拉带，其中，所述第一 Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述顶片

连接。

较佳地，所述第三拉带结构包括至少一个第二 Y 型拉带，其中，所述第二 Y 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，一内侧边缘与所述底片连接。

较佳地，所述第二拉带结构包括至少一个第一管型拉带，所述第一管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述顶片连接。

较佳地，所述第三拉带结构包括至少一个第二管型拉带，所述第二管型拉带上具有至少两个外侧边缘分别与相邻的所述侧壁连接，且至少一内侧边缘与所述底片连接。

较佳地，所述第二拉带结构包括至少一个第一 V 型拉带，其中，所述第一 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述顶片连接。

较佳地，所述第三拉带结构包括至少一个第二 V 型拉带，其中，所述第二 V 型拉带的两个外侧边缘分别与相邻的所述侧壁连接，且一内侧边缘与所述底片连接。

较佳地，所述至少两个第一 I 型拉带相互间隔地排布于所述顶片的下表面。

较佳地，所述至少两个第二 I 型拉带相互间隔地排布于所述底片的上表面。

较佳地，所述至少两个第一 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少两个第二 I 型拉带在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第一 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第二 Y 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第一管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第二管型拉带与相邻的所述侧壁连接的所述至少两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少一个第一 V 型拉带的两个外侧边缘在所述侧壁的内表面

上沿垂直方向间隔排布。

较佳地，所述至少一个第二 V 型拉带的两个外侧边缘在所述侧壁的内表面上沿垂直方向间隔排布。

较佳地，所述至少两个第一 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少两个第二 I 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第一 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第二 Y 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第一管型拉带整体为一个间断的环形结构。

较佳地，所述至少一个第二管型拉带整体为一个间断的环形结构。

较佳地，所述至少一个第一 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述至少一个第二 V 型拉带整体为一个闭合的环形结构或一个间断的环形结构。

较佳地，所述第一拉带结构为直拉带、圆孔拉带、Y 型拉带或 X 型拉带其中一种拉带或多种拉带。

较佳地，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构均采用热塑性塑胶布制成。

较佳地，所述第一拉带结构、所述第二拉带结构及所述第三拉带结构中的一个或多个至少部分地包括网布、夹网布或者线体。

较佳地，所述网布或者所述线体至少部分两侧表面分别与两片相对的胶布片条连接为一体，所述网布和所述线体夹设于两片相对的胶布条之间。

较佳地，所述网布、或者所述线体至少部分两侧表面与 U 型胶布片条连接为一体，所述网布和所述线体夹设于所述 U 型胶布条中间。

较佳地，所述第一拉带结构通过高频焊接的方式与所述顶片和所述底片连接；所述第二拉带结构通过高频焊接的方式与所述顶片和所述侧壁连接；所述第三拉带结构通过高频焊接的方式与所述底片和所述侧壁连接。

较佳地，所述顶片位于所述第二拉带结构的上边缘内侧部分的高度低于所

述顶片位于所述第二拉带结构的上边缘外侧部分的高度。

较佳地，所述底片位于所述第三拉带结构的下边缘内侧部分的高度低于所述底片位于所述第三拉带结构的下边缘外侧部分的高度。

较佳地，所述充气床还包括内置气泵，所述内置气泵设置在所述侧壁上，且位于所述第二拉带结构的下边缘和所述第三拉带结构的的上边缘之间，用以供所述气室充气。

较佳地，所述充气床还包括气阀，所述气阀设置在所述侧壁上，用于所述充气床的充气或放气。

本发明的积极进步效果在于：

本发明充气床克服了现有技术中具有较高高度的充气床和充气床垫侧壁向外膨胀变形的缺陷，外观更加美观。其具有很好的稳定性，克服了现有技术的充气床和充气床垫容易侧翻的问题。此外，本发明充气床还可以防止用户在使用过程中滚落。

附图说明

本发明上述的以及其他的特征、性质和优势将通过下面结合附图和实施例的描述而变的更加明显，在附图中相同的附图标记始终表示相同的特征，其中：

图 1 为本发明充气床的立体图。

图 2 为本发明充气床的主视图。

图 3 为本发明充气床的右视图。

图 4 为本发明充气床的俯视图。

图 5 为图 4 中沿 A-A 线剖开的实施例一的剖视图。

图 6 为本发明充气床的实施例一的局部解剖结构示意图。

图 7 为本发明充气床的实施例一的爆炸图一。

图 8 为本发明充气床的实施例一的爆炸图二。

图 9 为图 4 中沿 A-A 线剖开的实施例二的剖视图。

图 10 为本发明充气床的实施例二的爆炸图一。

图 11 为本发明充气床的实施例二的爆炸图二。

图 12 为图 4 中沿 A-A 线剖开的实施例三的剖视图一。

图 13 为图 4 中沿 A-A 线剖开的实施例三的剖视图二。

图 14 为本发明充气床的实施例三的爆炸图一。

图 15 为本发明充气床的实施例三的爆炸图二。

图 16 为图 4 中沿 A-A 线剖开的实施例四的剖视图。

图 17 为本发明充气床的实施例四的爆炸图一。

图 18 为本发明充气床的实施例四的爆炸图二。

图 19 为图 4 中沿 A-A 线剖开的实施例五的剖视图。

图 20 为本发明充气床的实施例五的局部解剖结构示意图。

图 21 为图 4 中沿 A-A 线剖开的实施例六的剖视图。

图 22 为图 4 中沿 A-A 线剖开的实施例七的剖视图。

图 23 为本发明充气床的实施例七的局部解剖结构示意图。

图 24 为本发明充气床的实施例七的内部结构示意图。

具体实施方式

为了让本发明的上述目的、特征和优点能更明显易懂，以下结合附图对本发明的具体实施方式作详细说明。

在下面的描述中阐述了很多具体细节以便于充分理解本发明，但是本发明还可以采用其它不同于在此描述的其它方式来实施，因此本发明不受下面公开的具体实施例的限制。

实施例一：

图 1 为本发明充气床的立体图。图 2 为本发明充气床的主视图。图 3 为本发明充气床的右视图。图 4 为本发明充气床的俯视图。图 5 为图 4 中沿 A-A 线剖开的实施例一的剖视图。图 6 为本发明充气床的实施例一的局部解剖结构示意图。图 7 为本发明充气床的实施例一的爆炸图。

如图 1 至图 7 所示，本发明的实施例一中公开了一种充气床 10，其包括顶片 11、底片 12、至少一侧壁 13、至少一第一拉带结构 14 及至少一支撑结构。其中，底片 12 与顶片 11 上下间隔布置，侧壁 13 的上边缘与顶片 11 的外边缘连接，侧壁 13 的下边缘与底片 12 的外边缘连接，顶片 11、底片 12 和侧壁 13 之间形成一个气室。同时将第一拉带结构 14 设置在所述气室内，且第一拉带结构 14 的上下两端分别与顶片 11 和底片 12 连接。其作用在于，当所述气室充气后，通过第一拉带结构 14 来限制顶片 11 和底片 12 分别向上和向下膨胀。特别地，顶片 11 和底片 12 均可以设置为双层结构，所述双层结构可以通过至少两个两片相互焊接以形成不同的图案。或者进一步地，在所述双层结构中还可

夹设有海绵的结构。

此处的所述支撑结构设置在所述气室内，所述支撑结构沿至少一侧壁 13 的长度方向设置，所述支撑结构中至少两个外侧边缘分别与相邻的侧壁 13 连接，所述支撑结构中至少一个内侧边缘与相邻的顶片 11 或底片 12 连接。

优选地，所述支撑结构包括第二拉带结构 15 和第三拉带结构 16。其中，第二拉带结构 15 中至少两个外侧边缘与相邻的侧壁 13 连接，第二拉带结构中至少一个内侧边缘与相邻的顶片 11 连接。第二拉带结构 15 设置为当所述气室充气后限制顶片 11 和侧壁 13 向上和侧向膨胀。

同时，第三拉带结构 16 中至少两个外侧边缘与相邻的侧壁 13 连接，第三拉带结构 16 中至少一个内侧边缘与相邻的底片 12 连接。第三拉带结构 16 设置为当所述气室充气后分别限制底片 12 和侧壁 13 向下和侧向膨胀。

在本实施例中，第二拉带结构 15 包括至少两个第一 I 型拉带 151，每一第一 I 型拉带 151 的一个外侧边缘 152 与相邻的侧壁 13 连接，另一个内侧边缘 153 与相邻的顶片 11 连接，且至少两个第一 I 型拉带 151 间隔布置。第三拉带结构 16 包括至少两个第二 I 型拉带 161，每一第二 I 型拉带 161 的一个外侧边缘 162 与相邻的侧壁 13 连接，另一个内侧边缘 163 与相邻的底片 12 连接，且至少两个第二 I 型拉带 161 间隔布置。本实施例中第一 I 型拉带 151 和第二 I 型拉带 161 均以两个为例，但其数量并不受本实施例限制，其可以采用多于两个的数量，均属于本发明的保护范围内。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。例如本实施例中第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式，从而使第二拉带结构 15 设置为当所述气室充气后，限制顶片 11 和侧壁 13 向上和侧向膨胀，使第三拉带结构 16 设置为当所述气室充气后，分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然，第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构，本实施例仅为举例，并不局限于此，其他大于等于四段式的结构都属于本发明的保护范围内。

进一步地，至少两个第一 I 型拉带 151 相互间隔地排布于顶片 11 的下表面，且至少两个第二 I 型拉带 161 相互间隔地排布于底片 12 的上表面。至少两个第一 I 型拉带 151 在侧壁 13 的内表面上沿垂直方向间隔排布。至少两个第二 I 型拉带 161 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处，至少两个第一 I 型拉带 151 整体为一个闭合的环形结构或一个间断的环形结构。至少两个第二 I 型拉带 161 整体为一个闭合的环形结构或一个间断的环形结构。同时，在至少两个第一 I 型拉带 151 上设有气孔 154，使所述气室通过气孔 154 形成空气流通。至少两个第二 I 型拉带 161 设有气孔 164，使所述气室通过气孔 164 形成空气流通（如图 7 和图 8 所示）。

本发明中的第一拉带结构 14 可以采用直拉带、圆孔拉带、Y 型拉带或 X 型拉带其中一种拉带或多种拉带。同时，第一拉带结构 14、第二拉带结构 15 及第三拉带结构 16 均可以采用热塑性塑胶布制成，且第一拉带结构 14、第二拉带结构 15 及第三拉带结构 16 中的一个或多个至少部分地包括网布、夹网布或者线体。

其结构形式可以采用多种方式。例如，所述网布或者所述线体至少部分两侧表面分别与两片相对的胶布片条连接为一体，所述网布和所述线体夹设于两片相对的胶布条之间。

再例如，所述网布、或者所述线体至少部分两侧表面与 U 型胶布片条连接为一体，所述网布和所述线体夹设于所述 U 型胶布条中间。这些连接结构都可以有效地制成本发明充气床所需的拉带，这里仅为举例，但不局限于本实施例中的方案，其他可实现拉带形式的结构均在本发明的保护范围内。

在上述拉带的结构基础上，为了保证各个部件之间的牢固连接，第一拉带结构 14 通过高频焊接的方式连接在顶片 11 和底片 12 之间。同理，第二拉带结构 15 也通过高频焊接的方式连接在顶片 11 和侧壁 13 之间。第三拉带结构 16 通过高频焊接的方式连接在底片 12 和侧壁 13 之间。

通过上述结构形成的本发明充气床，其顶片 11 位于第二拉带结构 15 的上边缘内侧部分的高度低于顶片 11 位于第二拉带结构 15 的上边缘外侧部分的高度。底片 12 位于第三拉带结构 16 的下边缘内侧部分的高度低于底片 12 位于第三拉带结构 16 的下边缘外侧部分的高度。

此外，在充气床 10 上还包括内置气泵 20，将内置气泵 20 设置在侧壁 13 上，且位于第二拉带结构 15 的下边缘和第三拉带结构 16 的上边缘之间，用以供所述气室充气。同时，在充气床 10 上还设置有气阀 30，将气阀 30 设置在侧壁 13 上，用以供充气床 10 的充气或放气。

实施例二：

图 9 为图 4 中沿 A-A 线剖开的实施例二的剖视图。图 10 为本发明充气床的实施例二的爆炸图一。图 11 为本发明充气床的实施例二的爆炸图二。

如图 9 至图 11 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第二拉带结构 15 包括至少一个第一 Y 型拉带 151，其中第一 Y 型拉带 151 的两个外侧边缘 152 分别与相邻的侧壁 13 连接，另一个内侧边缘 153 与顶片 11 连接。同理，第三拉带结构 16 包括至少一个第二 Y 型拉带 161，其中第二 Y 型拉带 161 的两个外侧边缘 162 分别与相邻的侧壁 13 连接，另一个内侧边缘 163 与底片 12 连接。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。本实施例中的第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式，从而将第二拉带结构 15 设置为当所述气室充气后，限制顶片 11 和侧壁 13 向上和侧向膨胀，将第三拉带结构 16 设置为当所述气室充气后，分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然，第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构，本实施例仅为举例，并不局限于此，其他大于等于四段式的结构都属于本发明的保护范围内。

进一步地，至少一个第一 Y 型拉带 151 的两个外侧边缘 152 在侧壁 13 的内表面上沿垂直方向间隔排布。至少一个第二 Y 型拉带 161 的两个外侧边缘 162 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处，至少一个第一 Y 型拉带 151 整体为一个闭合的环形结构或一个间断的环形结构。至少一个第二 Y 型拉带 161 整体为一个闭合的环形结构或一个间断的环形结构。同时，至少一个第一 Y 型拉带 151 上还设有气孔 154，使所述气室通过气孔 154 形成空气流通。至少一个第二 Y 型拉带 161 上还设有气孔 164，使所述气室通过气孔 164 形成空气流通（如图 10 和图 11 所示）。

实施例三：

图 12 为图 4 中沿 A-A 线剖开的实施例三的剖视图一。图 13 为图 4 中沿 A-A 线剖开的实施例三的剖视图二。图 14 为本发明充气床的实施例三的爆炸图一。图 15 为本发明充气床的实施例三的爆炸图二。

如图 12 至图 15 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第二拉带结构 15 包括至少一个第一管型拉带 151，其中第一管型拉带

151 上具有至少两个外侧边缘 152 分别与相邻的侧壁 13 连接，且至少另一个内侧边缘 153 与顶片 11 连接。第三拉带结构 16 包括至少一个第二管型拉带 161，第二管型拉带 161 上具有至少两个外侧边缘 162 分别与相邻的侧壁 13 连接，且至少另一个内侧边缘 163 与底片 12 连接。此处的第一管型拉带 151 和第二管型拉带 161 可以采用多种管型结构，例如呈三角形的管型结构，呈四边形的管型结构（如图 13 和图 14 所示）。

进一步地，至少一个第一管型拉带 151 与相邻的侧壁 13 连接的至少两个外侧边缘 152 在侧壁 13 的内表面上沿垂直方向间隔排布。至少一个第二管型拉带 161 与相邻的侧壁 13 连接的至少两个外侧边缘 162 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处，至少一个第一管型拉带 151 整体为一个间断的环形结构。至少一个第二管型拉带 161 整体为一个间断的环形结构（如图 13 和图 14 所示）。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。本实施例中的第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式，从而将第二拉带结构 15 设置为当所述气室充气后，限制顶片 11 和侧壁 13 向上和侧向膨胀，将第三拉带结构 16 设置为当所述气室充气后，分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然，第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构，本实施例仅为举例，并不局限于此，其他大于等于四段式的结构都属于本发明的保护范围内。

实施例四：

图 16 为图 4 中沿 A-A 线剖开的实施例四的剖视图。图 17 为本发明充气床的实施例四的爆炸图一。图 18 为本发明充气床的实施例四的爆炸图二。

如图 16 至图 18 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第二拉带结构 15 包括至少一个第一 V 型拉带 151，其中第一 V 型拉带 151 的两个外侧边缘 152 分别与相邻的侧壁 13 连接，且另一内侧边缘 153 与顶片 11 连接。第三拉带结构 16 包括至少一个第二 V 型拉带 161，其中第二 V 型拉带 161 的两个外侧边缘 162 分别与相邻的侧壁 13 连接，且另一内侧边缘 163 与顶片 11 连接。

进一步地，至少一个第一 V 型拉带 151 的两个外侧边缘 152 在侧壁 13 的

内表面上沿垂直方向间隔排布。至少一个第二 V 型拉带 161 的两个外侧边缘 162 在侧壁 13 的内表面上沿垂直方向间隔排布。

此处，至少一个第一 V 型拉带 151 整体为一个闭合的环形结构或一个间断的环形结构。至少一个第二 V 型拉带 161 整体为一个闭合的环形结构或一个间断的环形结构。同时，至少一个第一 V 型拉带 151 上设有气孔 154，使所述气室通过气孔 154 形成空气流通。至少一个第二 V 型拉带 161 上设有气孔 164，使所述气室通过气孔 164 形成空气流通。

第二拉带结构 15 和第三拉带结构 16 优选地设置为在垂直方向间隔布置。本实施例中的第二拉带结构 15 和第三拉带结构 16 将对应的侧壁 13 分隔成五段式，从而将第二拉带结构 15 设置为当所述气室充气后，限制顶片 11 和侧壁 13 向上和侧向膨胀，将第三拉带结构 16 设置为当所述气室充气后，分别限制底片 12 和侧壁 13 向下和侧向膨胀。

当然，第二拉带结构 15 和第三拉带结构 16 也可以将对应的侧壁 13 分割成四段式、六段式等多段式结构，本实施例仅为举例，并不局限于此，其他大于等于四段式的结构都属于本发明的保护范围内。

实施例五：

图 19 为图 4 中沿 A-A 线剖开的实施例五的剖视图。图 20 为本发明充气床的实施例五的局部解剖结构示意图。

如图 19 和图 20 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第一拉带结构 14 采用 Y 型拉带，且第一拉带结构 14 的上下两端分别与顶片 11 和底片 12 连接。第一拉带结构 14 中若干拉带之间相互间隔排布。第一拉带结构 14 中每一个拉带的上端呈分叉型，连接支撑顶片 11，下端为直拉带型，向下连接底片 12。当所述气室充气后，这种结构可以更有效地限制顶片 11 和底片 12 分别向上和向下膨胀。

实施例六：

图 21 为图 4 中沿 A-A 线剖开的实施例六的剖视图。

如图 21 所示，本实施例的结构与实施例五基本相同，其不同之处在于：第一拉带结构 14 采用上下两端都呈 X 型的拉带，并且第一拉带结构 14 的上下两端分别与顶片 11 和底片 12 连接。第一拉带结构 14 中若干拉带之间相互间隔

排布。第一拉带结构 14 中每一个拉带的上端呈分叉型，向上连接顶片 11，下端同样也呈分叉型，向下连接底片 12。当所述气室充气后，这种结构可以更有效地限制顶片 11 和底片 12 分别向上和向下膨胀。

实施例七：

图 22 为图 4 中沿 A-A 线剖开的实施例七的剖视图。图 23 为本发明充气床的实施例七的局部解剖结构示意图。图 24 为本发明充气床的实施例七的内部结构示意图。

如图 22 至图 24 所示，本实施例的结构与实施例一基本相同，其不同之处在于：第一拉带结构 14 中的若干拉带均采用圆孔拉带，且第一拉带结构 14 中每一个拉带的上下两端分别与顶片 11 和底片 12 连接。第一拉带结构 14 中若干拉带之间相互间隔排布。当所述气室充气后，其可以有效地限制顶片 11 和底片 12 分别向上和向下膨胀。

根据上述结构描述，上述各实施例之间的结构变化可以任意组合，并不受上述具体实施例的限制，即有关第二拉带结构 15 包含拉带的数量和第三拉带结构 16 包含拉带的数量不受限制，根据实际需求进行调整。

同理，第二拉带结构 15 中若干拉带之间的连接方式，以及第三拉带结构 16 中若干拉带之间的连接方式也不受上述实施例的局限，只要将侧壁 13 分隔成至少五段式（或大于等于四段）的形式即可，例如可以通过改变第二拉带结构 15 和第三拉带结构 16 中包含拉带的数量及连接方式将侧壁 13 分隔成六段、七段等多段形式。

当然，有关第一拉带结构 14 的结构形式可以在各种情况下通用，同样起到支撑顶片 11 和底片 12 的作用，有效限制顶片 11 和底片 12 分别向上和向下膨胀。

综上所述，本发明充气床通过采用各种类型的拉带结构，可以限制充气床的侧壁向外膨胀或变形。本发明充气床的结构有效地克服了现有技术中具有较高高度的充气床和充气床垫侧壁向外膨胀变形的缺陷，外观更加美观。其具有很好的稳定性，克服了现有技术的充气床和充气床垫容易侧翻的问题。此外，本发明充气床还可以防止用户在使用过程中滚落。

虽然以上描述了本发明的具体实施方式，但是本领域的技术人员应当理解，这些仅是举例说明，本发明的保护范围是由所附权利要求书限定的。本领域的



技术人员在不背离本发明的原理和实质的前提下，可以对这些实施方式作出多种变更或修改，但这些变更和修改均落入本发明的保护范围。



说明书附图

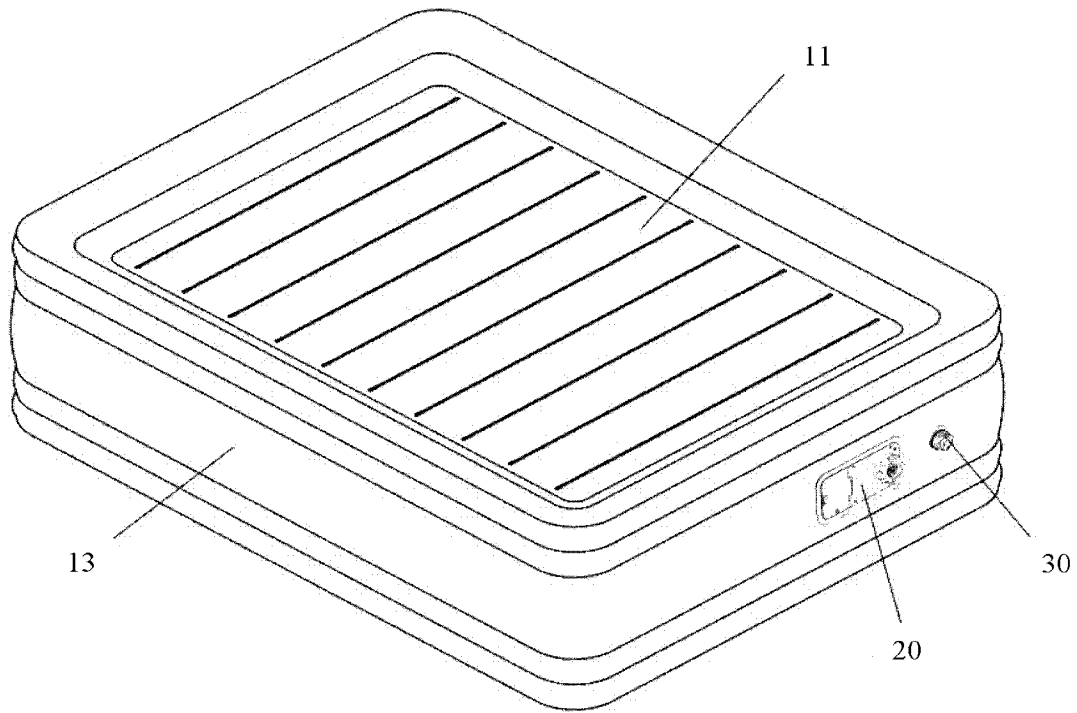


图 1

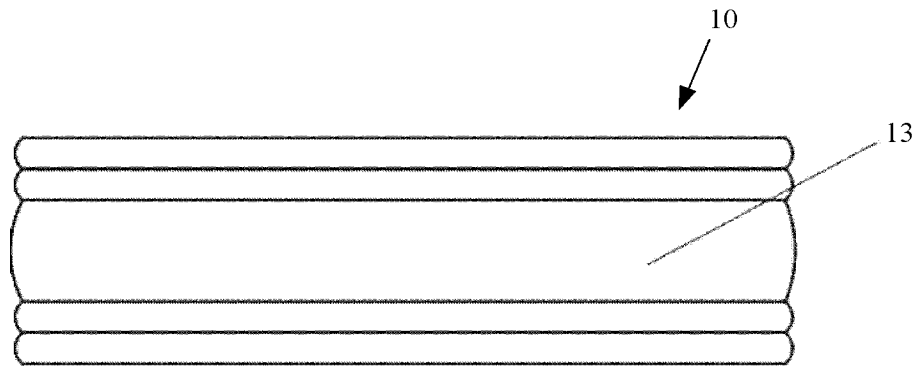


图 2

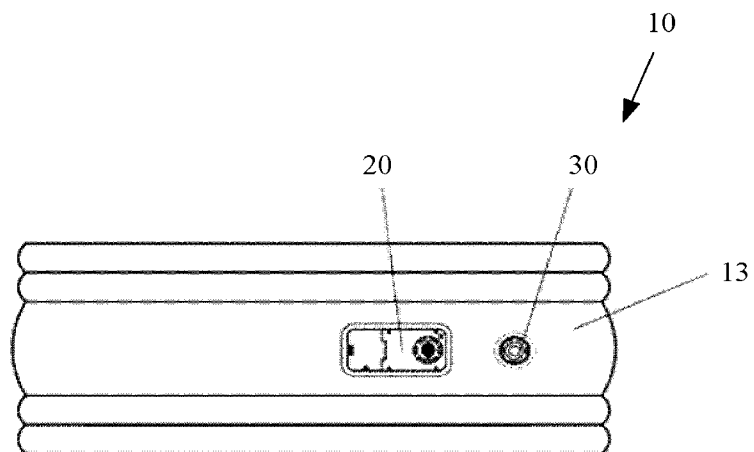


图 3

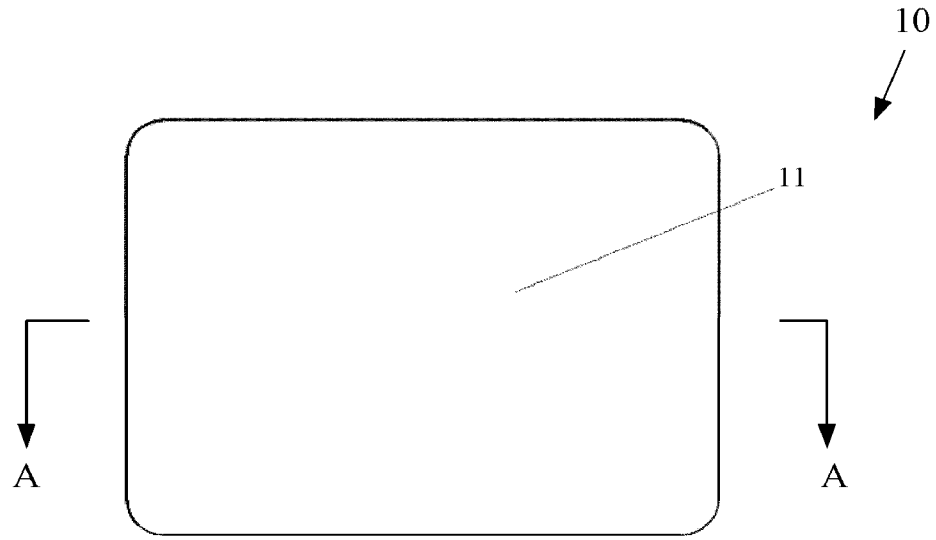


图 4

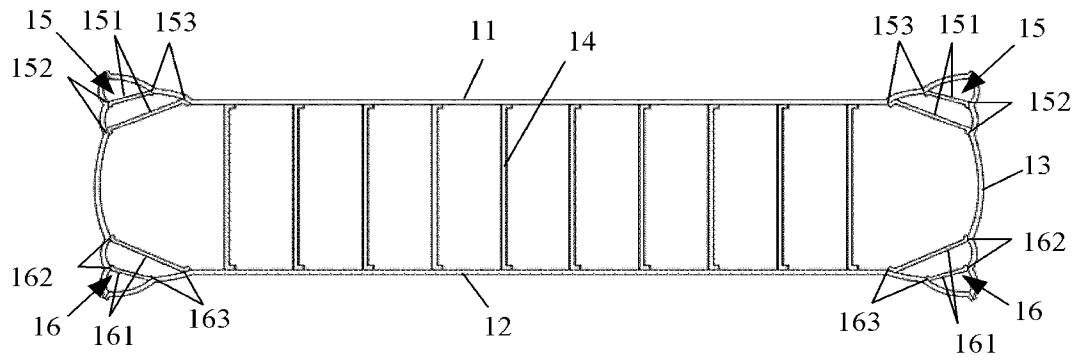


图 5

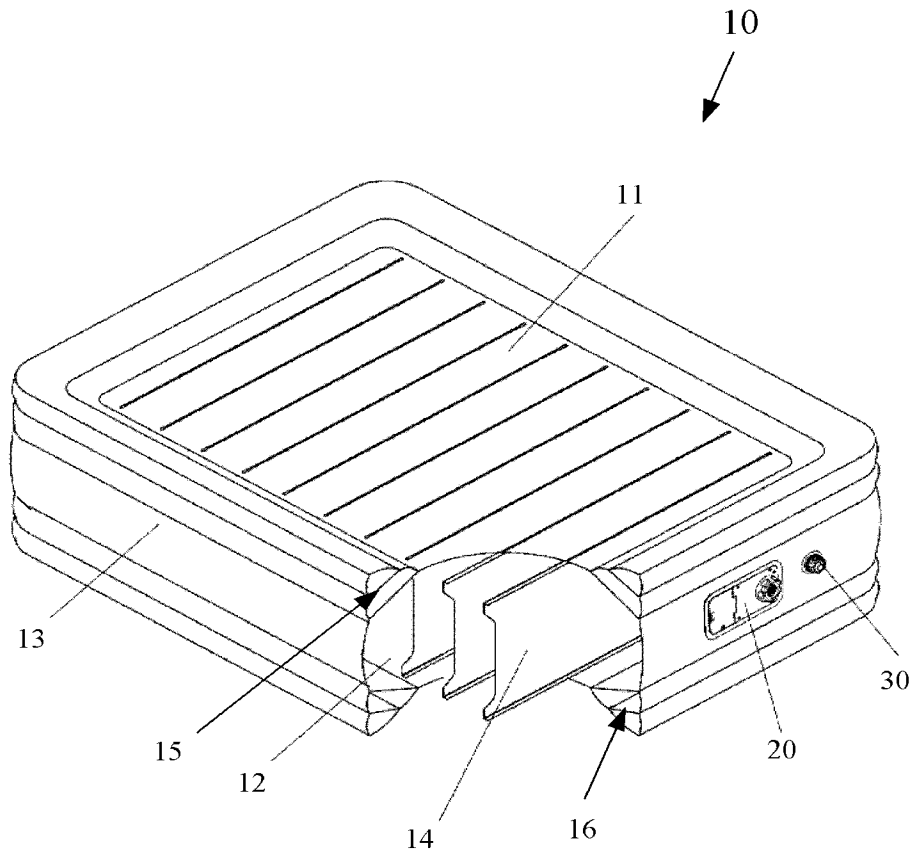


图 6

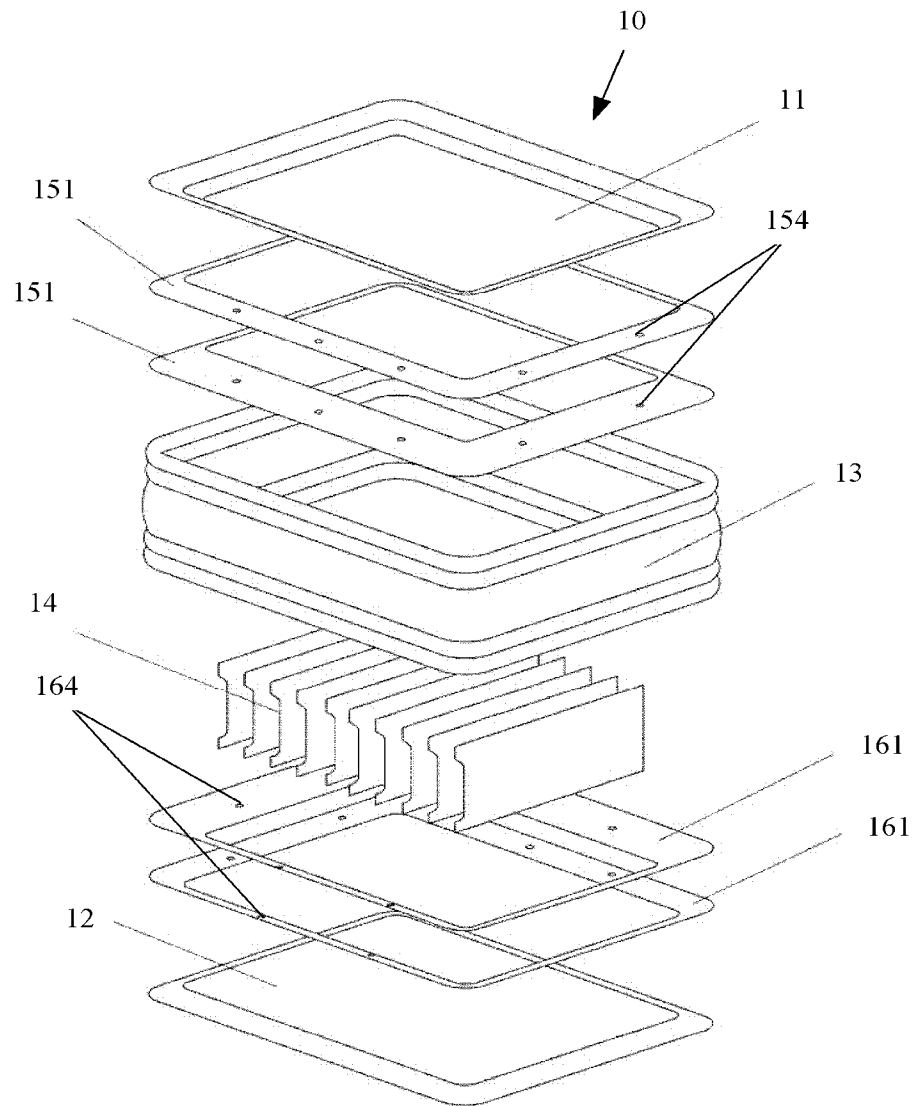


图 7

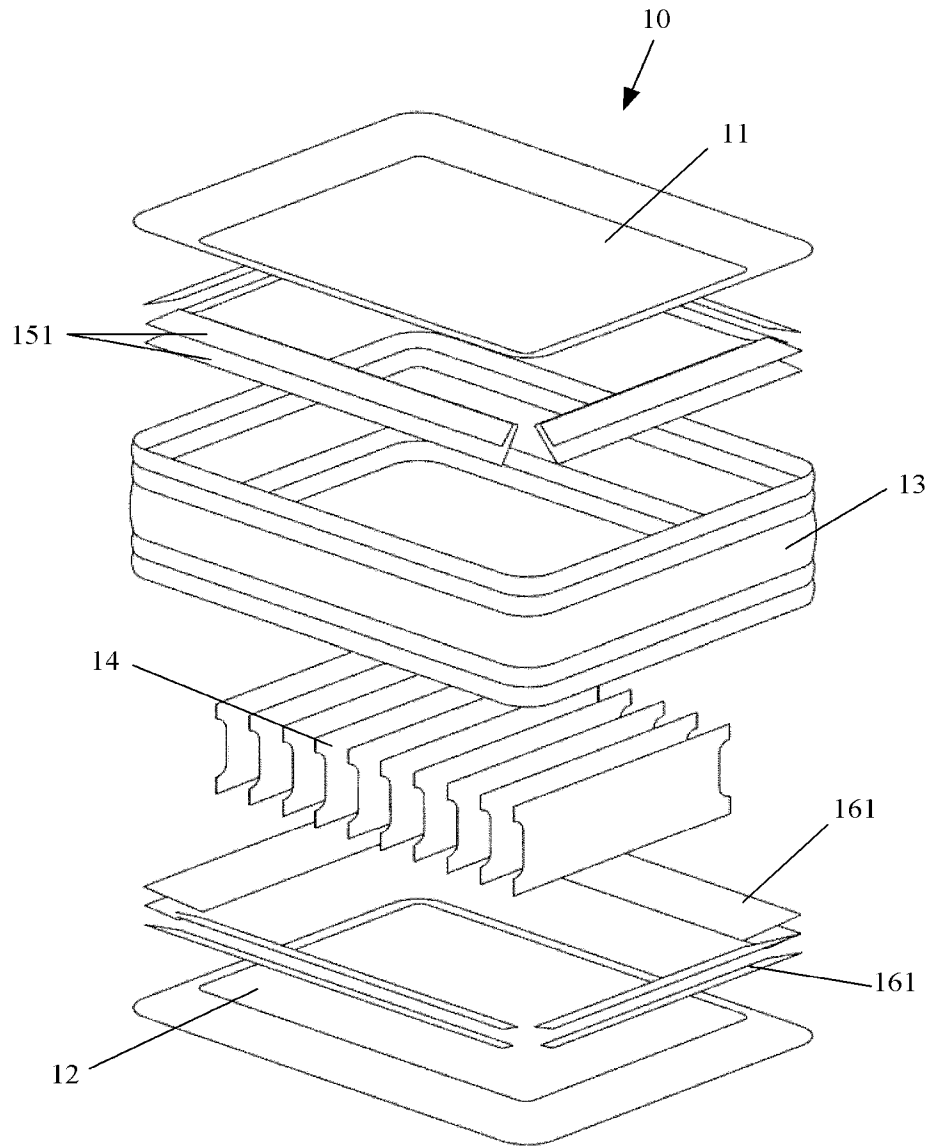


图 8

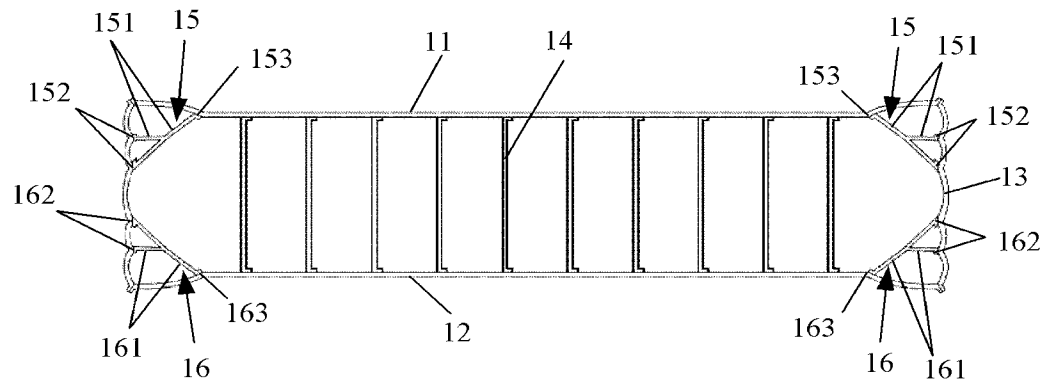


图 9

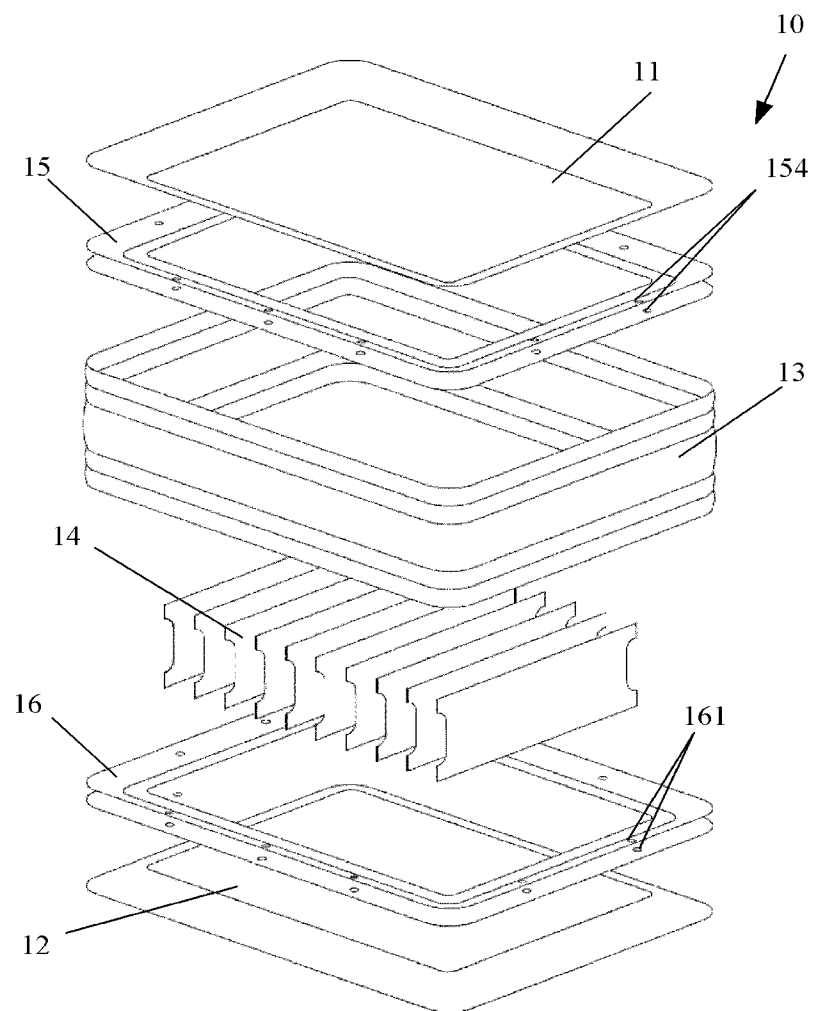


图 10

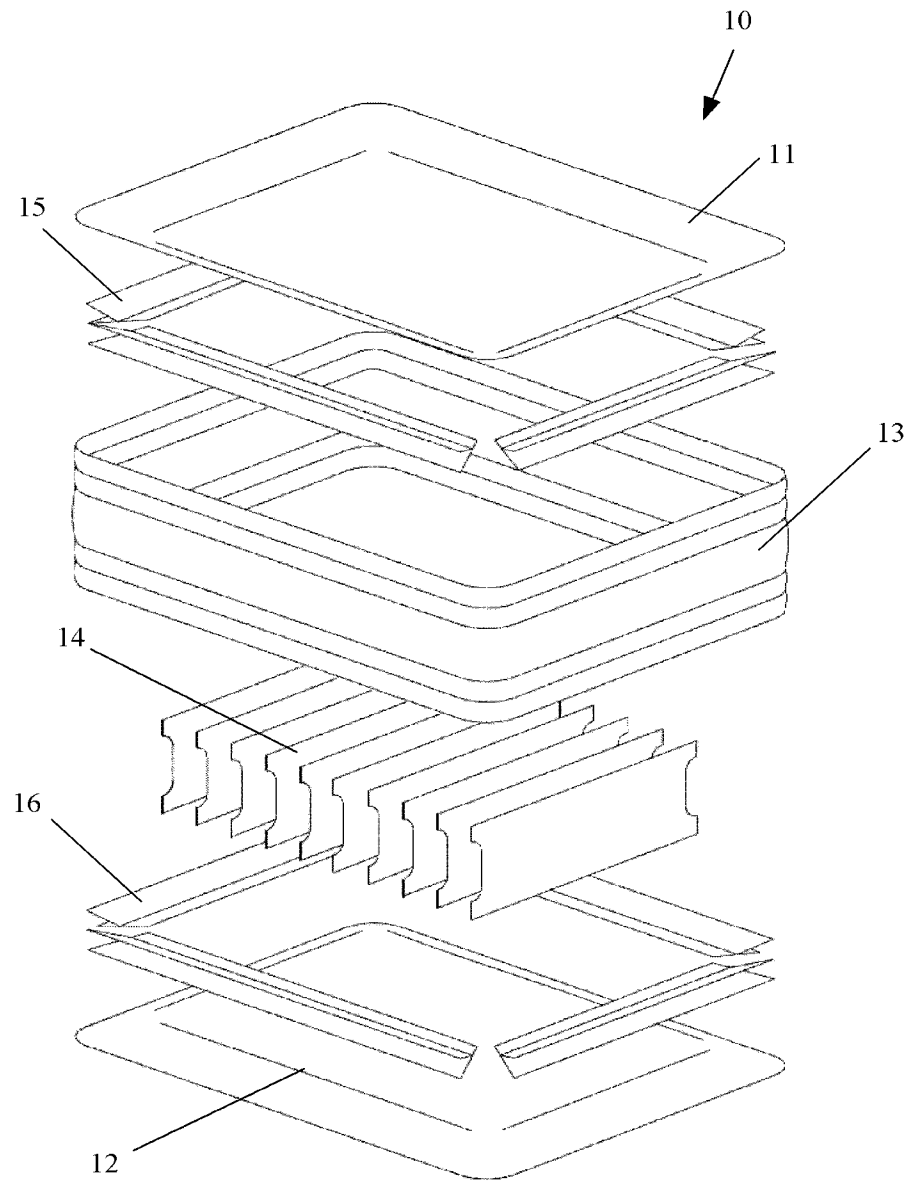


图 11

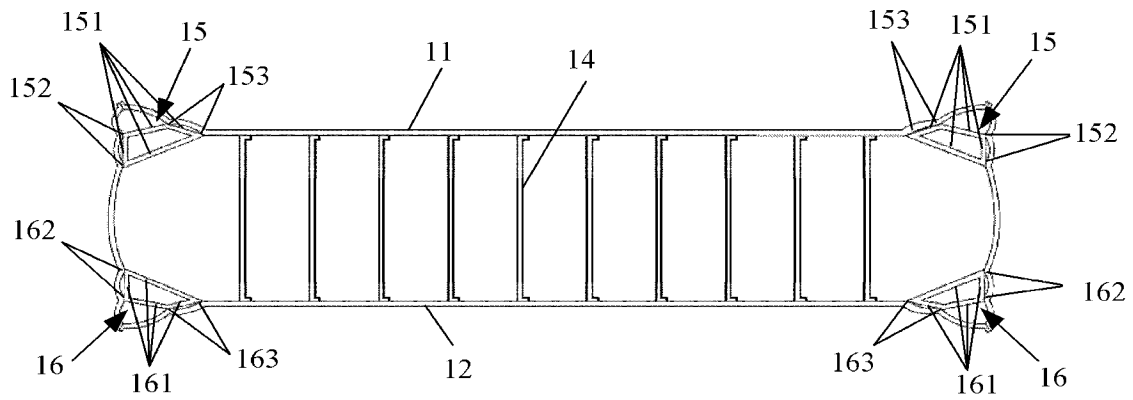


图 12

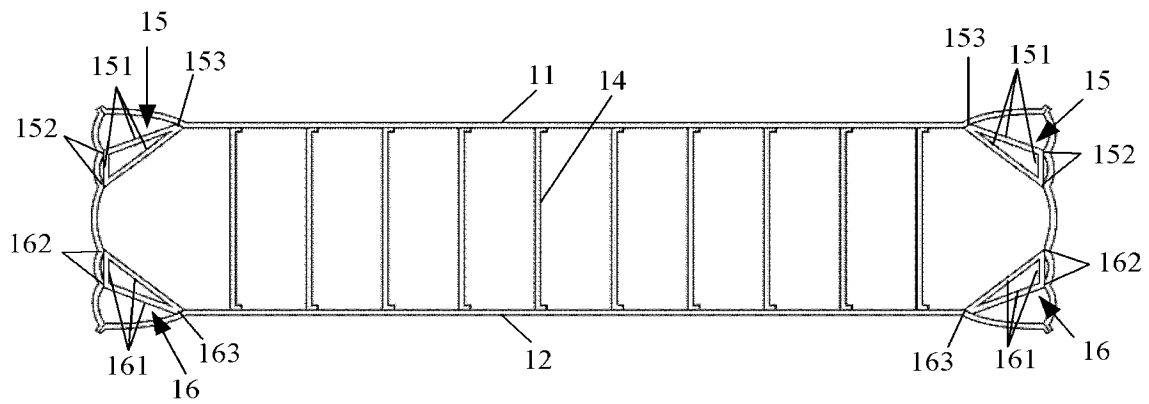


图 13

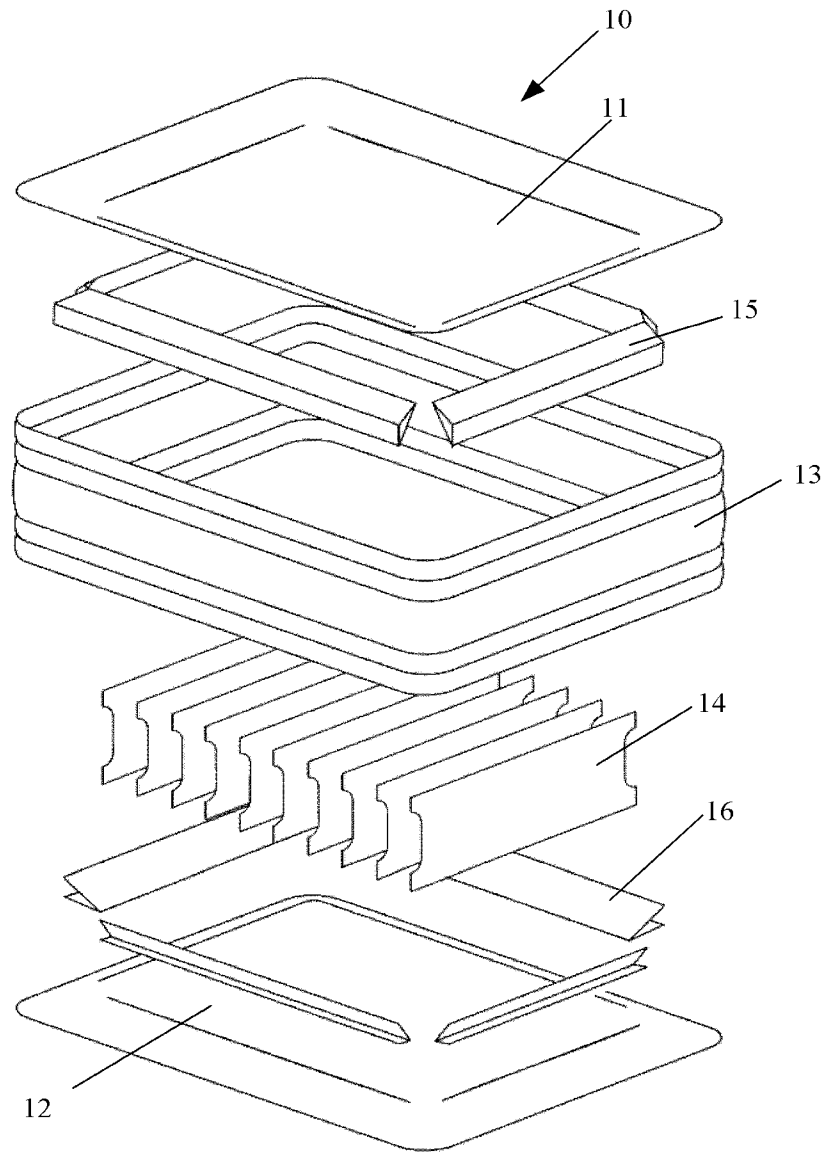


图 14

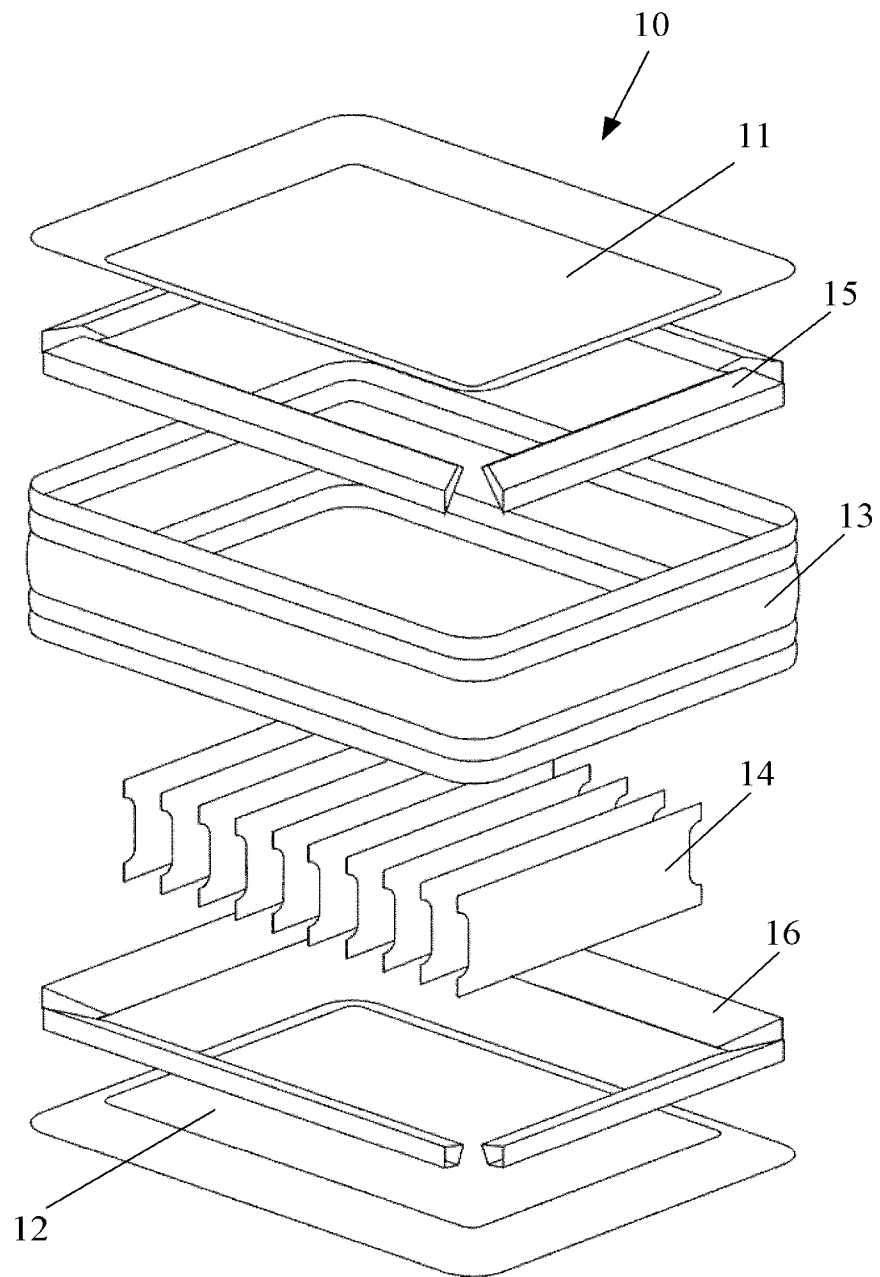


图 15

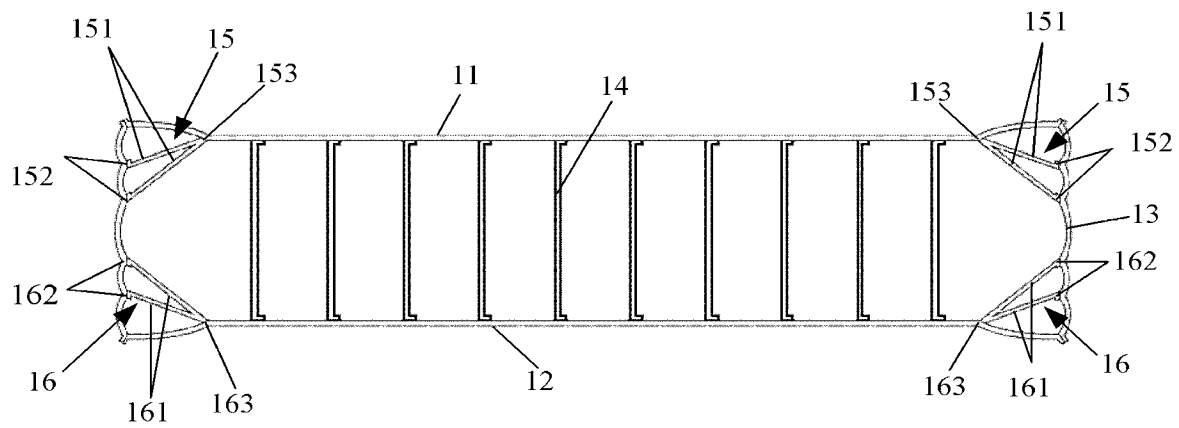


图 16

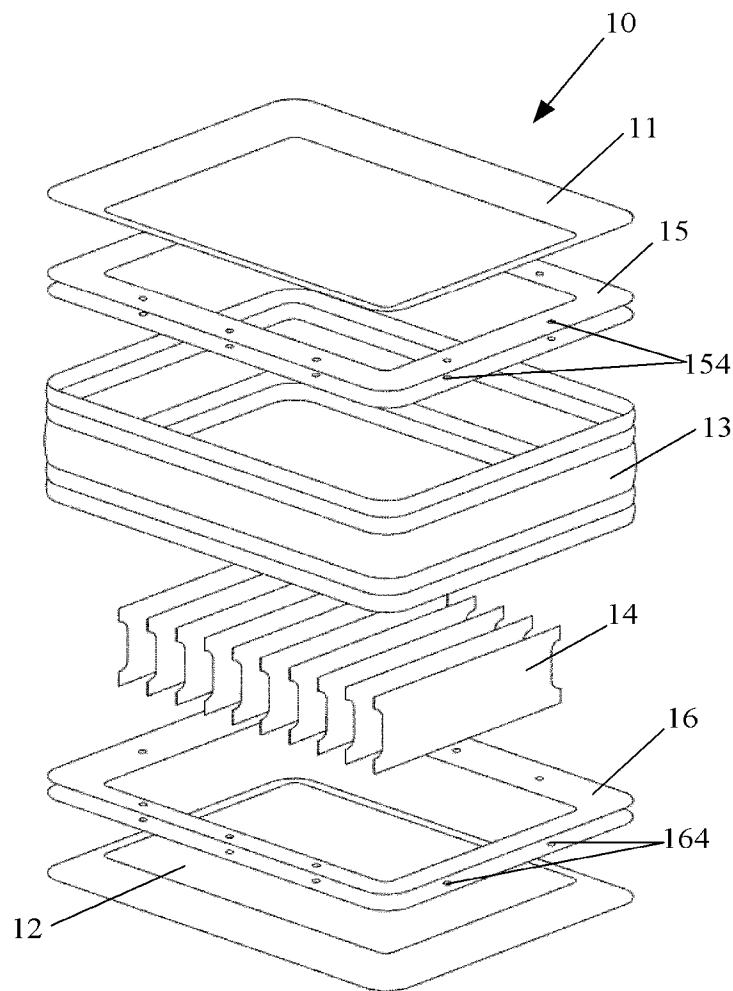


图 17

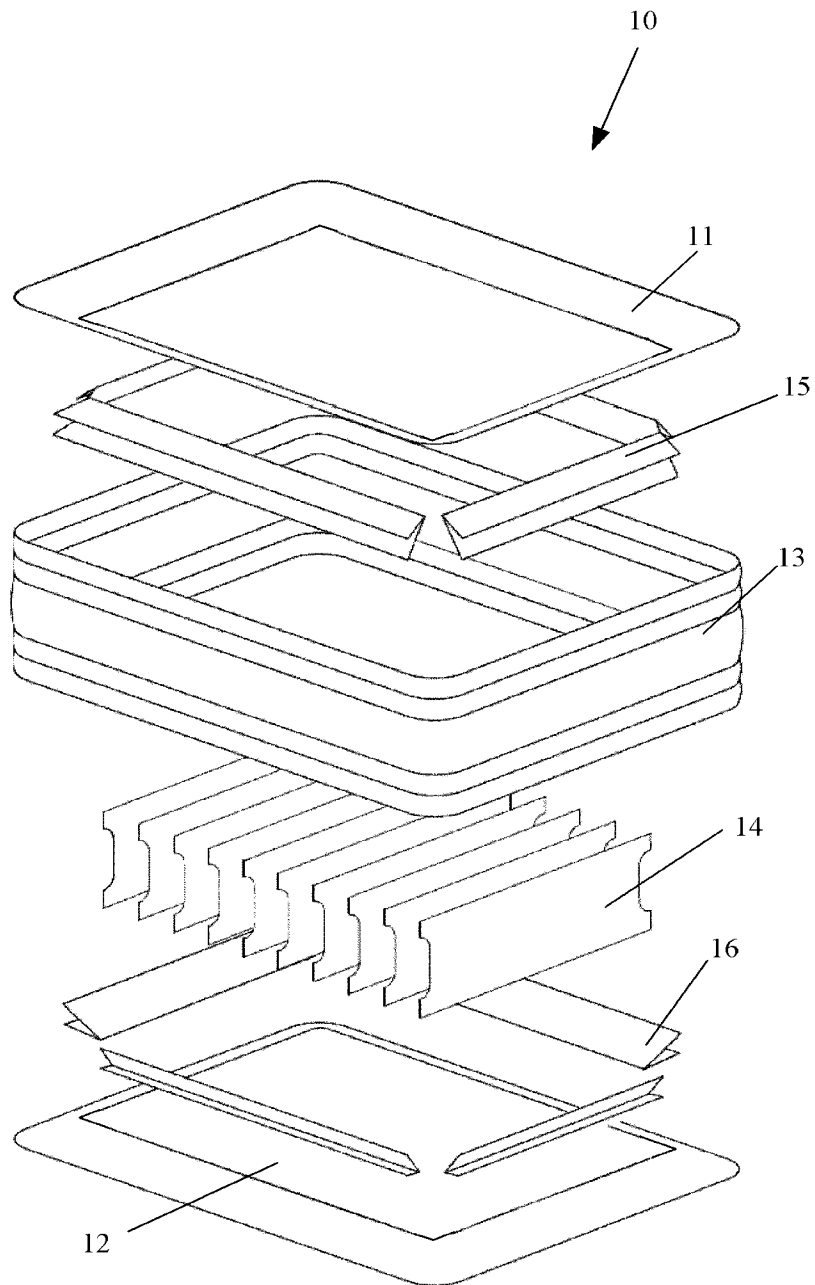


图 18

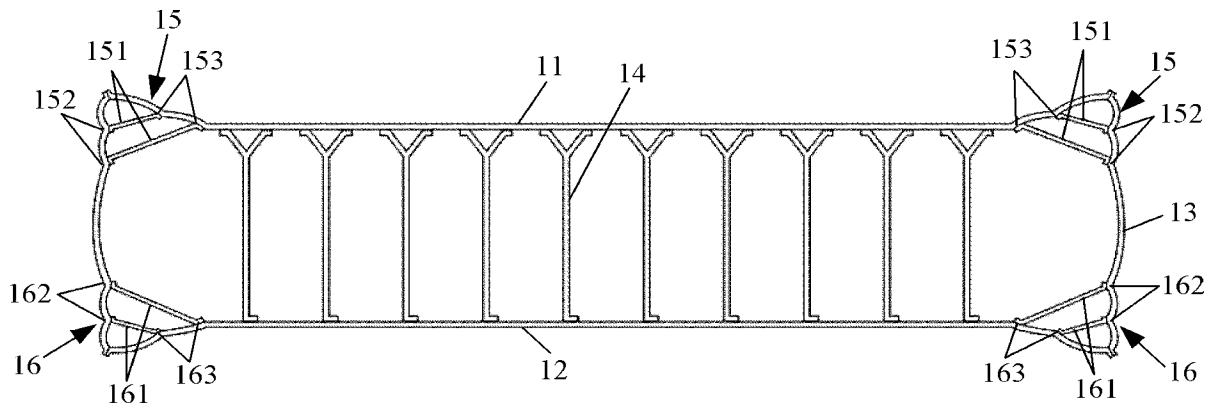


图 19

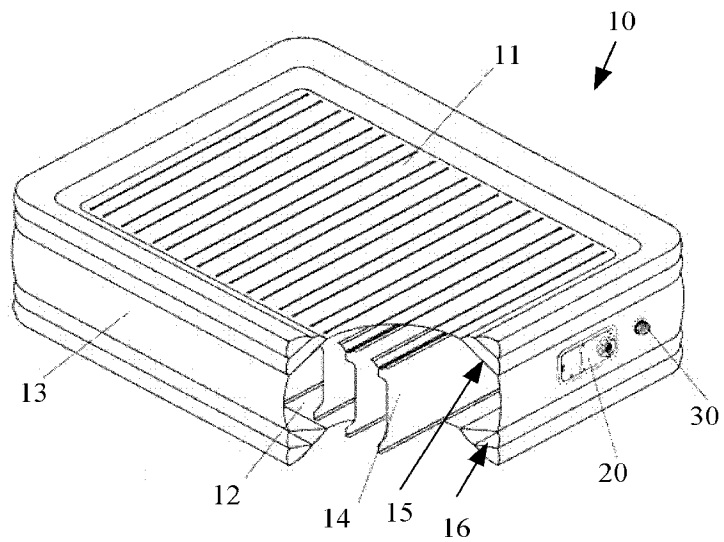


图 20

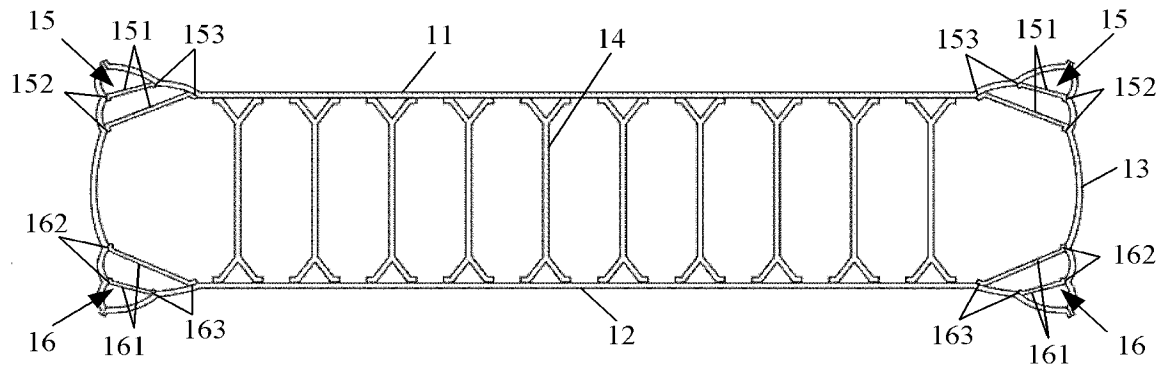


图 21

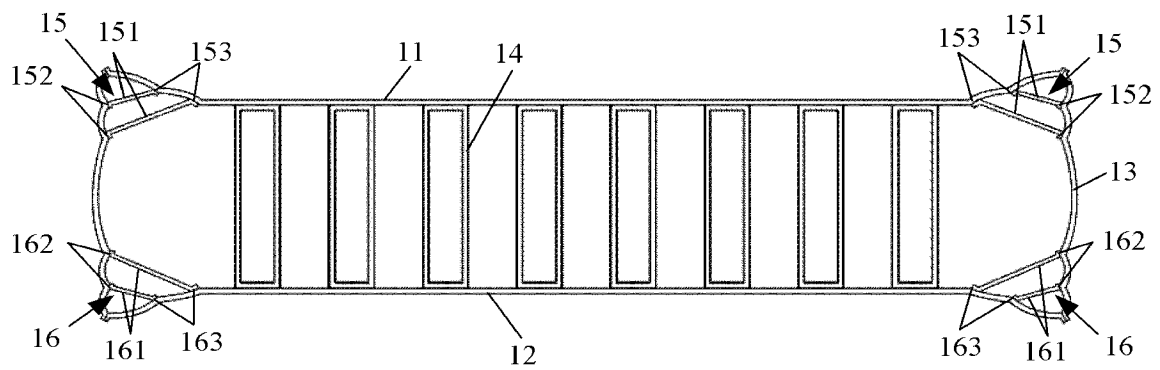


图 22

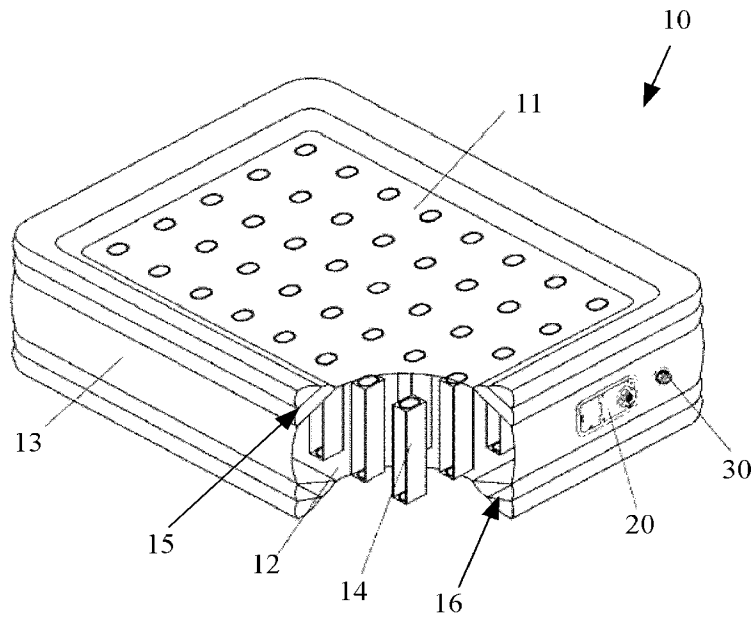


图 23

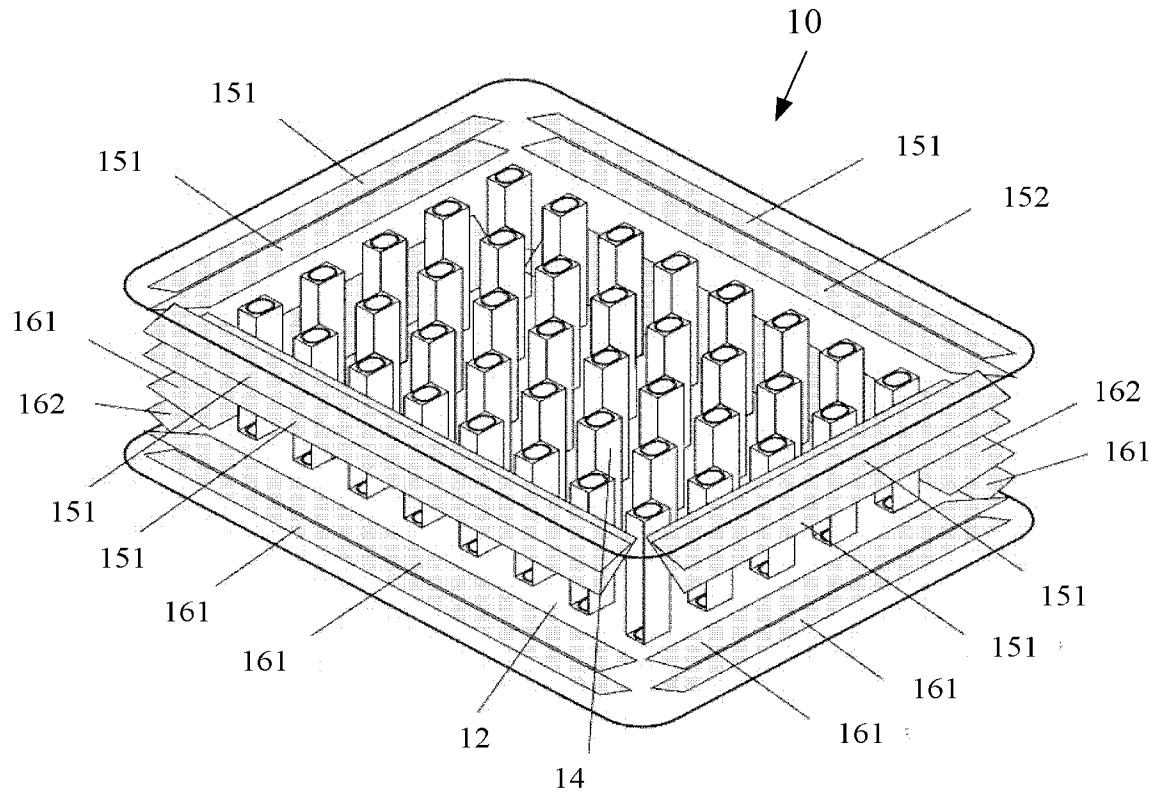


图 24



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/907,893	06/22/2020	OPAP	2900	81610.1025/P16-014US-CON	20	3

CONFIRMATION NO. 5328

CORRECTED FILING RECEIPT

35161
DICKINSON WRIGHT PLLC - WASHINGTON, DC
1825 EYE ST., NW
SUITE 900
WASHINGTON, DC 20006



0000000128772911

Date Mailed: 10/01/2021

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

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Inventor(s)

Feng LIU, Shanghai, CHINA;

Applicant(s)

BESTWAY INFLATABLES & MATERIAL CORP., Shanghai, CHINA

Power of Attorney: The patent practitioners associated with Customer Number 35161

Domestic Priority data as claimed by applicant

This application is a CON of 15/280,513 09/29/2016 PAT 10687633

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

CHINA 201610020533.5 01/13/2016 Access Code Provided

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/907,893**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
Title

INFLATABLE BED

Preliminary Class

005

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

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/907,893	06/22/2020	Feng LIU	81610.1025/ P16-014US-CON	5328
35161 7590 07/27/2022 DICKINSON WRIGHT PLLC - WASHINGTON, DC 1825 EYE ST., NW SUITE 900 WASHINGTON, DC 20006			EXAMINER KURILLA, ERIC J	
			ART UNIT 3619	PAPER NUMBER
			NOTIFICATION DATE 07/27/2022	DELIVERY MODE ELECTRONIC

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

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

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dwpatents@dickinsonwright.com

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Objections

2. Claim 24 is objected to because of the following informalities: Claim 24 recites “t said he”. Please correct the typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 14 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.
5. Claim 14 recites the limitations "said second upper tensioning structure" and "said lower tensioning structure". There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

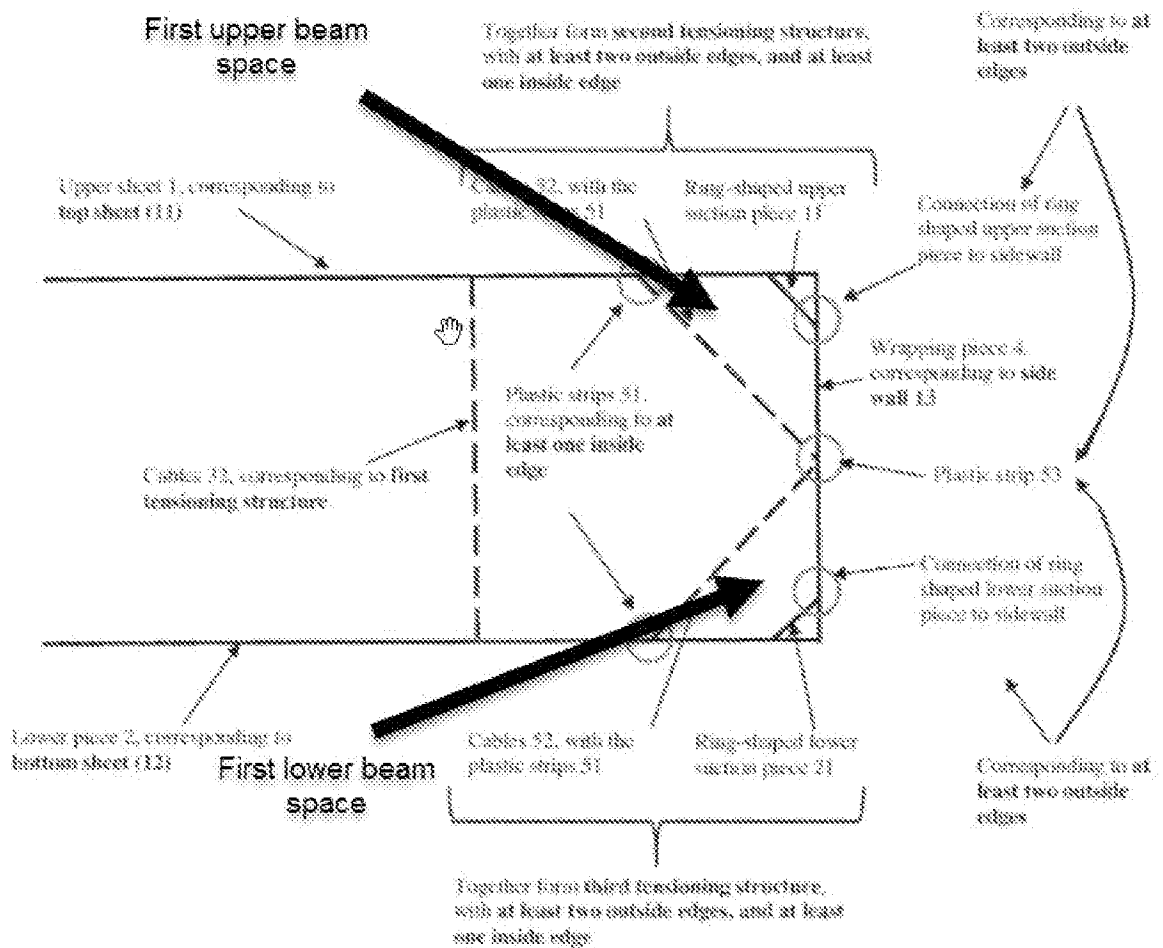
(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

7. Claim(s) 1-3, 6-7, 10-17, and 21-28 is/are rejected under 35 U.S.C. 102(a)(1) as being a by Lin (CN 203137719).

Regarding Claim 1, Lin discloses an inflatable bed (Fig. 1), comprising: a top sheet (1) having a generally rectangular shape; a bottom sheet (2) having a generally rectangular shape spaced apart from said top sheet; at least one side wall (4) extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall; at least one first tensioning structure (3) located in said air chamber extending between and drawing together said top sheet and said bottom sheet; a second tensioning structure (52 and 11) located in said air chamber and including a first upper beam tensioning structure (52) extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall, and said top sheet; a third tensioning structure (52 and 21) located in said air chamber and including a first lower beam tensioning structure (52) extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall, and said bottom sheet; and at least one of: a second upper

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beam tensioning structure located in said first upper beam space further extending between and drawing together said at least one side wall and said top sheet; and a second lower beam tensioning structure located in said first lower beam space further extending between and drawing together said at least one side wall and said bottom sheet (refer to section drawing below). Generally speaking, Examiner agrees with the sectional view Figure provided in the Notice of Opposition filed as NPL on 08/28/2019 by the Applicant in parent application 15/280,513, which has been reproduced and annotated below.



Regarding Claim 2, Lin discloses wherein said second tensioning structure further includes said second upper beam tensioning structure (11) located in said first upper beam space.

Regarding Claim 3, Lin discloses wherein said second upper beam tensioning structure draws together said at least one side wall and said top sheet to form a bulge along said top periphery (see Fig. 2).

Regarding Claim 6, Lin discloses wherein said third tensioning structure further includes said second lower beam tensioning structure (21) located in said first lower beam space.

Regarding Claim 7, Lin discloses wherein said second lower beam tensioning structure draws together said at least one side wall and said bottom sheet to form a bulge along said bottom periphery (see Fig. 2).

Regarding Claim 10, Lin discloses wherein said second tensioning structure further includes said second upper beam tensioning structure located in said first upper beam space (refer to section drawing above), and wherein said third tensioning structure further includes a second lower beam tensioning structure located in said first lower beam space (refer to section drawing above).

Regarding Claim 11, Lin discloses wherein at least one of said first upper beam tensioning structure and said second upper beam tensioning structure extends along said at least one side wall, traversing less than a full periphery of said at least one side wall (see section drawing above).

Regarding Claim 12, Lin discloses wherein at least one of said first lower beam tensioning structure and said second lower beam tensioning structure extend along said at least

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one side wall, traversing less than a full periphery of said at least one side wall (see section drawing above).

Regarding Claim 13, Lin discloses wherein said second tensioning structure and said third tensioning structure both extend along said at least one side wall, traversing less than a full periphery of said at least one side wall (see section drawing above).

Regarding Claim 14, Lin discloses wherein said side wall defines a width between said top sheet and said bottom sheet, and wherein along said side wall, a first distance is defined between said second upper tensioning structure and said top sheet and a second distance is defined between said second lower tensioning structure and said bottom sheet, wherein said first distance and said second distance are less than half of said width (see section drawing above).

Regarding Claim 15, Lin discloses wherein said at least one first tensioning structure extends parallel to a lateral direction of said rectangular shape of said top sheet and said bottom sheet and perpendicular to a longitudinal direction of said rectangular shape of said top sheet and said bottom sheet (see Fig. 2).

Regarding Claim 16, Lin discloses wherein said at least one first tensioning structure includes a plurality of first tensioning structures spaced in a parallel relationship (see Fig. 2).

Regarding Claim 17, Lin discloses wherein said plurality of first tensioning structures are spaced from said at least one side wall (see Fig. 2).

Regarding Claim 21, Lin discloses An inflatable bed comprising: a top sheet (1); a bottom sheet (2) spaced apart from said top sheet; a side wall (4) coupled to and extending

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between an outer periphery of said top sheet and an outer periphery of said bottom sheet, thereby defining an air chamber bounded by said top sheet, said bottom sheet, and said side wall; a first tensioning structure (3) disposed in said air chamber and extending between said top sheet and said bottom sheet; a second tensioning structure disposed in said air chamber and comprising: a first upper tensioning structure (52) coupled to and extending between said top sheet and said side wall, thereby defining an upper beam space bounded by said top sheet, said side wall, and said first upper tensioning structure, and a second upper tensioning (11) structure disposed in said upper beam space and coupled to and extending between said top sheet and said side wall; a third tensioning structure disposed in said air chamber and comprising: a first lower tensioning (52) structure coupled to and extending between said bottom sheet and said side wall, thereby defining a lower beam space bounded by said bottom sheet, said side wall, and said first lower tensioning structure, and a second lower tensioning structure (21) disposed in said lower beam space and coupled to and extending between said bottom sheet and said side wall; wherein at least one of: an attachment between said top sheet and said first upper tensioning structure is spaced apart from an attachment between said top sheet and said second upper tensioning structure, and an attachment between said bottom sheet and said first lower tensioning structure is spaced apart from an attachment between said bottom sheet and said second lower tensioning structure (see section drawing above).

Regarding Claim 22, Lin discloses said first tensioning structure comprising a plurality of first tensioning structures evenly spaced within the air chamber (see Fig. 2).

Regarding Claim 23, Lin discloses each of said top sheet and said bottom sheet being substantially rectangular (see Fig. 2).

Regarding Claim 24, Lin discloses a coupling between said side wall and said top sheet comprising a welded seam, and a coupling between said side wall and said bottom sheet comprising a welded seam (see para. [0028] and [0031] of English translation).

Regarding Claim 25, Lin discloses further comprising an upper welded seam connecting said first tensioning structure to said top sheet, and a lower welded seam connecting said first tensioning structure to said bottom sheet (see para. [0028] and [0031] of English translation).

Regarding Claim 26, Lin discloses an inflatable bed (see Fig. 1), comprising: a top sheet (1); a bottom sheet (2); at least one side wall (4) extending between said top sheet and said bottom sheet to define an air chamber; a plurality of first tensioning structures (3) each extending between and drawing together said top sheet and said bottom sheet; a second tensioning structure comprising: a first upper beam (52) coupled to said top sheet along a first upper welded seam (see para. [0028] and [0031] of English translation) and coupled to said side wall along a first middle welded seam; and a second upper beam (11) coupled to said top sheet along a second upper welded seam and coupled to said side wall along a second middle welded seam; and a third tensioning structure comprising: a first lower beam (52) coupled to said bottom sheet along a first lower welded seam and coupled to said side wall along a third middle welded seam; and a second lower beam (21) coupled to said bottom sheet along a second lower welded seam and coupled to said side wall along a fourth middle welded seam (see para. [0028] and [0031] of English translation and section drawing above).

Regarding Claim 27, Lin discloses wherein the first upper welded seam is spaced apart from the second upper welded seam (see Fig. 2).

Regarding Claim 28, Lin discloses wherein the first upper welded seam is in same position to the second upper welded seam (see Fig. 2).

Allowable Subject Matter

8. Claim 20 is allowed.

9. Claims 4, 5, 8, 9, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is an examiner's statement of reasons for allowance: Claim 20 requires, among other structures, "a first upper beam tensioning structure that is segmented" and "a first lower beam tensioning structure that is segmented." Lin's first upper beam and first lower beam are continuous structures. Modifying Lin as required by the claim would be using Applicant's own disclosure as a blueprint and thus improper hindsight.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

11. The following is a statement of reasons for the indication of allowable subject matter: Regarding Claims 4 and 8, Lin fails to disclose "wherein said first upper oblique angle is *different* than said second upper oblique angle" and "wherein said first lower oblique angle is *different* than said second lower oblique angle." Lin reasonably shows the lower oblique angles and

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upper oblique angles to be the same. There is no motivation to modify Lin as required by the claims. Therefore, an obviousness rejection could not be made.

Regarding Claims 5, 9 and 19, see reasons for allowance of Claim 20.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC J KURILLA whose telephone number is (571)270-7294. The examiner can normally be reached Monday-Thursday 7AM-6PM.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anita Coupe can be reached on 571-270-3614. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ERIC J KURILLA/

Primary Examiner, Art Unit 3619

<i>Notice of References Cited</i>	Application/Control No. 16/907,893		Applicant(s)/Patent Under Reexamination LIU, Feng	
	Examiner ERIC J KURILLA		Art Unit 3619	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20130228268-A1	09-2013	Lin; Hua Hsiang	B32B27/12	156/166
*	B	US-20150147503-A1	05-2015	Lin; Hua Hsiang	B29C66/0044	156/163
*	C	US-20170273472-A1	09-2017	LIU; Feng	A47C31/001	1/1
*	D	US-20150201760-A1	07-2015	Lin; Hua Hsiang	A47C27/10	5/710
*	E	US-20150335164-A1	11-2015	Liu; Feng	F24F1/022	156/278
*	F	US-20070124864-A1	06-2007	Lau; Vincent W.S.	A47C27/081	5/711
*	G	US-4558476-A	12-1985	Linder; Philip C.	A47C27/085	5/687
*	H	US-3008213-A	11-1961	FOSTER BOUTWELL H	A47C27/081	28/169
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	CN-203137719-U	08-2013	CN	LIN H	
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 16/907,893	Applicant(s)/Patent Under Reexamination LIU, Feng
	Examiner ERIC J KURILLA	Art Unit 3619

CPC - Searched*		
Symbol	Date	Examiner
A47C27/081, A47C27/087	07/20/2022	EK

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

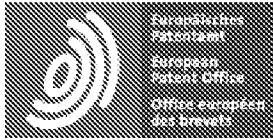
US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Inventor name search	07/20/2022	EK
PE2E text search	07/20/2022	EK

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/ERIC J KURILLA/ Primary Examiner, Art Unit 3619	
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Notice

This translation is machine-generated. It cannot be guaranteed that it is intelligible, accurate, complete, reliable or fit for specific purposes. Critical decisions, such as commercially relevant or financial decisions, should not be based on machine-translation output.

DESCRIPTION CN203137719U

¹⁰ Inflatable product air chamber inclined-pull fixed structure

[0001]

¹⁴ technical field

[0002]

¹⁸ The utility model relates to a structure of an inflatable product, in particular to an inclined-pull reinforcement structure of an air chamber of an inflatable product.

[0003]

²³ Background technique

[0004]

²⁷ Inflatable products, such as inflatable beds, are easy to use, light in weight, easy to move, and easy to store and carry, making them a very suitable choice for use as a temporary or non-fixed bed.

²⁹ Inflatable beds with smaller bed thicknesses after inflation are generally used more outdoors. If the comfort of the inflatable bed is to be improved to be comparable to that of a bed used at home, the inflatable thickness of the inflatable bed must be the same as the height of a general bed, and To ensure the flatness of the bed surface, the structure must also be relatively stable.

[0005]

³⁶ As shown in Figure 1, an inflatable bed with a bed height is usually formed by superimposing two independent air chambers A and B in order to prevent the bulge of the bed from being too large, the support strength, and

the shaping strength in the inflatable cavity, that is, it needs to be set The middle-layer sheet body C is connected with the middle-layer sheet body C and the upper and lower sheets respectively to form two inflatable cavities by two independent shrouds.

47 Such a structure must have the following disadvantages;

[0006]

45 1、 The cost of materials is high. Since the arrangement of the middle-layer sheet is convenient for shaping and improving the function of the bed, the arrangement of the middle-layer sheet not only increases the demand for materials, but also increases the weight of the bed.

[0007]

51 2、 The pull straps in the two independent air chambers need to be welded separately, which virtually increases the complexity of the bed body fabrication, so the fabrication cost remains high.

[0008]

56 Utility model content

[0009]

60 The purpose of this utility model is to provide an inflatable product air chamber cable-pulling fixing structure, which can prevent the product from bulging too much and affect the aesthetics of the product while ensuring the height and strength of the product, and can effectively reduce material costs and manufacturing costs. .

[0010]

66 For achieving the above object, the solution of the present utility model is:

[0011]

70 An inflatable product air chamber inclined-pull fixing structure, which comprises an upper sheet, a lower sheet, a plurality of drawstrings and a surrounding sheet, and the two ends of each drawstring are respectively connected to the lower surface of the upper sheet and the upper surface of the lower sheet At the same time, the upper and lower sides of the surrounding sheet are respectively connected with the periphery of the upper sheet and the periphery of the lower sheet to form an inflatable product with an inflatable chamber; wherein: it also includes a side wrapping strap, and one end of the side wrapping strap is connected to the surrounding sheet. The middle part of the inner surface and the other end are connected to the lower surface of the upper sheet near the periphery or the upper surface of the lower sheet near the periphery.

[0012]

⁸⁷ The side wrapping belt is an integral annular drawstring, which is composed of annular plastic sheets at both ends connecting a plurality of wire bodies, wherein a plastic sheet is fixed in the middle of the plurality of wire bodies, and the two ends of the side wrapping belt are connected. The ring-shaped plastic strips are respectively connected to the upper plate and the lower plate, and the plastic strip in the middle is connected to the middle of the inner surface of the surrounding plate.

[0013]

⁸⁹ The side wrapping belt is an integral annular drawstring, which is composed of annular plastic strips at both ends connected with a plurality of wires. It is connected to the upper and lower sheets.

[0014]

⁹⁴ Each of the drawstrings corresponds to the width or length of the bed, and the drawstrings are composed of plastic sheets at both ends connected to a plurality of wires, and the plastic sheets at both ends are welded to the upper sheet and the lower sheet respectively.

[0015]

¹⁰⁰ There are also an annular upper suction sheet and an annular lower suction sheet between the upper sheet and the surrounding sheet and between the lower sheet and the surrounding sheet, that is, the upper sheet is connected to the upper edge of the surrounding sheet through the annular upper suction sheet. together, and the lower sheet is connected with the lower peripheral edge of the surrounding sheet through the annular lower suction sheet.

[0016]

¹⁰⁸ After adopting the above scheme, the utility model connects the middle part of the surrounding sheet of the inflatable product with the upper sheet or/and the lower sheet through the provided side wrapping straps, so as to achieve a traction limit effect on the middle part of the surrounding sheet of the inflatable product with a higher height, which not only prevents the surrounding sheet from protruding too much and affects the strength and appearance of the product, but also effectively reduces the material cost and production cost of the product.

[0017]

¹¹⁷ Description of drawings

[0018]

¹²¹ Fig. 1 is the three-dimensional appearance view of the habit;

[0019]

¹²⁵ 2 is an exploded perspective view of Embodiment 1 of the present utility model;

[0020]

¹²⁹ Fig. 3 is the appearance schematic diagram of the utility model embodiment 1;

[0021]

¹³³ 4 is a partial cross-sectional schematic diagram of Embodiment 1 of the present utility model;

[0022]

¹³⁷ 5 is an exploded perspective view of Embodiment 2 of the present utility model;

[0023]

¹⁴¹ 6 is a schematic view of the appearance of Embodiment 2 of the present utility model;

[0024]

¹⁴⁵ FIG. 7 is a schematic partial cross-sectional view of Embodiment 2 of the present invention.

[0025]

¹⁴⁹ Detailed ways

[0026]

¹⁵³ 2 to 7, the present utility model discloses an inflatable product air chamber inclined-pull fixing structure, especially for rectangular inflatable products, which includes an upper sheet 1, a lower sheet 2, a plurality of drawstrings 3 and A surrounding piece 4 also includes side surrounding drawstrings 5. Both ends of each drawstring 3 are respectively connected to the lower surface of the upper piece 1 and the upper surface of the lower piece 2, while the upper and lower sides of the surrounding piece 4 are respectively connected with the upper piece. After the peripheral edge of 1 and the peripheral edge of the lower sheet 2 are connected, an inflatable product with an inflatable chamber is formed, and one end of the side wrapping belt 5 is connected to the middle of the inner surface of the surrounding sheet 4, and the other end is connected to the upper sheet 1. The lower surface of the peripheral edge or the upper surface of the lower sheet 2 near the peripheral edge.

[0027]

¹⁶⁶ The following inflatable products are described by taking an inflatable bed as an example, and are not limited to an inflatable bed.

[0028]

¹⁷¹ As shown in Figures 2, 3, and 4 in Embodiment 1 of the present invention, each drawstring 3 is a belt body corresponding to the width or length of the bed, and the drawstring 3 is connected to a plurality of wire bodies by plastic strips 31 at both ends. 32, the plastic sheet 31 is used for welding with the upper sheet 1 and the lower sheet 2, and the wire body 32 bears strong traction; The plastic strip 51 is formed by connecting a plurality of wire bodies 52, wherein a plastic strip 53 is fixed in the middle of the plurality of wire bodies 52, so that the annular plastic strips 51 at both ends of the side wrapping belt 5 are respectively connected to the upper part 1 and the lower part. sheet 2, and the plastic strip 53 in the middle is connected to the middle of the inner surface of the surrounding sheet 4.

[0029]

¹⁸² The setting of the side wrapping straps 5 here is to further restrain the middle of the wrapping sheet 4 to make it concave, so as to ensure the aesthetics of the periphery of the inflatable bed with a high height and an inflatable cavity, so as to prevent the periphery from bulging out. At the same time, it ensures the strength of the periphery of the bed and the overall support strength of the bed.

[0030]

¹⁸⁹ In order to improve the aesthetics of the bed, an annular upper suction sheet 11 and an annular lower suction sheet 21 are respectively provided between the upper sheet 1 and the surrounding sheet 4 and between the lower sheet 2 and the surrounding sheet 4, that is, the upper sheet 1 passes through. The annular upper suction sheet 11 is connected with the upper edge of the surrounding sheet 4, and the lower sheet 2 is connected with the lower peripheral edge of the surrounding sheet 4 through the annular lower suction sheet 21.

[0031]

¹⁹⁸ As shown in Figure 5, 6, and 7 in Embodiment 2 of the present invention, each of the drawstrings 3 is also a belt body corresponding to the width or length of the bed, and the drawstrings 3 are also connected by the plastic strips 31 at both ends. A wire body 32 is formed, the plastic strip 31 is used for welding with the upper sheet 1 and the lower sheet 2, and the wire body 32 undertakes strong traction; The annular plastic strip 51 at the end is formed by connecting a plurality of wire bodies 52. The plastic strip 51 at one end of the side wrapping belt 5 is connected to the middle of the inner surface of the wrapping sheet 4, and the other end is connected to the upper sheet 1 and the lower sheet 2. In this way, the peripheral edge of the inflatable bed with a high height and an inflatable cavity is prevented from protruding greatly, and the strength of the

peripheral edge of the bed body and the supporting strength of the whole bed body are ensured.

[0032]

²¹⁰Also in order to improve the aesthetics of the bed, an annular upper suction sheet 11 and an annular lower suction sheet 21 are respectively provided between the upper sheet 1 and the surrounding sheet 4 and between the lower sheet 2 and the surrounding sheet 4, namely the upper sheet 1 The annular upper suction sheet 11 is connected with the upper edge of the surrounding sheet 4, while the lower sheet 2 is connected with the lower peripheral edge of the surrounding sheet 4 through the annular lower suction sheet 21 .

[0033]

²¹⁸It should be noted here that the drawstrings 3 and the side wrap drawstrings 5 of the above-mentioned embodiments 1 and 2 are not limited to the structure of the plastic sheet and a plurality of wires, and can also use a linear drawstring of an integral plastic sheet or a plastic sheet. A cylindrical drawstring can also be implemented as long as it can meet the requirements of the internal pressure of the inflatable product.

[0034]

²²⁵To sum up, the present invention achieves a traction limit effect on the middle part of the inflatable product surrounding sheet 4 with a higher height by setting the middle part connecting the inflatable product surrounding sheet 4 with the upper sheet 1 or/and the lower sheet 2, not only It prevents the surrounding sheet from protruding too much and affects the strength and appearance of the product, and effectively reduces the material cost and the production cost of the product.

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	22	("20070277324" "6568013" "4941223" "2360715" "4541135" "20150335164" "5669091" "20050273938" "6701559" "7165283" "7530128" "7039972" "6671910" "9254047" "20030101516" "7337485" "6971134" "6996867" "20150201760" "6754926").PN.	(US-PGPUB; USPAT; USOCR; EPO)	OR	ON	ON	2019/10/01 02:27 PM
L2	6	((("20150335164") or ("6671910") or ("6701559") or ("7039972") or ("20070277324") or ("20130130117")).PN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2019/10/01 02:29 PM
L3	6	((("20150335164") or ("6671910") or ("6701559") or ("7039972") or ("20070277324") or ("20130130117")).PN.	(US-PGPUB; USPAT; USOCR; EPO)	OR	ON	ON	2019/10/01 02:29 PM
L4	1	L3 not L1	(US-PGPUB; USPAT; USOCR; EPO)	OR	ON	ON	2019/10/01 02:29 PM
L5	0	((("2009165211") or ("2013145560")).PN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2019/10/01 02:32 PM
L6	2	((("20090165211") or ("20130145560")).PN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2019/10/01 02:32 PM
L7	1620	(A47C27/081).CPC.	(US-PGPUB; USPAT; USOCR; EPO)	OR	ON	ON	2019/10/01 02:37 PM
L8	1719	(A47C27/081, A47C27/087).CPC.	(US-PGPUB; USPAT; USOCR; EPO)	OR	ON	ON	2019/10/01 02:37 PM
L9	218	(tension\$3) and L8	(US-PGPUB; USPAT; USOCR; EPO)	OR	ON	ON	2019/10/01 02:44 PM
L10	8	(US-20130228268-\$ or US-20150147503-\$ or US-20170273472-\$ or US-20150201760-\$ or US-20150335164-\$ or US-20070124864-\$).did. or (US-4558476-\$).did. or (US-3008213-\$).did.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2019/10/01 02:46 PM
L11	10	"203137719"	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO))	OR	ON	ON	2022/07/20 01:30 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N11	3	(inflat\$4 and bed and sheet and top and side and wall and tension\$3 and support).CLM.	(US-PGPUB; USPAT)	OR	ON	ON	2020/01/22 02:01 PM



(12) 实用新型专利

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(ESM) 同样的发明创造已同日申请发明专利

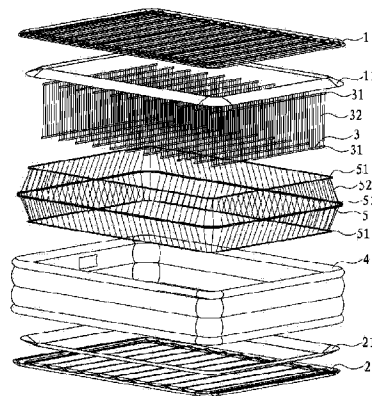
权利要求书1页 说明书3页 附图7页

(54) 实用新型名称

充气产品气室斜拉固定结构

(57) 摘要

本实用新型公开了一种充气产品气室斜拉固定结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气室的充气产品;其中还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上。通过设置的侧围拉带连接充气产品围片的中部与上片或/和下片,实现对具有较高高度的充气产品的围片中部达到一牵引限位作用,不仅防止围片外凸较多而影响产品的强度及美观,而且有效降低了产品材料成本及制作成本。



1. 一种充气产品气室斜拉固定结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气室的充气产品;其特征在于:还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上。

2. 如权利要求 1 所述的充气产品气室斜拉固定结构,其特征在于:所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,其中在复数根线体的中部再固定有一塑胶片条,侧围拉带两端的环形塑胶片条是分别连接上片与下片,而中部的塑胶片条是连接于围片内表面的中部。

3. 如权利要求 1 所述的充气产品气室斜拉固定结构,其特征在于:所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,此侧围拉带一端的塑胶片条连接于围片内表面的中部,另一端是连接于上片与下片上。

4. 如权利要求 1、2 或 3 所述的充气产品气室斜拉固定结构,其特征在于:所述的各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片焊接。

5. 如权利要求 4 所述的充气产品气室斜拉固定结构,其特征在于:所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

充气产品气室斜拉固定结构

技术领域

[0001] 本实用新型是关于一种充气产品结构,特别是指一种充气产品气室斜拉加固结构。

背景技术

[0002] 充气产品,如充气床具有易使用、重量轻容易移动,及收藏携带方便的特性,使得其作为临时性或是非固定式的床体使用时是相当适宜的选择。而充气后床体厚度较小的充气床一般均是户外使用较多,若要增进充气床的舒适性以媲美家庭使用的床铺时,充气床充气后的厚度则必须如一般床铺的高度,且要保证床面的平整,同时结构亦必须较稳固。

[0003] 配合图 1 所示,具有床铺高度的充气床,为防止床周外凸较大及支撑力度,以及充气腔内定型强度,通常是采用两个独立气室 A、B 叠加而成,即需要设置中层片体 C,由两个独立围带分别连接此中层片体 C 及上下片体构成两个充气腔,在两充气腔内分别设置拉带组以形成床体造型。如此结构必然存在如下缺点;

[0004] 1、材料成本高,由于中层片体的设置是便于定型及提高床体的功能,该中层片体的设置不仅增加了材料的需求量,同时亦增加了床体的重量。

[0005] 2、两个独立气腔内的拉带需分别焊接,无形中增加了床体制作的繁琐,因而制作成本亦居高不下。

实用新型内容

[0006] 本实用新型的目的是提供一种充气产品气室斜拉固定结构,其在保证产品高度、强度的同时防止产品周缘外凸过多而影响产品的美观性,并可有效减少材料成本及制作成本。

[0007] 为实现上述目的,本实用新型的解决方案是:

[0008] 一种充气产品气室斜拉固定结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气室的充气产品;其中:还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上。

[0009] 所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,其中在复数根线体的中部再固定有一塑胶片条,侧围拉带两端的环形塑胶片条是分别连接上片与下片,而中部的塑胶片条是连接于围片内表面的中部。

[0010] 所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,此侧围拉带一端的塑胶片条连接于围片内表面的中部,另一端是连接于上片与下片上。

[0011] 所述的各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片焊接。

[0012] 所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地

片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

[0013] 采用上述方案后,本实用新型通过设置的侧围拉带连接充气产品围片的中部与上片或/和下片,实现对具有较高高度的充气产品的围片中部达到一牵引限位作用,不仅防止围片外凸较多而影响产品的强度及美观,而且有效降低了产品材料成本及制作成本。

附图说明

- [0014] 图 1 为习用品的立体外观图 ;
[0015] 图 2 为本实用新型实施例 1 的立体分解图 ;
[0016] 图 3 为本实用新型实施例 1 的外观示意图 ;
[0017] 图 4 为本实用新型实施例 1 的局部剖视示意图 ;
[0018] 图 5 为本实用新型实施例 2 的立体分解图 ;
[0019] 图 6 为本实用新型实施例 2 的外观示意图 ;
[0020] 图 7 为本实用新型实施例 2 的局部剖视示意图。

具体实施方式

[0021] 配合图 2 至图 7 所示,本实用新型揭示了一种充气产品气室斜拉固定结构,特别是针对矩形的充气产品,其包括一上片 1、一下片 2、复数个拉带 3 及一围片 4,还包括有侧围拉带 5,各拉带 3 的两端是分别连接于上片 1 的下表面及下片 2 的上表面,同时围片 4 的上下边分别与上片 1 的周缘及下片 2 的周缘连接后,便构成一具有充气室的充气产品,而侧围拉带 5 的一端是连接于围片 4 内表面的中部,另一端是连接于上片 1 近周缘的下表面或下片 2 近周缘的上表面上。

[0022] 以下充气产品是以充气床为例进行说明,并不局限于充气床。

[0023] 如图 2、3、4 所示的本实用新型实施例 1,其中的各拉带 3 为对应床体宽度或长度的带体,拉带 3 是由两端的塑胶片条 31 连接复数根线体 32 构成,塑胶片条 31 用于与上片 1 及下片 2 的焊接,而线体 32 承拉较强的牵引力;而侧围拉带 5 为一整体的环形拉带,其由两端的环形塑胶片条 51 连接复数根线体 52 构成,其中在复数根线体 52 的中部再固定有一塑胶片条 53,如此侧围拉带 5 两端的环形塑胶片条 51 是分别连接上片 1 与下片 2,而中部的塑胶片条 53 是连接于围片 4 内表面的中部。

[0024] 此处侧围拉带 5 的设置是令围片 4 的中部进一步受到牵制,使其内凹,以保证具有较高高度并具一个充气腔的充气床其周缘的美观性,以防止周缘外凸较多,同时保证床体周缘的强度及床体整体的支撑强度。

[0025] 为提高床体的美观性,在上片 1 与围片 4 及下片 2 与围片 4 之间还分别设有一环形上吸地片 11 及一环形下吸地片 21,即上片 1 通过环形上吸地片 11 与围片 4 的上周缘连接在一起,而下片 2 通过环形下吸地片 21 与围片 4 的下周缘连接在一起。

[0026] 如图 5、6、7 所示的本实用新型的实施例 2,其中的各拉带 3 同样为对应床体宽度或长度的带体,拉带 3 同样是由两端的塑胶片条 31 连接复数根线体 32 构成,塑胶片条 31 用于与上片 1 及下片 2 的焊接,而线体 32 承接较强的牵引力;而侧围拉带 5 为一整体的环形拉带,其由两端的环形塑胶片条 51 连接复数根线体 52 构成,此侧围拉带 5 一端的塑胶片条

51 连接于围片 4 内表面的中部,另一端是连接于上片 1 与下片 2 上,如此防止具有较高高度并具一个充气腔的充气床其周缘外凸较大,保证床体周缘的强度及床体整体的支撑强度。

[0027] 同样为提高床体的美观性,在上片 1 与围片 4 及下片 2 与围片 4 之间还分别设有一环形上吸地片 11 及一环形下吸地片 21,即上片 1 通过环形上吸地片 11 与围片 4 的上周缘连接在一起,而下片 2 通过环形下吸地片 21 与围片 4 的下周缘连接在一起。

[0028] 此处需说明的是,上述实施例 1、2 的拉带 3 及侧围拉带 5 并不局限于此塑胶片条与复数根线体的结构,亦可采用整体塑胶片的线性拉带或柱状拉带同样可以实施,只要其可满足充气产品内压的要求即可。

[0029] 综上所述,本实用新型通过设置连接充气产品围片 4 的中部与上片 1 或 / 和下片 2,实现对具有较高高度的充气产品围片 4 中部达到一牵引限位作用,不仅防止围片外凸较多而影响产品的强度及美观,而且有效降低了产品材料成本及制作成本。

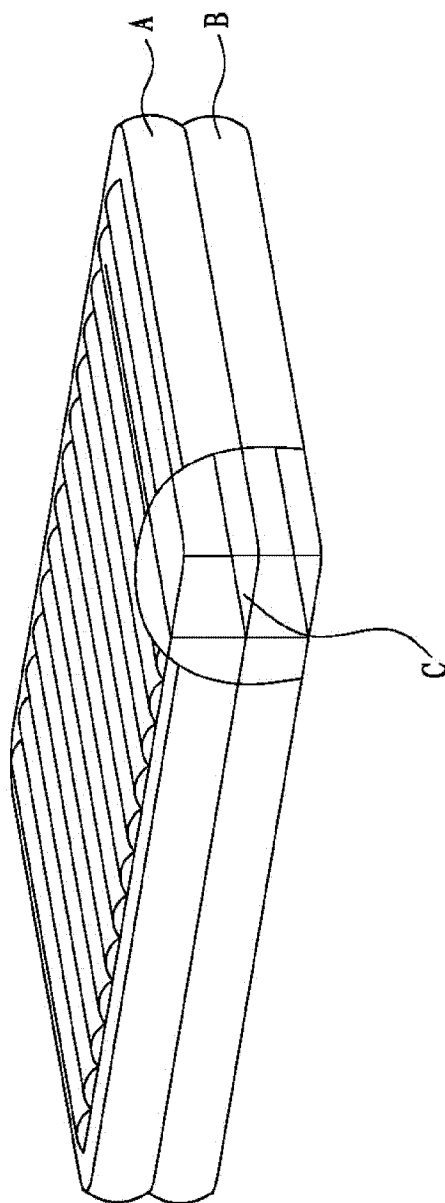


图 1

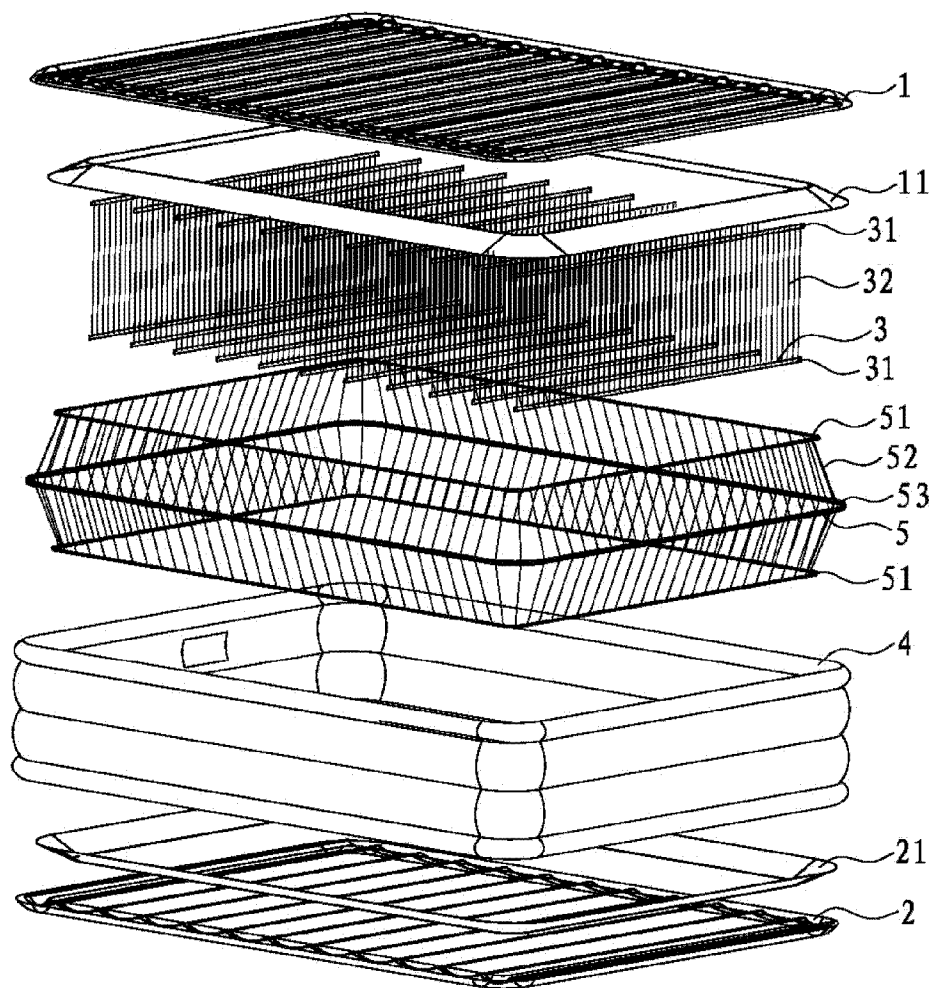


图 2

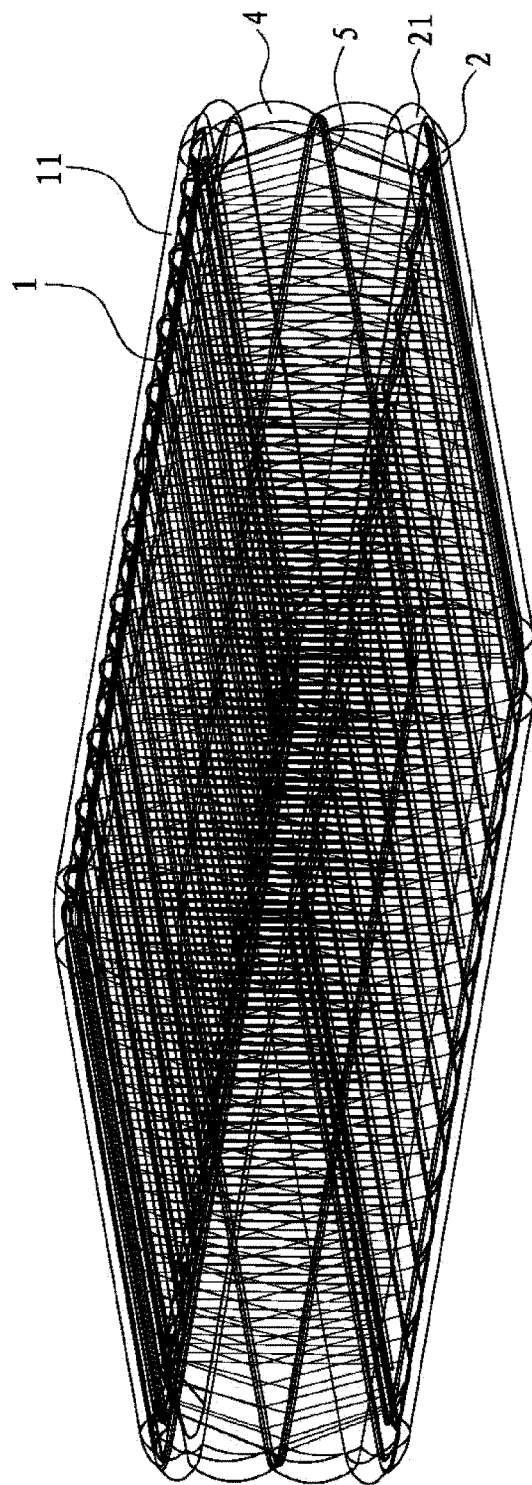


图 3

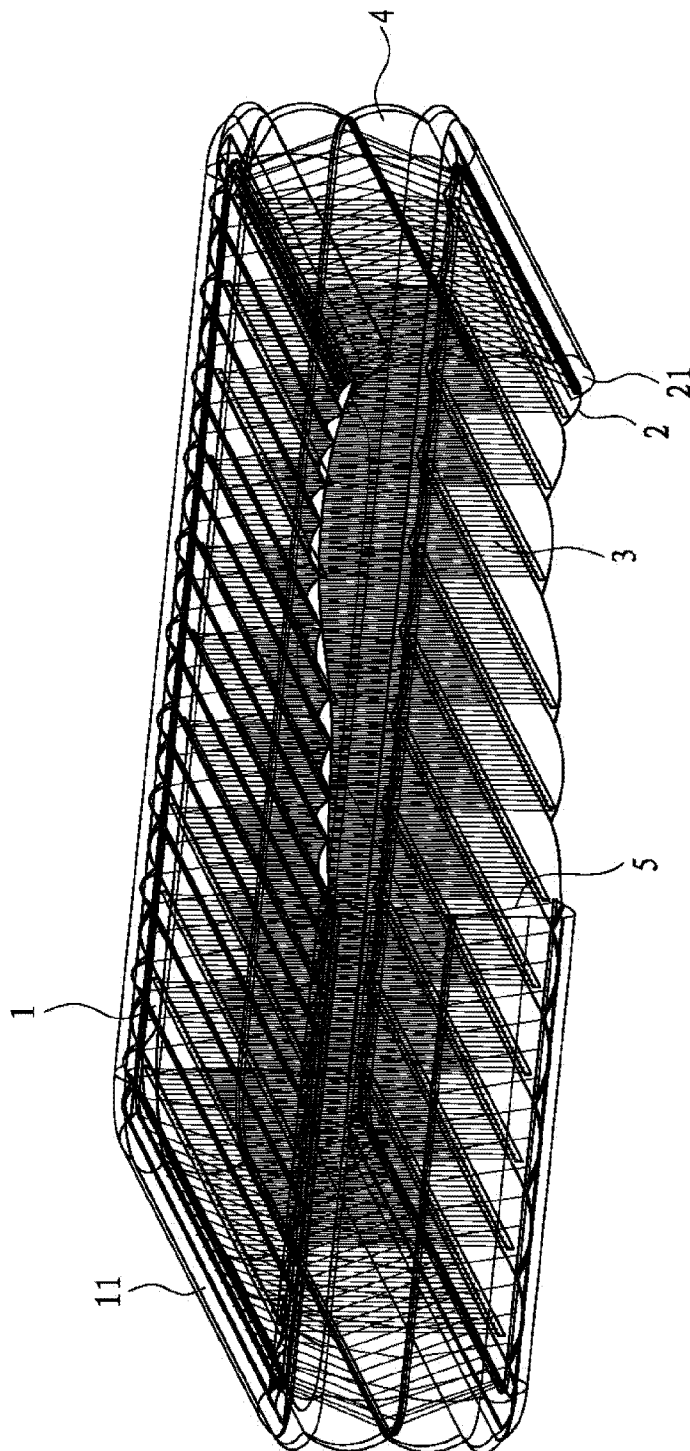


图 4

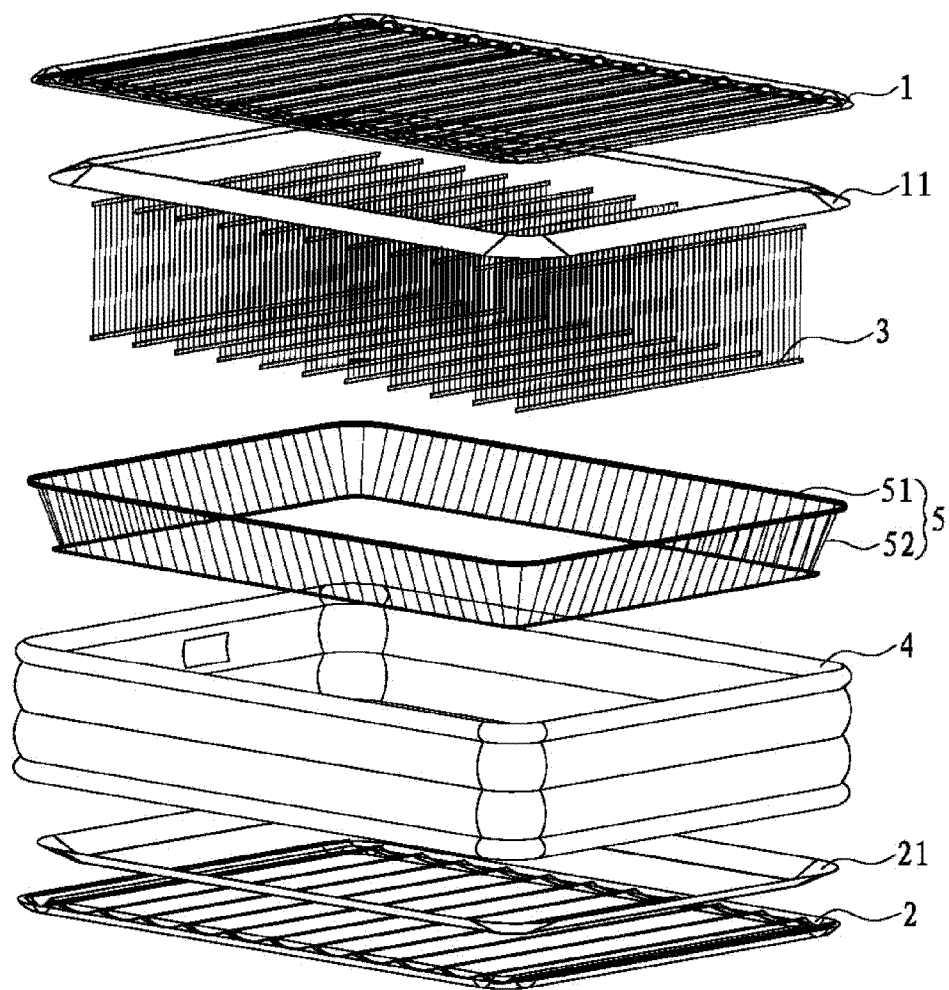


图 5

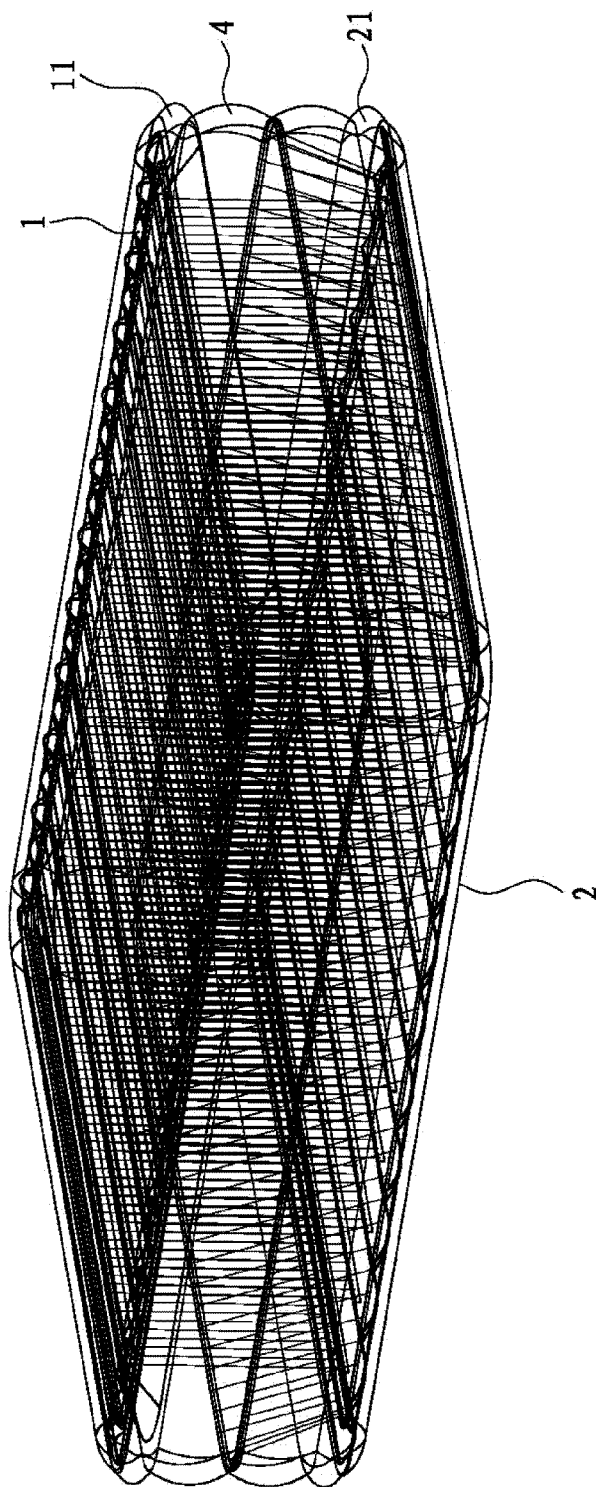


图 6

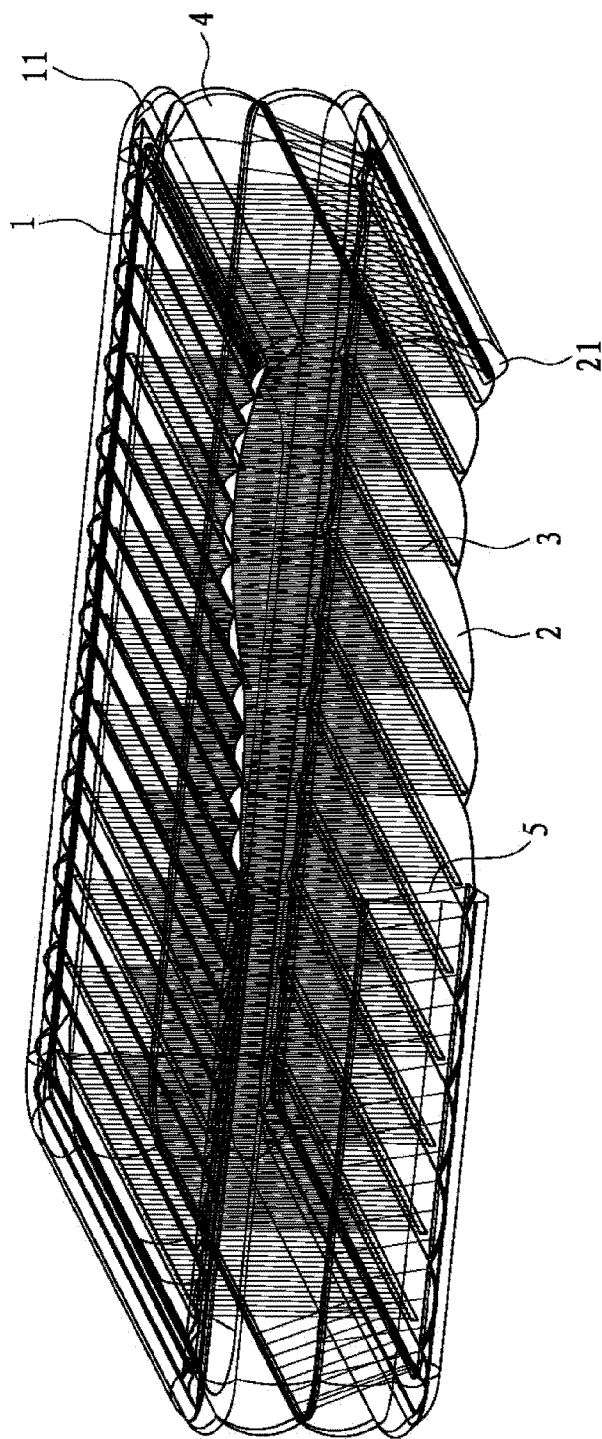


图 7

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/907,893		Filing Date 06/22/2020		☐ To be Mailed			
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO											
APPLICATION AS FILED - PART I											
		(Column 1)	(Column 2)								
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)				
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A						
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A	N/A		N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A						
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 = *		x \$100 =							
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *		x \$460 =							
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))											
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL					
APPLICATION AS AMENDED - PART II											
		(Column 1)		(Column 2)	(Column 3)						
AMENDMENT	09/19/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	* 24	Minus	** 27	= 0	x \$100 =		0			
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0	x \$480 =		0			
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
								TOTAL ADD'L FEE		0	
		(Column 1)		(Column 2)	(Column 3)						
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =					
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =					
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
								TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						SLIE					
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/FELICIA R FARMER/					
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".											
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.											

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronic Acknowledgement Receipt

EFS ID:	46643517
Application Number:	16907893
International Application Number:	
Confirmation Number:	5328
Title of Invention:	INFLATABLE BED
First Named Inventor/Applicant Name:	Feng LIU
Customer Number:	35161
Filer:	Allen Jeffrey Moss/David Hernandez
Filer Authorized By:	Allen Jeffrey Moss
Attorney Docket Number:	81610.1025/P16-014US-CON
Receipt Date:	19-SEP-2022
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Time Stamp:	14:03:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Request for Reconsideration-After Non-Final Rejection	111_Amendment_TO_BE_FILE D.pdf	768853 2a45a17b739a41d89a2ce10bab083cebece a5e91	no	16

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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: 81610.01025/P16-014US-CON

Feng LIU

Appln. No.: 16/907,893

Group Art Unit: 3619

Confirmation No.: 5328

Examiner: Eric J. Kurilla

Filed: June 22, 2020

For: INFLATABLE BED

AMENDMENT UNDER 37 C.F.R. § 1.111

MAIL STOP AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Commissioner:

In response to the Office Action dated July 27, 2022, please amend the above-identified

Application as follows on the accompanying pages.

TABLE OF CONTENTS

<u>AMENDMENTS TO THE CLAIMS</u>	2
<u>REMARKS</u>	12

AMENDMENTS TO THE CLAIMS

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

LISTING OF CLAIMS:

1. (currently amended) An inflatable bed, comprising:
 - a top sheet having a generally rectangular shape;
 - a bottom sheet having a generally rectangular shape spaced apart from said top sheet;
 - at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;
 - at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet, wherein said at least one first tensioning structure comprises a thermoplastic sheet;
 - a second tensioning structure located in said air chamber and ~~including~~ comprising:
 - a first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall, and said top sheet, said first upper beam tensioning structure comprising a thermoplastic sheet; and
 - a second upper beam tensioning structure located in said first upper beam space further extending between and drawing together said at least one side wall and said top sheet, said second upper beam tensioning structure comprising a thermoplastic sheet;

a third tensioning structure located in said air chamber and ~~including comprising:~~

a first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall, and said bottom sheet, said first lower beam tensioning structure comprising a thermoplastic sheet; and

~~at least one of:~~

~~a second upper beam tensioning structure located in said first upper beam space further extending between and drawing together said at least one side wall and said top sheet; and~~

a second lower beam tensioning structure located in said first lower beam space further extending between and drawing together said at least one side wall and said bottom sheet, said second lower beam tensioning structure comprising a thermoplastic sheet.

2. (canceled) .

3. (currently amended) The inflatable bed according ~~claim 2~~claim 1, wherein said second upper beam tensioning structure draws together said at least one side wall and said top sheet, thereby forming to form a bulge along said top periphery.

4. (currently amended) The inflatable bed according to ~~claim 2~~claim 1, wherein said first upper beam tensioning structure forms a first upper oblique angle with respect to said at least one side wall and wherein said second upper beam tensioning structure forms a second

upper oblique angle with respect to said at least one side wall, and wherein said first upper oblique angle is different than said second upper oblique angle.

5. (currently amended) The inflatable bed according to ~~claim 2~~claim 1, wherein said first upper beam tensioning structure is segmented along said at least one side wall.

6. (canceled).

7. (currently amended) The inflatable bed according ~~claim 6~~claim 1, wherein said second lower beam tensioning structure draws together said at least one side wall and said bottom sheet, thereby forming ~~to form~~ a bulge along said bottom periphery.

8. (currently amended) The inflatable bed according to ~~claim 6~~claim 1, wherein said first lower beam tensioning structure forms a first lower oblique angle with respect to said at least one side wall and wherein said second lower beam tensioning member forms a second lower oblique angle with respect to said at least one side wall, and wherein said first lower oblique angle is different than said second lower oblique angle.

9. (currently amended) The inflatable bed according to ~~claim 6~~claim 1, wherein said first lower beam tensioning structure is segmented along said at least one side wall.

10. (canceled).

11. (original) The inflatable bed according claim 1, wherein at least one of said first upper beam tensioning structure and said second upper beam tensioning structure extends along said at least one side wall, traversing less than a full periphery of said at least one side wall.

12. (original) The inflatable bed according claim 1, wherein at least one of said first lower beam tensioning structure and said second lower beam tensioning structure extend along said at least one side wall, traversing less than a full periphery of said at least one side wall.

13. (original) The inflatable bed according claim 1, wherein said second tensioning structure and said third tensioning structure both extend along said at least one side wall, traversing less than a full periphery of said at least one side wall.

14. (currently amended) The inflatable bed according claim 1, wherein said side wall defines a width between said top sheet and said bottom sheet, and wherein along said side wall, a first distance is defined between said ~~second upper tensioning structure~~first upper beam tensioning structure and said top sheet and a second distance is defined between said ~~second lower tensioning structure~~first lower beam tensioning structure and said bottom sheet, wherein said first distance and said second distance are less than half of said width.

15. (original) The inflatable bed according claim 1, wherein said at least one first tensioning structure extends parallel to a lateral direction of said rectangular shape of said top sheet and said bottom sheet and perpendicular to a longitudinal direction of said rectangular shape of said top sheet and said bottom sheet.

16. (original) The inflatable bed according claim 15, wherein said at least one first tensioning structure includes a plurality of first tensioning structures spaced in a parallel relationship.

17. (original) The inflatable bed according claim 16, wherein said plurality of first tensioning structures are spaced from said at least one side wall.

18. (canceled).

19. (currently amended) The inflatable bed according ~~claim 10~~claim 1, wherein said first lower beam tensioning structure is segmented along said at least one side wall and said first upper beam tensioning structure is segmented along said at least one side wall.

20. (original) An inflatable bed, comprising:
a top sheet having a generally rectangular shape;
a bottom sheet having a generally rectangular shape spaced apart from said top sheet;
at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;
at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet;

a second tensioning structure located in said air chamber and including a first upper beam tensioning structure that is segmented, said first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall and said top sheet;

said second tensioning structure further including a second upper beam tensioning structure located in said first upper beam space further drawing together said at least one side wall and said top sheet to form a bulge along said top periphery;

a third tensioning structure located in said air chamber and including a first lower beam tensioning structure that is segmented, said first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall and said bottom sheet;

said third tensioning structure further including a second lower beam tensioning structure located in said second lower beam space further drawing together said at least one side wall and said bottom sheet; and

wherein said at least one first tensioning structure is spaced from said at least one side wall and extends parallel to a lateral direction of said rectangular shape of said top sheet and said bottom sheet and perpendicular to a longitudinal direction of said rectangular shape of said top sheet and said bottom sheet.

21. (currently amended) An inflatable bed comprising:

a top sheet;

a bottom sheet spaced apart from said top sheet;

a side wall coupled to and extending between an outer periphery of said top sheet and an outer periphery of said bottom sheet, thereby defining an air chamber bounded by said top sheet, said bottom sheet, and said side wall;

a first tensioning structure disposed in said air chamber and extending between said top sheet and said bottom sheet, wherein said first tensioning structure comprises a thermoplastic sheet;

a second tensioning structure disposed in said air chamber and comprising:

a first upper tensioning structure coupled to and extending between said top sheet and said side wall, thereby defining an upper beam space bounded by said top sheet, said side wall, and said first upper tensioning structure, said first upper tensioning structure comprising a thermoplastic sheet, and

a second upper tensioning structure disposed in said upper beam space and coupled to and extending between said top sheet and said side wall, said second upper tensioning structure comprising a thermoplastic sheet;

a third tensioning structure disposed in said air chamber and comprising:

a first lower tensioning structure coupled to and extending between said bottom sheet and said side wall, thereby defining a lower beam space bounded by said bottom sheet, said side wall, and said first lower tensioning structure, said first lower beam tensioning structure comprising a thermoplastic sheet, and

a second lower tensioning structure disposed in said lower beam space and coupled to and extending between said bottom sheet and said side wall, said second lower beam tensioning structure comprising a thermoplastic sheet;

wherein at least one of:

an attachment between said top sheet and said first upper tensioning structure is spaced apart from an attachment between said top sheet and said second upper tensioning structure, and

an attachment between said bottom sheet and said first lower tensioning structure is spaced apart from an attachment between said bottom sheet and said second lower tensioning structure.

22. (previously presented) The inflatable bed according to claim 21, said first tensioning structure comprising a plurality of first tensioning structures evenly spaced within the air chamber.

23. (previously presented) The inflatable bed according to claim 21, each of said top sheet and said bottom sheet being substantially rectangular.

24. (currently amended) The inflatable bed according to claim 21, a coupling between said side wall and said top sheet comprising a welded seam, and a coupling between said side wall and ~~the~~ said bottom sheet comprising a welded seam.

25. (previously presented) The inflatable bed according to claim 21, further comprising an upper welded seam connecting said first tensioning structure to said top sheet, and a lower welded seam connecting said first tensioning structure to said bottom sheet.

26. (currently amended) An inflatable bed, comprising:

a top sheet;

a bottom sheet;

at least one side wall extending between said top sheet and said bottom sheet to define an air chamber;

a plurality of first tensioning structures each extending between and drawing together said top sheet and said bottom sheet, wherein each of the plurality of first tensioning structures comprises a thermoplastic sheet;

a second tensioning structure comprising:

a first upper beam coupled to said top sheet along a first upper welded seam and coupled to said side wall along a first middle welded seam, said first upper beam tensioning structure comprising a thermoplastic sheet; and

a second upper beam coupled to said top sheet along a second upper welded seam and coupled to said side wall along a second middle welded seam, said second upper beam tensioning structure comprising a thermoplastic sheet; and

a third tensioning structure comprising:

a first lower beam coupled to said bottom sheet along a first lower welded seam and coupled to said side wall along a third middle welded seam, said first lower beam tensioning structure comprising a thermoplastic sheet; and

a second lower beam coupled to said bottom sheet along a second lower welded seam and coupled to said side wall along a fourth middle welded seam, said second lower beam tensioning structure comprising a thermoplastic sheet.

27. (previously presented) The inflatable bed according claim 26, wherein the first upper welded seam is spaced apart from the second upper welded seam.

28. (previously presented) The inflatable bed according claim 26, wherein the first upper welded seam is in same position to the second upper welded seam.

REMARKS

With this Amendment, claims 2, 6, and 10 are canceled without prejudice or disclaimer. Accordingly, claims 1, 3-5, 7-9, 11-17, and 19-28 are currently pending in this Application. Applicant respectfully submits that the pending claims define patentable subject matter. Reconsideration and allowance of this Application are respectfully requested.

Allowed and Allowable Subject Matter

Claim 20 is allowed, and the Examiner indicates that claims 4, 5, 8, 9, and 19 include allowable subject matter and would be allowed if rewritten into independent form. Applicant respectfully requests that the rewriting of these claims be held in abeyance at this time.

Amendments

With this Amendment, claims 1, 3-5, 7-9, 14, 19, 21, 24, and 26 are amended as shown. All amendments are fully supported by the Application, at least by paragraph [0092] of the originally-filed specification (corresponding to paragraph [0091] of the published Application). Entry of these amendments is respectfully requested.

Objection and 35 U.S.C. § 112

The Examiner objects to claim 24 due to typographical errors; Claim 14 is rejected under 35 U.S.C. § 112 as allegedly indefinite. In view of the current claim amendments, Applicant respectfully requests that the objection and rejection under 35 U.S.C. § 112 be reconsidered and withdrawn.

35 U.S.C. § 102 and 35 U.S.C. § 103

Claims 1-3, 6, 7, 10-17, and 21-28 are rejected under 35 U.S.C. § 102 as allegedly anticipated by Lin (CN 203137719). Applicant respectfully traverses.

Claim 1, as amended, recites:

1. An inflatable bed, comprising:
 - a top sheet having a generally rectangular shape;
 - a bottom sheet having a generally rectangular shape spaced apart from said top sheet;
 - at least one side wall extending between said top sheet and said bottom sheet, said at least one side wall being coupled to a top periphery of said top sheet and a bottom periphery of said bottom sheet to define an air chamber extending between said top sheet, said bottom sheet and said at least one side wall;
 - at least one first tensioning structure located in said air chamber extending between and drawing together said top sheet and said bottom sheet, wherein said at least one first tensioning structure comprises a thermoplastic sheet;
 - a second tensioning structure located in said air chamber and comprising:
 - a first upper beam tensioning structure extending between and drawing together said at least one side wall and said top sheet, a first upper beam space defined between said first upper beam tensioning structure, said side wall, and said top sheet, said first upper beam tensioning structure comprising a thermoplastic sheet; and
 - a second upper beam tensioning structure located in said first upper beam space further extending between and drawing together said at least one side wall and said top sheet, said second upper beam tensioning structure comprising a thermoplastic sheet;
 - a third tensioning structure located in said air chamber and comprising:
 - a first lower beam tensioning structure extending between and drawing together said at least one side wall and said bottom sheet, a first lower beam space defined between said first lower beam tensioning structure, said side wall, and said bottom sheet, said first lower beam tensioning structure comprising a thermoplastic sheet; and
 - a second lower beam tensioning structure located in said first lower beam space further extending between and drawing together said at least one side wall and said bottom sheet, said second lower beam tensioning structure comprising a thermoplastic sheet.

Lin fails to disclose or suggest at least: “at least one first tensioning structure [comprising] a thermoplastic sheet;” “a first upper beam tensioning structure ... comprising a thermoplastic sheet;” “a second upper beam tensioning structure ... comprising a thermoplastic sheet;” “a first lower beam tensioning structure ... comprising a thermoplastic sheet;” and “a second lower beam tensioning structure ... comprising a thermoplastic sheet,” as recited in claim 1.

As shown in FIG. 2 (below), it describes an inflatable product with an interior inflatable space defined by a top sheet 1, a bottom sheet 2, and an annular enclosing sheet 4, connected at an upper, periphery to the outer periphery of the top sheet 1 and connected at a lower periphery to the outer periphery of the bottom sheet 2.

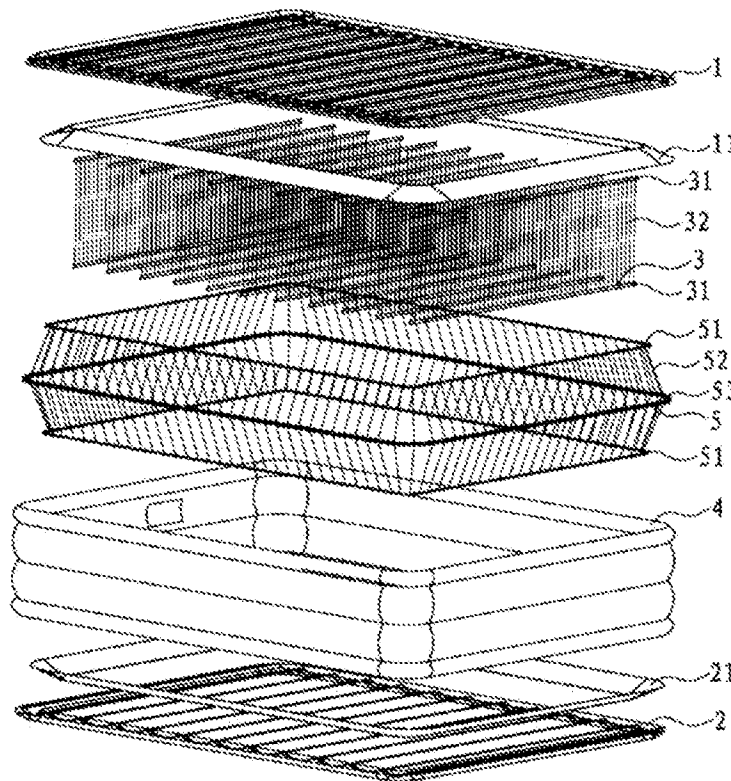


FIG. 2

Regarding the claimed first tensioning structure, the Examiner appears to refer to the “slips” of Lin, as shown in FIG. 2. Lin describes a series of parallel upper “slips” 31, a series of parallel lower “slips” 31, and a series of lines 32 connecting each upper slip 31 to a corresponding lower slip 31. There is no disclosure in Lin of any first tensioning structure *comprising a thermoplastic sheet*, as recited in claim 1.

Regarding the claimed first and second upper beam tensioning structures, the Examiner appears to refer to the annular sheet 11 and a combination of the upper ring 51, the “plastic slip” 53, and the lines 52 extending therebetween, as shown in FIG. 2 of Lin. There is no disclosure or suggestion of *both* first *and* second upper beam tensioning members *each* comprising a thermoplastic sheet, as recited in claim 1.

Likewise, regarding the claimed first and second lower beam tensioning structures, the Examiner appears to refer to the annular sheet 21 and a combination of the lower ring 51, the “plastic slip”: 53, and the lines extending therebetween, as shown in FIG. 2 of Lin. There is no disclosure or suggestion of *both* first *and* second lower beam tensioning members *each* comprising a thermoplastic sheet, as recited in claim 1.

For at least these reasons, Applicant respectfully submits that claim 1 is patentable over Lin and that claims 21 and 26 are patentable at least for analogous reasons. The dependent claims are patentable at least by virtue of their dependencies. Applicant respectfully requests that the claim rejections under 35 U.S.C. § 102 be reconsidered and withdrawn.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at 202-659-6941 or at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 04-1061. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Laura Moskowitz /

Laura Moskowitz, reg. no. 55,470

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Washington, D.C. 20006
202-659-6961

Date: September 19, 2022

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16907893
	Filing Date	2020-06-22
	First Named Inventor	Feng Liu
	Art Unit	3619
	Examiner Name	Eric J. Kurilla
	Attorney Docket Number	81610.1025/P16-014US-CON

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	1	4941223		1990-07-17	Santo	
	2	5669091		1997-09-23	Chung	
	3	6568013		2003-05-27	Perez et al.	
	4	7039972		2006-05-09	Chaffee	
	5	9254047		2016-02-09	Schermel et al.	
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	7	3008213		1961-11-14	Foster et al.	
	8	7530128		2009-05-12	Wu	

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Attorney Docket Number	81610.1025/P16-014US-CON

9	7337485		2008-03-04	Metzger	
10	7165283		2007-01-23	Boso et al.	
11	6996867		2006-02-14	Boso et al.	
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16	4541135		1985-09-17	Karpov	
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Attorney Docket Number		81610.1025/P16-014US-CON

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2	20150335164		2015-11-26	Liu	
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	1	2914545	FR		2008-10-10	Song Rong		
	2	434098	GB		1933-11-21	P.B. Cow & Company		
	3	2013130117	WO		2013-09-06	Intex Recreation Corporation		
	4	202751069	CN		2013-02-27	Shanghai Bestway Inflatables & Material Corp.		
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	7	205457538	CN		2016-08-17	Shanghai Bestway Inflatables & Material Corp.		
	8	103110297	CN		2013-05-22	Intex Industries Xiamen Co., Ltd.		
	9	2706070	CN		2005-06-29	Mignda Plastic Xiamen Co., Ltd.		

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Attorney Docket Number	81610.1025/P16-014US-CON

10	2904820	CN	2007-05-30	Shanghai Bestway Inflatables	
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	1	Communication of a notice of opposition dated 27/06/2019 (27 June 2019) on related European patent application 16191360.3 issued by the European Patent Office/ Opposition Division	
	2	European Search Report dated May 11, 2017	
	3	SIPO Search Report dated January 30, 2019	

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That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

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See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Allen J. Moss/	Date (YYYY-MM-DD)	2022-09-19
Name/Print	Allen J. Moss	Registration Number	38,567

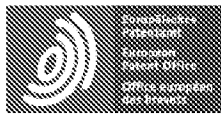
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Bibliographic data: CN2706070 (Y) — 2005-06-29

Aeration bed having ground suction function

Inventor(s): LIN HUAXIANG [CN]; XU YAOYUAN [CN] ± (HUAXIANG LIN, ; YAOYUAN XU)

Applicant(s): MINGDA PLASTIC XIAMEN CO LTD [CN] ± (MINGDA PLASTIC (XIAMEN) CO LTD)

Classification: - **international:** A47C27/08; (IPC1-7): A47C27/08
- **cooperative:** A47C27/087 (EP)

Application number: CN20042047352U 20040616

Priority number(s): CN20042047352U 20040616

Abstract of CN2706070 (Y)

The utility model discloses an aeration bed having ground suction function, comprising a facing material, a bottom material, a strap unit, a medial material and a surrounding slice. The strap unit is connected to the facing material and the bottom material, and the surrounding material circles around and connects with the facing material edge, the medial material and the bottom material. Wherein, the medial material primarily comprises a front, a back, a left and a right four pulling-on pieces respectively combining the four edging of the bottom material and the centre section of the surrounding slices. The four pulling-on pieces of the medial material can adopt some leftover bits and pieces. Compared with the medial material adopting monolithic sheet material in the prior art, materials can be saved a lot, and the leftover bits and pieces of industrial material are efficiently utilized, and unnecessary wasting is avoided.



[12] 实用新型专利说明书

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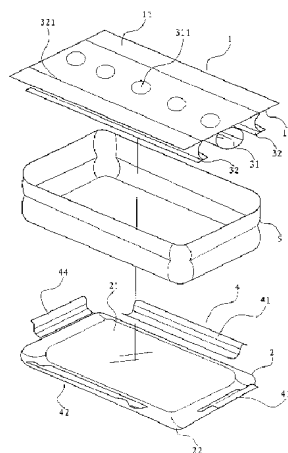
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权利要求书 1 页 说明书 4 页 附图 4 页

[54] 实用新型名称 具有吸地功能的充气床

[57] 摘要

本实用新型公开了一种具有吸地功能的充气床，其主要包括一面料、一底料、一拉带组、一中层料及一围片，拉带组连接面料及底料，围料是围绕并连接面料边缘、中层料及底料边缘；其中该中层料主要是由前、后、左、右四个拉片组成，其分别将底料的四边与围片中部连接在一起。中层料是由四个拉片可采用一些边角料，相对在先技术的中层料是采用整块的片材材料节省了很多，有效利用了边角余料，又避免了不必要的浪费。



- 1、一种具有吸地功能的充气床，其主要包括一面料、一底料、一拉带组、一中层料及一围片，拉带组连接面料及底料，围料是围绕并连接面料边缘、中层料及底料边缘；其特征在于：该中层料主要是由前、后、左、右四个拉片组成，其分别将底料的四边与围片中部连接在一起。
- 2、如权利要求 1 所述的具有吸地功能的充气床，其特征在于：该中层料的前、后拉片大小相同，左、右拉片的大小相同。
- 3、如权利要求 1 或 2 所述的具有吸地功能的充气床，其特征在于：左、右拉片的长度接近底料的长度，而前、后拉片的长度接近底料的宽度。
- 4、如权利要求 1 所述的具有吸地功能的充气床，其特征在于：拉带组包括至少一组由“O”型拉片配合左右两个“I”型拉片构成的拉片组组成。

具有吸地功能的充气床

技术领域

5

本实用新型是关于一种空气床结构，特别是指一种具有吸地功能的充气床。

背景技术

10

由于充气床易使用、重量轻容易移动，及收藏携带方便的特性，使得其作为临时性或是非固定式的床体使用时是相当适宜的选择。而充气后床体厚度较小的充气床一般均是户外使用较多，若要增进充气床的舒适性以媲美家庭使用的床铺时，充气床充气后的厚度则必须如一般床铺的高度，且结构亦必须较这稳固，因此产生一种为了增进舒适性及支撑稳固而制作的充气床。

如图 1、2、3 所示，为公开号为 CN1459265A 的“具有定位设计的充气床”，其包含有一面料 1'、一底料 2'、一拉带组 3'、一中层料 4' 及一围料 5'。面料 1' 形成有床表面 11' 及内侧面 12'。底料 2' 与面料 1' 大小相近，其也形成有底面 21' 及内里面 22'。拉带组 3' 为多个呈并列状的纵向拉带 31'，拉带 3' 的上下侧缘连接在面料 1' 的内侧面 12' 与底料 2' 的内里面 22'。中层料 4' 为一配合底料 2' 形状大小的环形塑胶片，其中央中空处形成内侧边缘 41'，而最外侧形成外侧边缘 42'，内侧边缘 41' 熔接在底料 2' 的内里面 22' 上接近外侧的地方。围料 5' 是一长条形的塑胶片材形状，用以围绕在外侧处，其上下方的侧缘分别与面料 1' 的外侧边缘及底料 2' 的外侧边缘互相熔接，而中层料 4' 的外侧缘 42' 也连接在围料 5' 上并位于面料 1' 与底料 2' 的中间。

如图 2、3 所示，整体材料熔接完成后，面料 1'、底料 2' 及围料 5' 可共同界定一充气空间，当充入气体后，因中层料 4' 的区隔作用，使将充气床的高度提高，同时当使用者位于面料 1' 的床表面 11' 上面有一向下施加的重力时，底料 2' 与支承面 6' 之间形成一大型吸盘的作用，使充气床更为稳固定位在支承面 6' 上而不容易移动。相反地，当使用者不使用时，充气床即不再受重力压迫时，吸盘作用消失，此时充气床可形成较为容易移动的状态。

但是上述结构的充气床仍存有下列的缺陷：

1、浪费材料：中料层是采用配合底料形状的片体，其中部是挖空以形成内侧边缘，因此该中料层必须是采用整体的片材，而中部被挖除的部份无形中是形成了材料的浪费。

2、舒适度欠佳：如拉带组是采用纵向的拉带，则拉带对面料的支撑强度高，但是硬度高，躺着不够舒服；如拉带组采用环形拉带，躺着虽然柔软，但其支撑强度不佳。

5 实用新型内容

本实用新型的主要目的是提供一种节约材料的具有吸地功能的充气床。

10 本实用新型的次要目的是提供一种使用更加舒适的具有吸地功能的充气床。

为实现上述目的，本实用新型的解决方案是：一种具有吸地功能的充气床，其主要包括一面料、一底料、一拉带组、一中层料及一围片，拉带组连接面料及底料，围料是围绕并连接面料边缘、中层料及底料边缘；其中：该中层料主要是由前、后、左、右四个拉片组成，
15 其分别将底料的四边与围片中部连接在一起。

该中层料的前、后拉片大小相同，左、右拉片的大小相同。

左、右拉片的长度接近底料的长度，而前、后拉片的长度接近底料的宽度。

20 所述的拉带组由包括至少一组由一个“0”型拉带配合左右两个“I”型拉带构成。

采用上述方案后，本实用新型相对在先技术具有以下优点：

1、节约材料：本实用新型中的中层料是由四个拉片组成，因此采用一些边角料即可将底料与围料连接在一起，相对在先技术的中层料是采用整块的片材材料节省了很多，有效利用了边角余料，又避免了不必要的浪费。
25

2、强度高、使用更舒适：本实用新型的拉带组是采用至少一组由一个“0”型拉带配合左右两个“I”型拉带，“0”形拉带与面料及底料是点接触熔接，其具备一定的柔软度，而“I”型拉带与面料及底料是线接触熔接，其又具备了纵向拉带的支撑强度。
30

附图说明

图 1 是在先技术的立体分解图；
图 2 为在先技术的组合外观图；
35 图 3 为图 2 的剖视示意图；
图 4 为本实用新型的立体分解图；
图 5 为本实用新型的组合衡向剖视图；
图 6 为本实用新型的组合纵向剖视图。

具体实施方式

请参阅图 4 所示, 本实用新型的充气床其亦包含有一面料 1、一底料 2、一拉带组 3、一中层料 4 及一围料 5。

5 面料 1 为一所需床面大小面积的塑胶片材, 其同样形成有一面向上方的床表面 11 及一与床表面 11 相反而面向下方的内侧面 12。

底料 2 亦为一塑胶片材, 其配合面料 1 的形状但是面积大约与面料 1 相同, 底料 2 也形成有一面向下方的底面 21 及一与底面 21 相反而面向上方的内里面 22。

10 围料 5 是呈一长条形的塑胶片材形状, 其围绕后形成一床体的外框支架。

本实用新型的关键在于:

中层料 4 是由四个小形的片材组成的一组拉片组, 该四个片材分别是为一组大小相同的左内拉片 41、右内拉片 42 及一组大小相同的前内拉片 43、后内拉片 44; 此四个拉片可采用一些塑胶片材的边角余料, 左、右拉片 41、42 的长度接近底料 2 的长度, 而前、后拉片 43、44 的长度接近底料 2 的宽度。

拉带组 3 包括有一组及一组以上的呈纵向排列的拉带分组, 每一组的拉带是由一个“0”型拉带 31 配合左右对称的两个“I”型拉带 20 32 构成, 各拉带的长度与面料 1 及底料 2 的长度接近。

配合图 5、6 所示, 拉带组 3 是分别熔接在面料 1 的内侧面 11 及底料 2 的内里面 22 上, 使面料 1 与底料 2 保持一定的距离关系; 而中层料 4 的左、右、前、后拉片 41、42、43、44 的一边分别熔接在底料 2 的内里面 22 接近外侧的地方, 而另一边分别熔接在围料 5 上并位于面料 1 及底料 2 的中间; 最后面料 1 及底料 2 的外边缘依次熔接在围料 5 的上下方的侧缘处, 一具有充气空间的充气床即形成。

整体材料熔接完成后, 面料 1、底料 2 及围料 5 可共同界定一充所空间 A, 当充入气体后, 由于中层料 4 的各拉片的牵引作用, 可使底料 2 相对支撑面 6 形成一腔室 B, 此腔室 B 的形成, 使得整体充气床的高度提高, 当使用者位于面料 1 的床表面 11 上时, 其会向下对床施加的重力, 充气空间 A 会有向下变形的作用, 使得位于充气空间 A 下方的腔室 B 中的空气被挤压出腔室 B 之外, 而腔室 B 可更为紧压在支承面 6 上, 其效果可使整体充床如同一大型吸盘的作用, 使充气床更为稳固定位在支承面上而不容易移动。相反地, 当使用者不使用时, 充气床即不再受重力压迫, 充气空间 A 可回复原状, 外侧的空气又可进入腔室 B 中, 即底料 2 相对支撑面 6 的空间内, 此时充气床可形成较为容易移动的状态。

综上所述, 本实用新型不仅可以具备在先技术中提升床体高度、

- 支撑稳固的功能,而且中层料4的四个拉片采用的边角余料相对在先技术中层料4'采用的整体片材形成的拉片更为节省材料;同时再请配合图4所示,本实用新型中的拉带组3是采用“0”型拉带31配合左右对称的两个“I”型拉带32支撑床面11,“0”型拉带31与床面11是形成点或面311的熔接,其可使床面11具有一定的柔软度,“I”型拉带32与床面11是形成的线性321熔接,又具备了纵向拉带的支撑强度,使用者躺着时会感觉床面更加舒适。

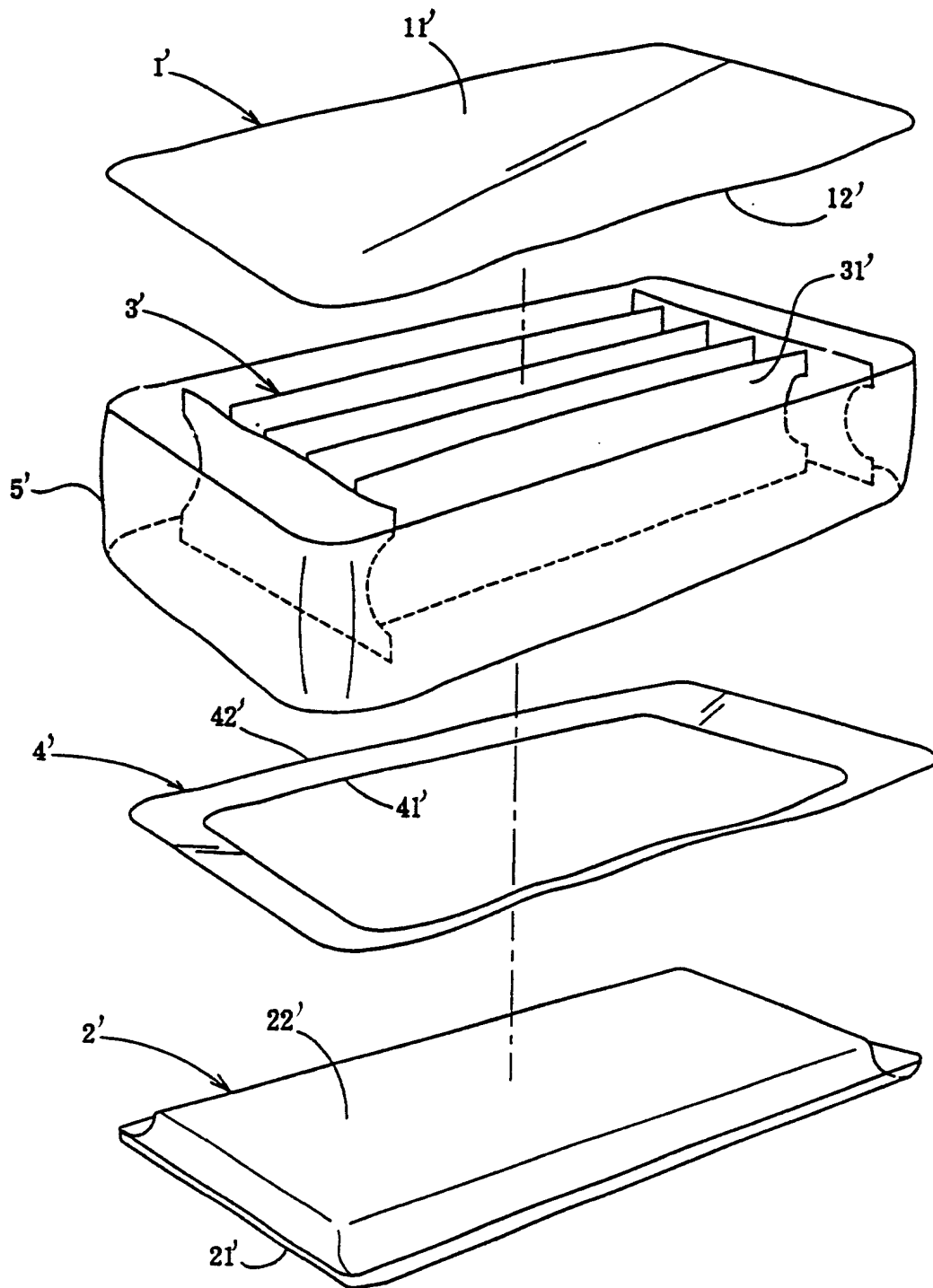


图1

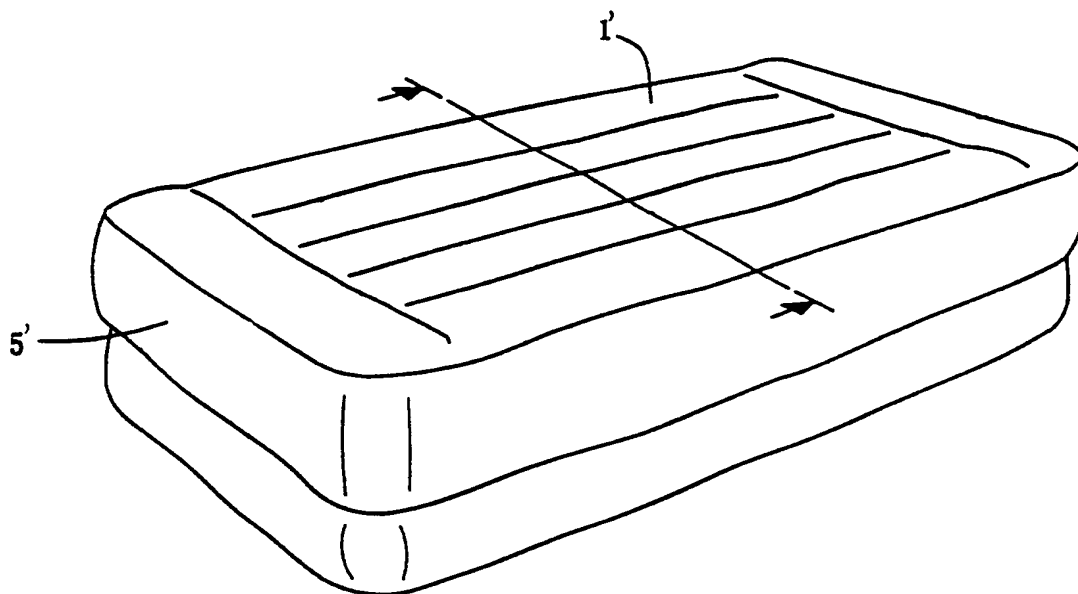


图 2

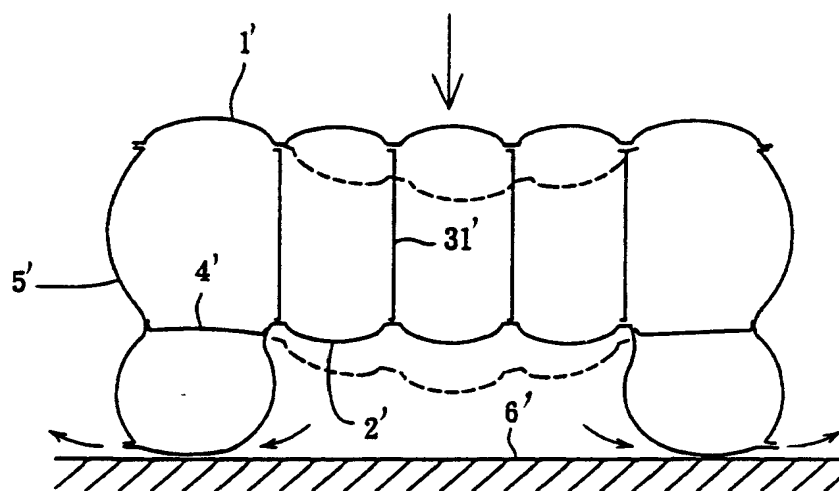


图 3

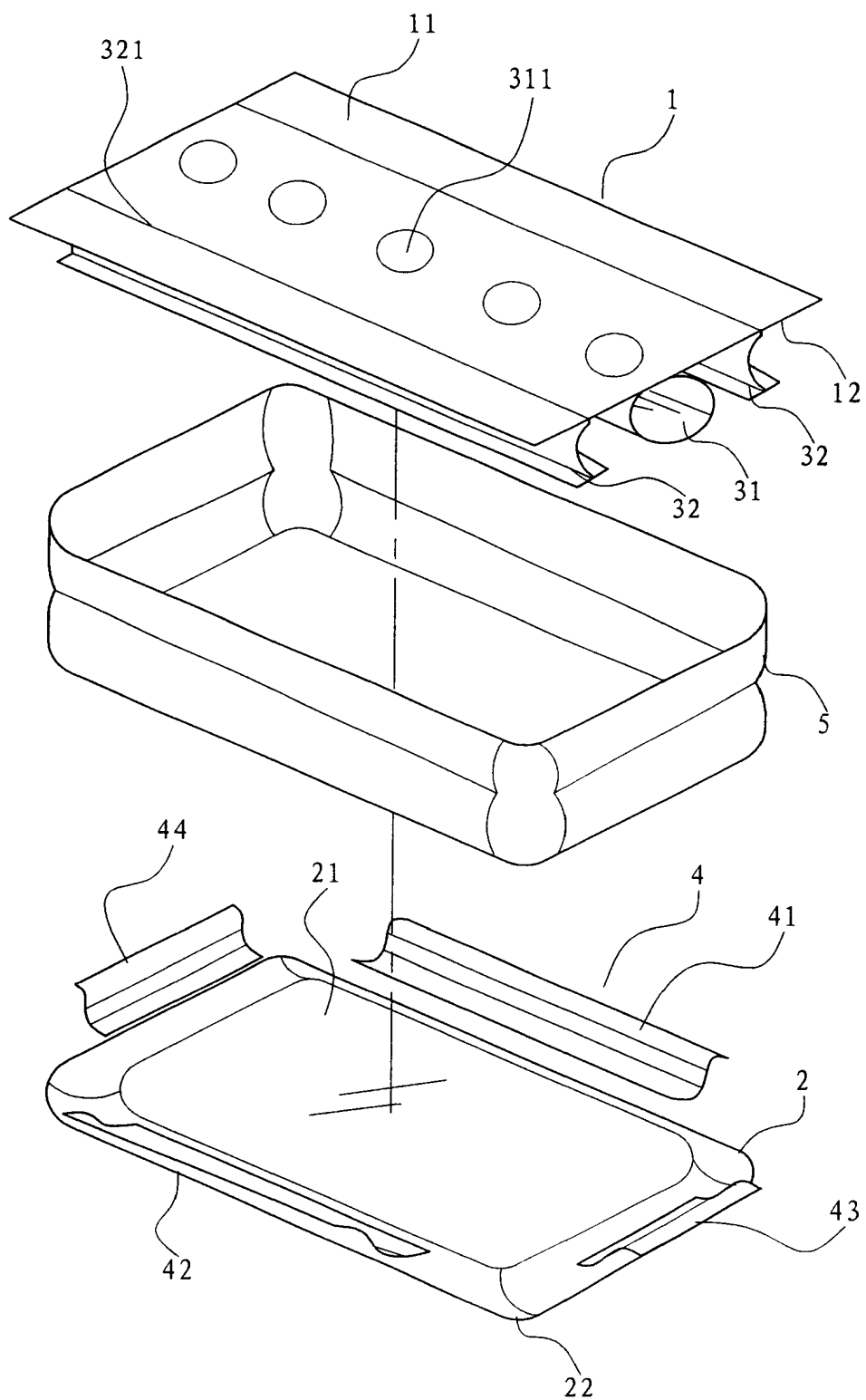


图4

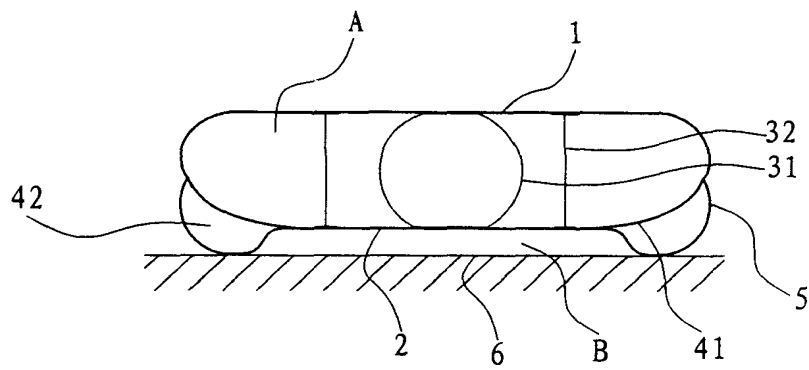


图5

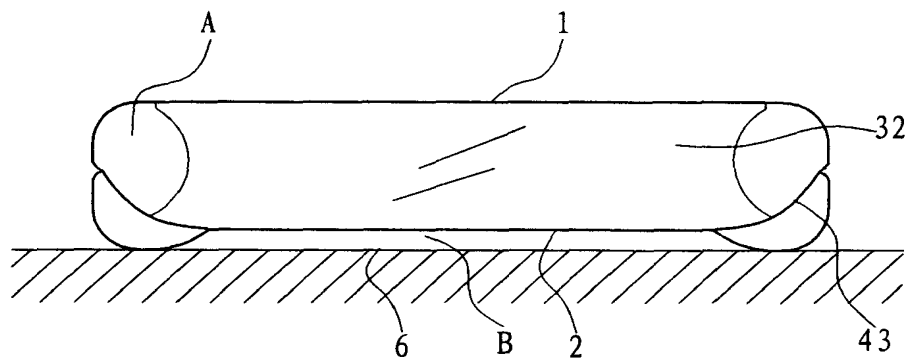
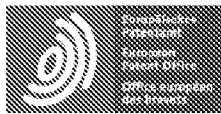


图6



Espacenet

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Draw strap structure of air mattress

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Classification: - **international:** A47C27/08
- **cooperative:** A47C27/081 (EP, US); A47C27/087 (EP, US)

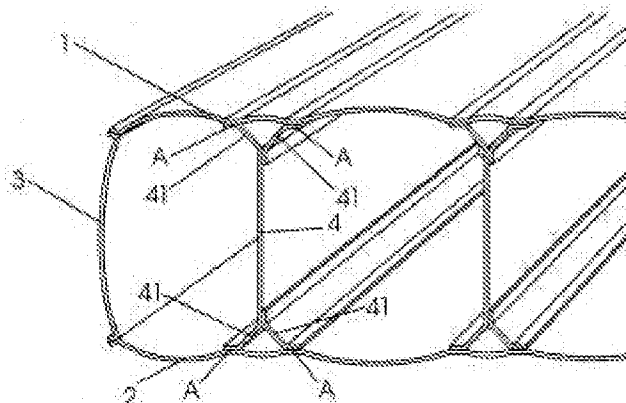
Application number: CN20062042365U 20060602

Priority number(s): CN20062042365U 20060602

Also published as: US2007277324 (A1)

Abstract of CN2904820 (Y)

A draw strap structure of air mattress, mainly comprise a face sheet, a bottom sheet and a surrounding sheet. Draw straps connecting the face sheet and the bottom sheets are provided between the face sheet and the bottom sheet. The utility model is characterized in that two portions extending to the two sides are provided at least on one end of the draw straps, and the external surface of the extending portion connects respectively with the face sheet and the bottom sheet; the cross section of the draw straps is of I or J or X or Y shape. The advantage of the present utility model lies in that connecting surfaced between the draw straps and the face sheet, the bottom sheets are added based on original draw straps which reduces the pull force born by unit area at the jointing part and thus lengthen the service life of the pneumatic mattress.



[19] 中华人民共和国国家知识产权局

[51] Int. Cl.
A47C 27/08 (2006.01)



[12] 实用新型专利说明书

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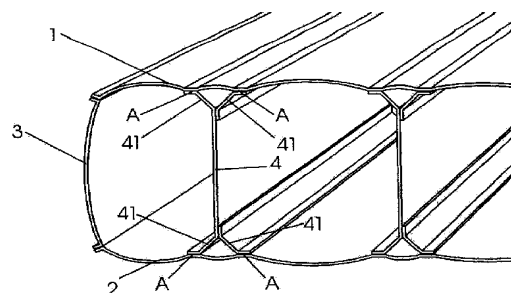
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[54] 实用新型名称

充气床垫的拉带结构

[57] 摘要

一种充气床垫的拉带结构，主要包括面片、底片和围片，在面片和底片之间设有连接面片和底片的拉带，其特征在于所述拉带上下两端至少有一端设有两个向两侧延伸的部分，延伸部分的外表面分别与面片或底片连接，拉带的截面形状呈“工”或“丁”或“X”或“Y”形。本实用新型的优点是在原有拉带的基础上增加了拉带与面片、底片的连接面，降低了接缝处单位面积承受的拉力，增加了充气床垫使用寿命。



1. 一种充气床垫的拉带结构, 主要包括: 面片、底片和围片, 在面片和底片之间设有连接面片和底片的拉带, 其特征在于所述拉带上下两端至少有一端设有两个向两侧延伸的部分, 延伸部分的外表面分别与面片或底片连接, 拉带的截面形状呈 “I” 或 “T” 或 “X” 或 “Y” 形。

充气床垫的拉带结构

技术领域

本实用新型涉及一种充气床垫, 特别涉及一种充气床垫的拉带结构。

技术背景

目前充气床垫由于携带方便、便于收藏兼具良好的舒适性等优点越来越得到人们的喜爱和流行, 它不仅可以当作备用的床垫使用, 而且还可以在野外露营时使用。传统的充气床垫一般采用直拉带、S 形拉带等类型, 其上下两端分别与面片和底片单侧连接, 其截面形状一般为“J”或“Z”形, 拉带在床垫充气后对面片和底片产生垂直方向的拉力, 在拉带和面片或底片连接的接缝处受力较为集中, 容易造成拉带和面片或底片的连接处剥离或面片、底片被撕裂, 特别是在床垫内部气压值较高的情况下, 或是在床垫受到较大的外部冲击力内部气压值瞬间提高到较高气压值的情况下, 更容易造成损坏。有些充气床垫为了克服接缝处剥离、撕裂问题, 采用增加拉带或加厚面片和底片材料厚度的方法提高强度, 虽能使充气床垫损坏的情况有所改善, 但制造成本大大增加。

发明内容

本实用新型的发明目的针对已有技术中存在的缺陷, 提供了一种充气床垫的拉带结构。

本实用新型主要包括: 面片、底片和围片, 在面片和底片之间设有连接面片和底片的拉带, 其特征在于所述拉带上下两端至少有一端设有两个向两侧延伸的部分, 延伸部分的外表面分别与面片或底片连接, 拉带的截面形状

呈“工”或“丁”或“乂”或“丫”形。

本实用新型的优点是在原有拉带的基础上增加了拉带与面片、底片的连接面，降低了接缝处单位面积承受的拉力，增加了充气床垫使用寿命。

附图说明

图 1 本实用新型乂截面形状的拉带结构示意图；

图 2 本实用新型丁截面形状的拉带结构示意图；

图 3 本实用新型工截面形状的拉带结构示意图；

图 4 本实用新型丁截面形状的拉带结构示意图。

1 面片、 2 底片、 3 围片、 4 拉带、 41 延伸部分、 A 焊缝

具体实施方式

实施例 1

下面结合附图进一步说明本实用新型的实施例：

参见图 1，呈“乂”形截面形状的拉带，拉带 4 上下两端各设有两个向两侧延伸部分 41 分别与面片 1 或底片 2 连接，其连接的方法为高频焊接。充气床垫充气以后拉带 4 通过上下两端向两侧延伸部分 41 对面片 1 和底片 2 施加拉力，面片 1 和底片 2 所受的拉力得到分散，同时拉带 4 上下两端向两侧延伸部分 41 对焊缝 A 起到保护作用，这样拉带 4 和面片 1 或底片 2 的连接处不易产生剥离或者发生面片 1、底片 2 在受到拉带 4 垂直方向的较大拉力时被撕裂，即使在床垫内部气压值较高的情况下，或是在床垫受到较大的外部冲击力内部气压值瞬间提高到较高气压值的情况下，拉带 4 与面片 1 和底片 2 的连接也是非常牢固的。

实施例 2

参见图 2, 与实施例 1 相同, 所不同的是拉带 4 的截面形状呈“Y”形。

拉带 4 只在上端设有两个向两侧延伸部分 41 与面片 1 连接, 主要是增加拉带 4 和面片 1 的连接部位的牢固度, 下端只设有一个延伸部分 41, 与底片 2 连接。

实施例 3

参见图 3, 与实施例 1 相同, 所不同的是拉带 4 的截面形状呈“工”形。

拉带 4 只在上端设有两个向两侧延伸部分 41 与面片 1 连接, 主要是增加拉带 4 和面片 1 的连接部位的牢固度, 下端也设有两个向两侧延伸部分 41 与底片 2 连接。

实施例 4

参见图 4, 与实施例 1 相同, 所不同的是拉带 4 的截面形状呈“T”形。

拉带 4 只在上端设有两个向两侧延伸部分 41 与面片 1 连接, 主要是增加拉带 4 和面片 1 的连接部位的牢固度, 下端只设有一个延伸部分 41, 与底片 2 连接。

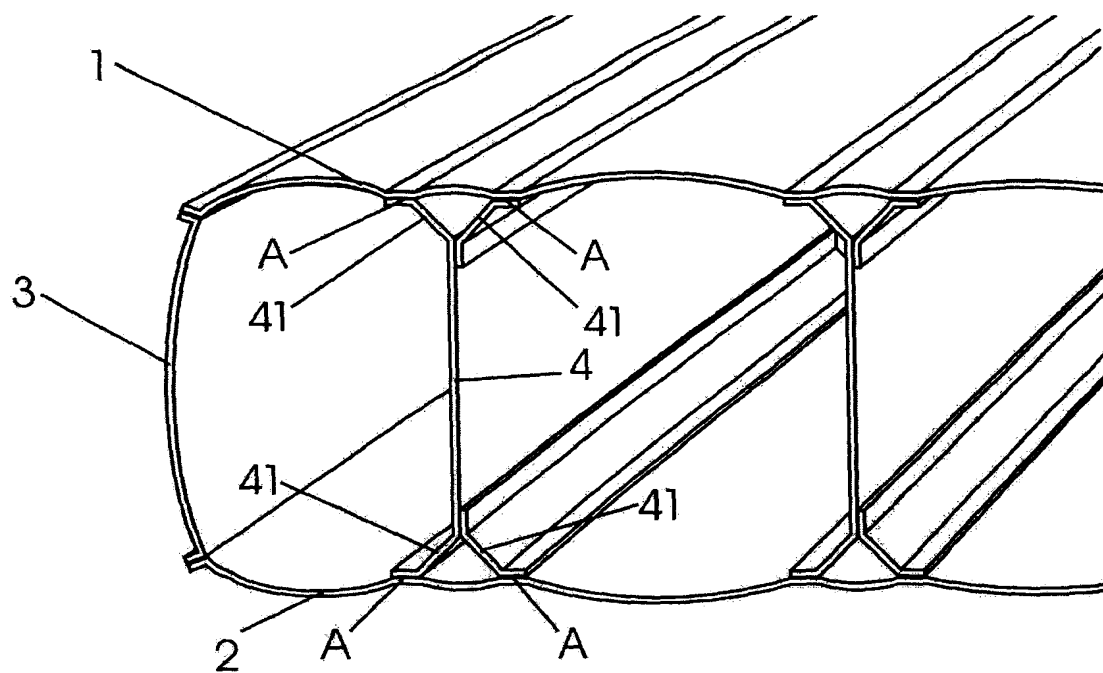


图 1

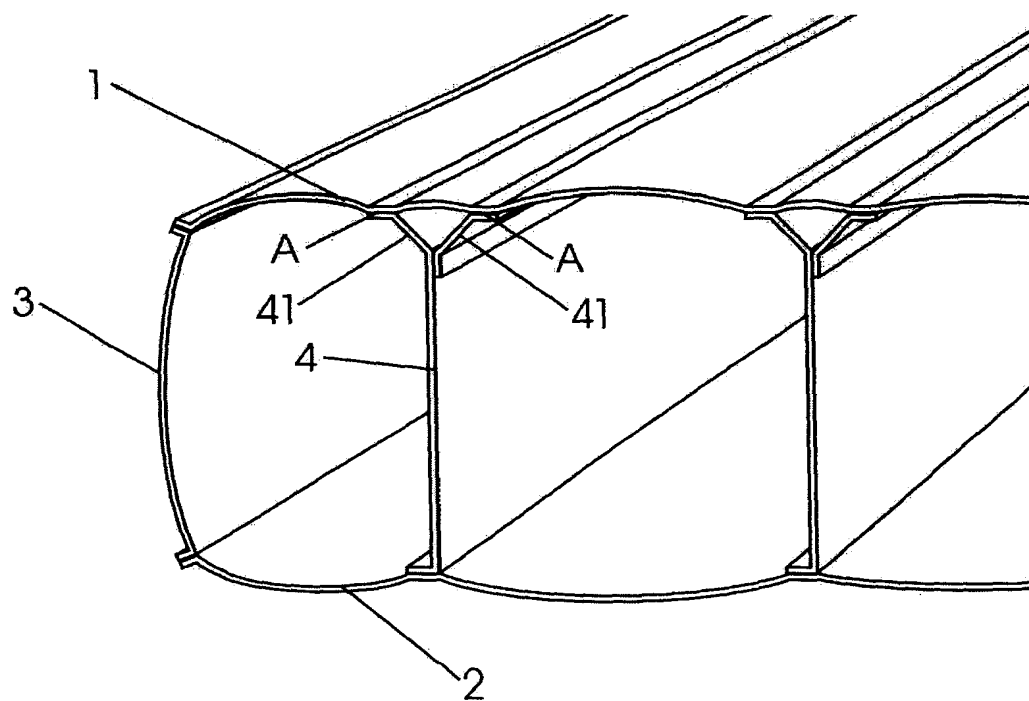


图 2

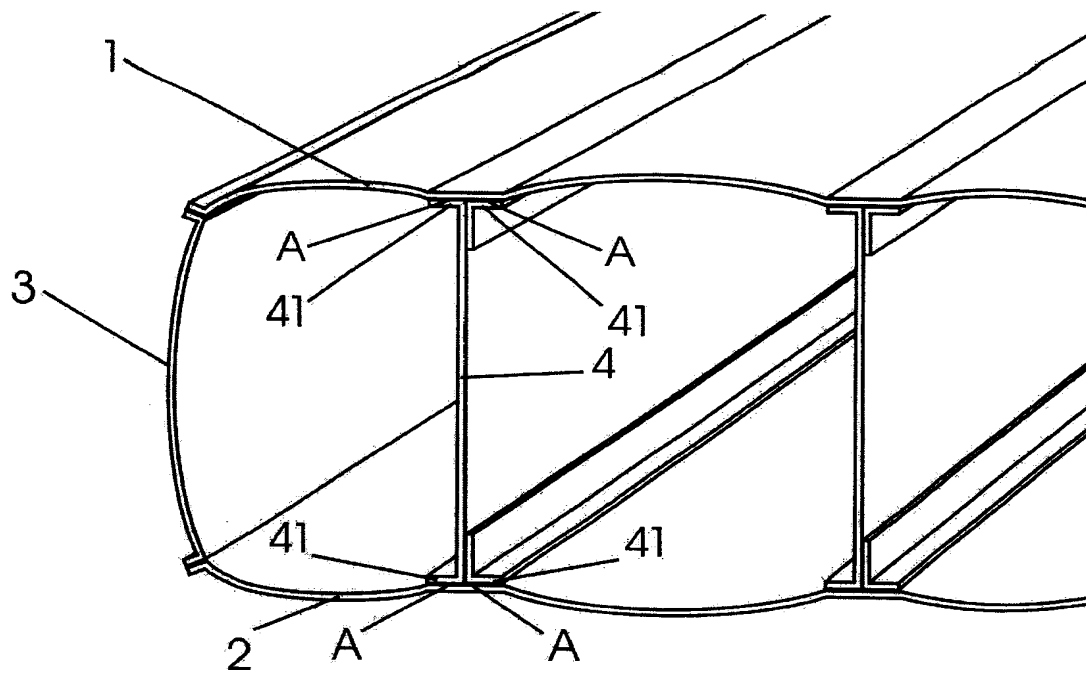


图 3

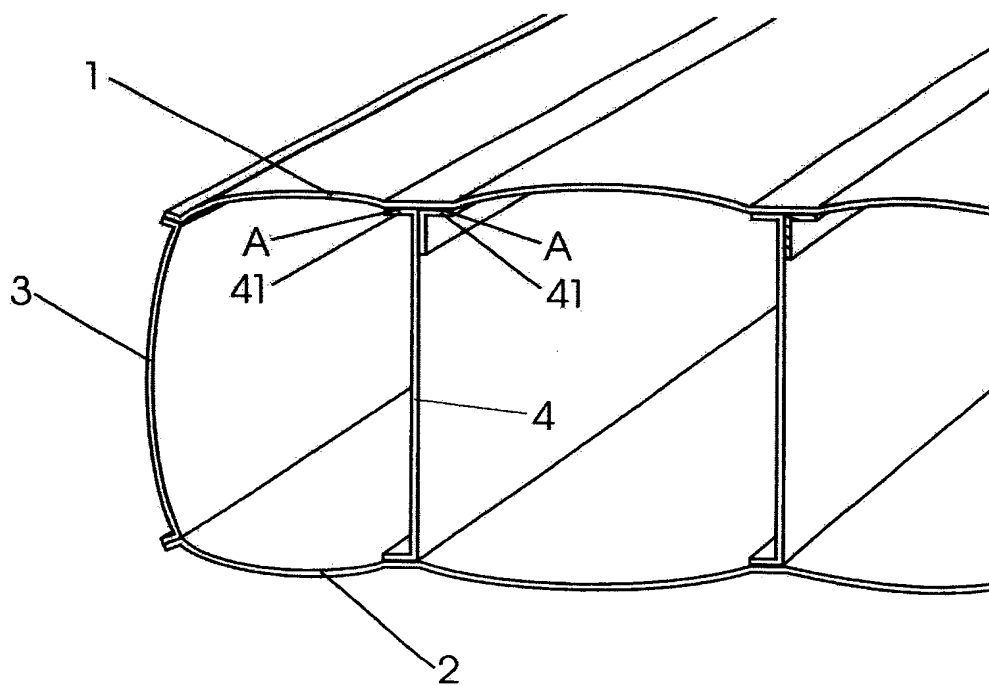


图 4



Espacenet

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Reinforcing structure of inflatable product

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Abstract of CN103110297 (A)

The invention discloses a reinforcing structure of an inflatable product. The reinforcing structure comprises an upper sheet, a lower sheet, a plurality of drawstrings and an enclosing sheet, wherein two ends of each drawstring are respectively connected to the lower surface of the upper sheet and the upper surface of the lower sheet, and meanwhile, the upper edge and the lower edge of the enclosing sheet are respectively connected with the circumferential edge of the upper sheet and the circumferential edge of the lower sheet to form an inflatable product with an inflatable space; and the reinforcing structure further comprises a side enclosing drawstring, wherein one end of the side enclosing drawstring is connected to the middle part of the inner surface of the enclosing sheet, the other end of the side enclosing drawstring is connected to the lower surface, close to the circumferential edge, of the upper sheet and the upper surface, close to the circumferential edge, of the lower sheet, or the other end of the side enclosing drawstring is connected to the opposite surface of the enclosing edge connected with the one end of the side enclosing drawstring. According to the reinforcing structure, the side enclosing drawstring can have a certain traction limiting effect on the middle part of the enclosing sheet of the inflatable product with high height so as to prevent the inflatable product from protruding outwards too much to influence the strength and attractive appearance of the inflatable product, therefore not only is the material cost of the inflatable product effectively reduced, but also the manufacturing cost of the inflatable product can be effectively reduced.



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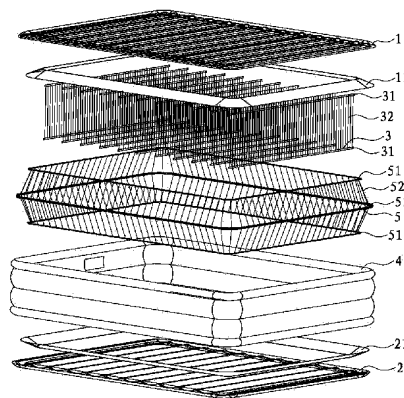
权利要求书1页 说明书3页 附图9页

(54) 发明名称

充气产品加固结构

(57) 摘要

本发明公开了一种充气产品加固结构,包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气空间的充气产品,其中还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上,此另一端亦或连接于其一端连接的围片的相对面上。本发明通过设置侧围拉带,可以对具有较高高度的充气产品的围片中部具有一定的牵引限位作用,防止其外凸较多而影响强度及美观,不仅有效降低产品材料成本,而且可以有效降低产品的制作成本。



1. 一种充气产品加固结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气空间的充气产品,其特征在于:还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上,此另一端亦或连接于其一端连接的围片的相对面上。

2. 如权利要求 1 所述的充气产品加固结构,其特征在于:所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,其中在复数根线体的中部再固定有一塑胶片条,侧围拉带两端的环形塑胶片条是分别连接上片与下片,而中部的塑胶片条是连接于围片内表面的中部。

3. 如权利要求 1 所述的充气产品加固结构,其特征在于:所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,此侧围拉带一端的塑胶片条连接于围片内表面的中部,另一端是连接于上片与下片上。

4. 如权利要求 1、2 或 3 所述的充气产品加固结构,其特征在于:所述的各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片的焊接。

5. 如权利要求 4 所述的充气产品加固结构,其特征在于:所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

6. 如权利要求 1 所述的充气产品加固结构,其特征在于:所述的各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片的焊接;侧围拉带包括复数个线状侧拉带,各侧拉带两端通过连接片而连接于围片中部内表面的相对面上。

7. 如权利要求 6 所述的充气产品加固结构,其特征在于:所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

充气产品加固结构

技术领域

[0001] 本发明是关于一种充气产品结构,特别是指一种充气产品加固结构。

背景技术

[0002] 充气产品,如充气床具有易使用、重量轻容易移动,及收藏携带方便的特性,使得其作为临时性或是非固定式的床体使用时是相当适宜的选择。而充气后床体厚度较小的充气床一般均是户外使用较多,若要增进充气床的舒适性以媲美家庭使用的床铺时,充气床充气后的厚度则必须如一般床铺的高度,且要保证床面的平整,同时结构亦必须较稳固。

[0003] 配合图 1 所示,具有床铺高度的充气床,为防止床周外凸较大及支撑力度,以及充气腔内定型强度,通常是采用两个独立气室 A、B 叠加而成,即需要设置中层片体 C,由两个独立围带分别连接此中层片体 C 及上下片体构成两个充气腔,在两充气腔内分别设置拉带组以形成床体造型。如此结构必然存在如下缺点:

1、材料成本高,由于中层片体的设置是便于定型及提高床体的功能,该中层片体的设置不仅增加了材料的需求量,同时亦增加了床体的重量。

[0004] 2、两个独立气腔内的拉带需分别焊接,无形中增加了床体制作的繁琐,因而制作成本亦居高不下。

发明内容

[0005] 本发明的目的是提供一种充气产品加固结构,其在保证产品高度的同时保证产品周缘外凸有限的美观性同时,有效减少材料成本及制作成本。

[0006] 为实现上述目的,本发明的解决方案是:

一种充气产品加固结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气空间的充气产品,其中:还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上,此另一端亦或连接于其一端连接的围片的相对面上。

[0007] 所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,其中在复数根线体的中部再固定有一塑胶片条,侧围拉带两端的环形塑胶片条是分别连接上片与下片,而中部的塑胶片条是连接于围片内表面的中部。

[0008] 所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,此侧围拉带一端的塑胶片条连接于围片内表面的中部,另一端是连接于上片与下片上。

[0009] 所述的各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片的焊接。

[0010] 所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

[0011] 所述的各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片的焊接;侧围拉带包括复数个线状侧拉带,各侧拉带两端通过连接片而连接于围片中部内表面的相对面上。

[0012] 所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

[0013] 采用上述方案后,本发明通过设置侧围拉带,可以对具有较高高度的充气产品的围片中部具有一定的牵引限位作用,防止其外凸较多而影响强度及美观,不仅有效降低产品材料成本,而且可以有效降低产品的制作成本。

附图说明

[0014] 图 1 为习用品的立体外观图;

图 2 为本发明实施例 1 的立体分解图;

图 3 为本发明实施例 1 的外观示意图;

图 4 为本发明实施例 1 的局部剖视示意图;

图 5 为本发明实施例 2 的立体分解图;

图 6 为本发明实施例 2 的外观示意图;

图 7 为本发明实施例 2 的局部剖视示意图;

图 8 为本发明实施例 3 的立体分解图;

图 9 为本发明实施例 3 的外观示意图。

具体实施方式

[0015] 配合图 2 至图 9 所示,本发明揭示了一种充气产品加固结构,特别是针对矩形的充气产品,其包括一上片 1、一下片 2、复数个拉带 3 及一围片 4,还包括有侧围拉带 5,各拉带 3 的两端是分别连接于上片 1 的下表面及下片 2 的上表面,同时围片 4 的上下边分别与上片 1 的周缘及下片 2 的周缘连接后,便构成一具有充气空间的充气产品,而侧围拉带 5 的一端是连接于围片 4 内表面的中部,另一端是连接于上片 1 近周缘的下表面或下片 2 近周缘的上表面上,此另一端亦或连接于其一端连接的围片 4 的相对面上。

[0016] 以下充气产品是以充气床为例进行说明,并不局限于充气床。

[0017] 如图 2、3、4 所示的本发明实施例 1,其中的各拉带 3 为对应床体宽度或长度的带体,拉带 3 是由两端的塑胶片条 31 连接复数根线体 32 构成,塑胶片条 31 用于与上片 1 及下片 2 的焊接,而线体 32 承拉较强的牵引力;而侧围拉带 5 为一整体的环形拉带,其由两端的环形塑胶片条 51 连接复数根线体 52 构成,其中在复数根线体 52 的中部再固定有一塑胶片条 53,如此侧围拉带 5 两端的环形塑胶片条 51 是分别连接上片 1 与下片 2,而中部的塑胶片条 53 是连接于围片 4 内表面的中部。

[0018] 此处侧围拉带 5 的设置是令围片 4 的中部进一步受到牵制,使其内凹,以保证具有较高高度并具一个充气腔的充气床其周缘的美观性,以防止周缘外凸较多,同时保证床体周缘的强度及床体整体的支撑强度。

[0019] 为提高床体的美观性,在上片 1 与围片 4 及下片 2 与围片 4 之间还分别设有一环

形上吸地片 11 及一环形下吸地片 21,即上片 1 通过环形上吸地片 11 与围片 4 的上周缘连接在一起,而下片 2 通过环形下吸地片 21 与围片 4 的下周缘连接在一起。

[0020] 如图 5、6、7 所示的本发明的实施例 2,其中的各拉带 3 同样为对应床体宽度或长度的带体,拉带 3 同样是由两端的塑胶片条 31 连接复数根线体 32 构成,塑胶片条 31 用于与上片 1 及下片 2 的焊接,而线体 32 承接较强的牵引力;而侧围拉带 5 为一整体的环形拉带,其由两端的环形塑胶片条 51 连接复数根线体 52 构成,此侧围拉带 5 一端的塑胶片条 51 连接于围片 4 内表面的中部,另一端是连接于上片 1 与下片 2 上,如此防止具有较高高度并具一个充气腔的充气床其周缘外凸较大,保证床体周缘的强度及床体整体的支撑强度。

[0021] 同样为提高床体的美观性,在上片 1 与围片 4 及下片 2 与围片 4 之间还分别设有一环形上吸地片 11 及一环形下吸地片 21,即上片 1 通过环形上吸地片 11 与围片 4 的上周缘连接在一起,而下片 2 通过环形下吸地片 21 与围片 4 的下周缘连接在一起。

[0022] 此处需说明的是,上述实施例 1、2 的拉带 3 及侧围拉带 5 并不局限于此塑胶片条与复数根线体的结构,亦可采用整体塑胶片的线性拉带或柱状拉带同样可以实施,只要其可满足充气产品内压的要求即可。

[0023] 如图 8、9 所示所示的本发明的实施例 3,其中的各拉带 3 同样为对应床体宽度或长度的带体,拉带 3 同样是由两端的塑胶片条 31 连接复数根线体 32 构成,塑胶片条 31 用于与上片 1 及下片 2 的焊接,而线体 32 承拉较强的牵引力;而侧围拉带 5' 包括复数个线状侧拉带 51',各侧拉带 51' 两端通过连接片 52' 而连接于围片 4 中部内表面的相对面上,由于拉带 3 的中部为具有间隙的线体 32,因此可令侧拉带 51' 而穿过各线体 32 而顺利的与围片 4 连接在一起。此结构的侧围拉带 5' 同样可以实现对围片 4 外凸的制约,以保证具有较高高度并具一个充气腔的充气床其周缘的美观性,以防止周缘外凸较多,同时保证床体周缘的强度及床体整体的支撑强度。

[0024] 同样为提高床体的美观性,在上片 1 与围片 4 及下片 2 与围片 4 之间还分别设有一环形上吸地片 11 及一环形下吸地片 21,即上片 1 通过环形上吸地片 11 与围片 4 的上周缘连接在一起,而下片 2 通过环形下吸地片 21 与围片 4 的下周缘连接在一起。

[0025] 综上所述,本发明通过设置侧围拉带,可以对具有较高高度的充气产品的围片中部具有一定的牵引限位作用,防止其外凸较多而影响强度及美观,不仅有效降低产品材料成本,而且可以有效降低产品的制作成本。

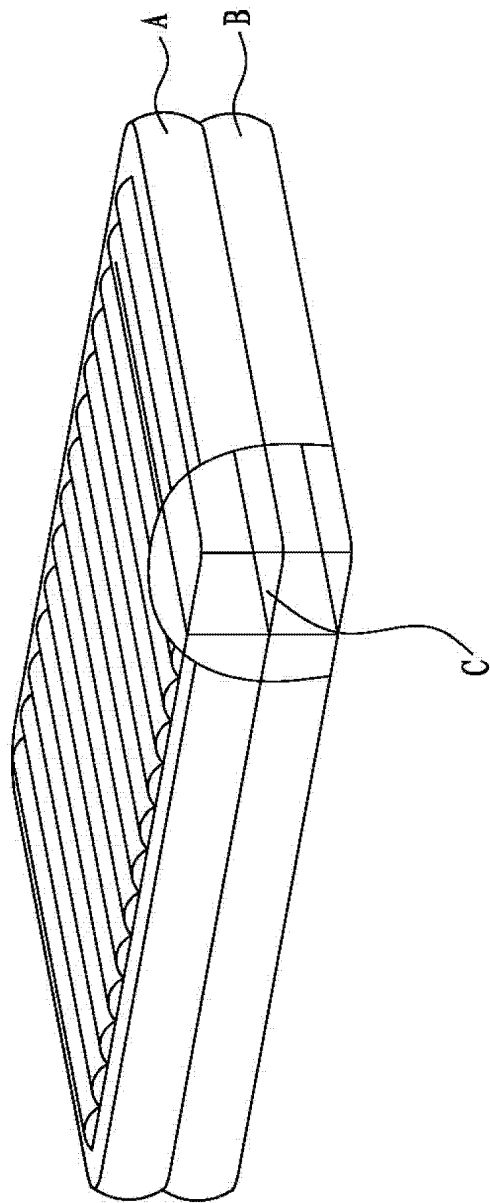


图 1

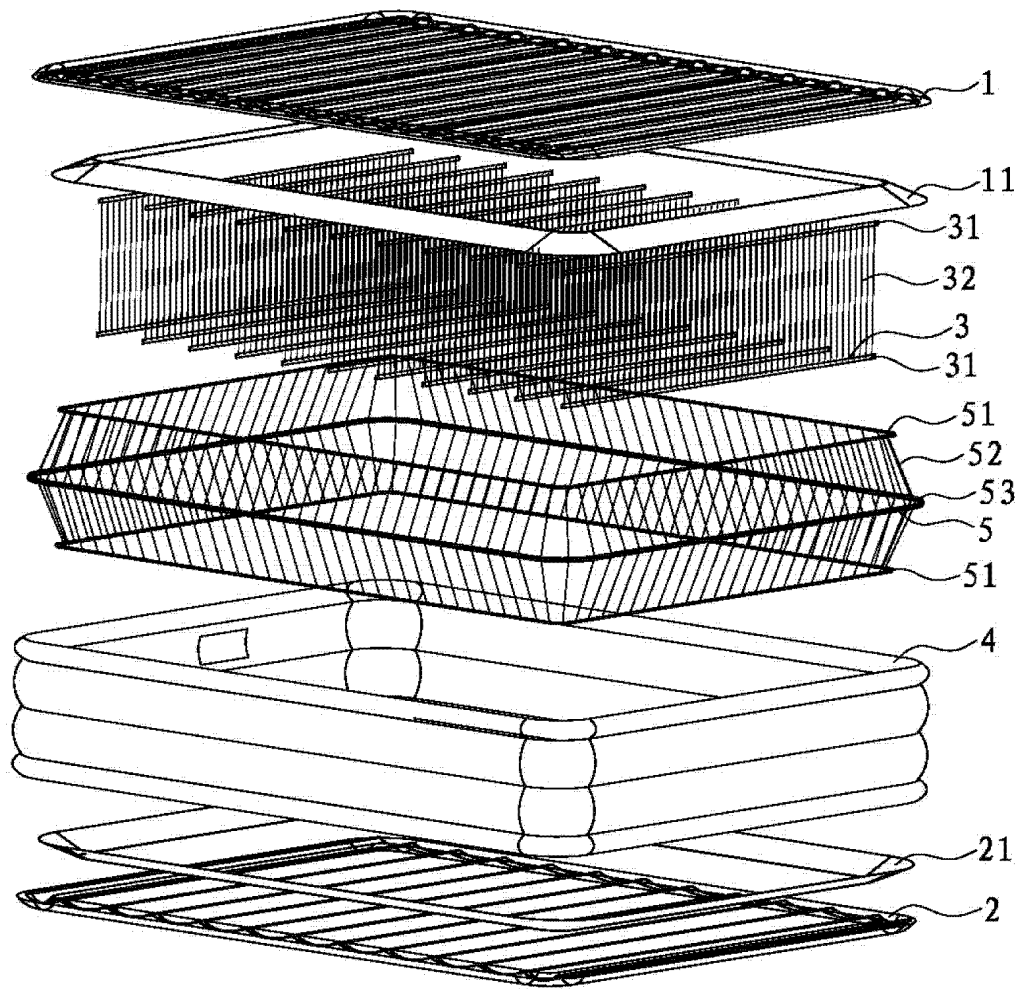


图 2

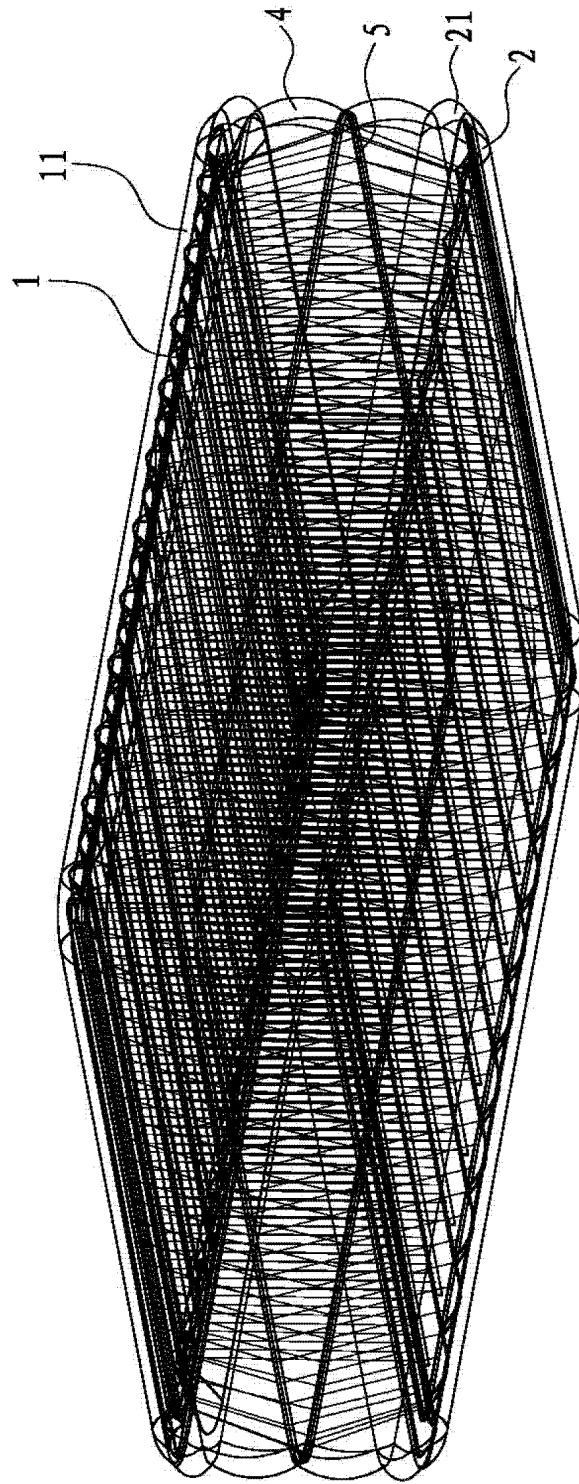


图 3

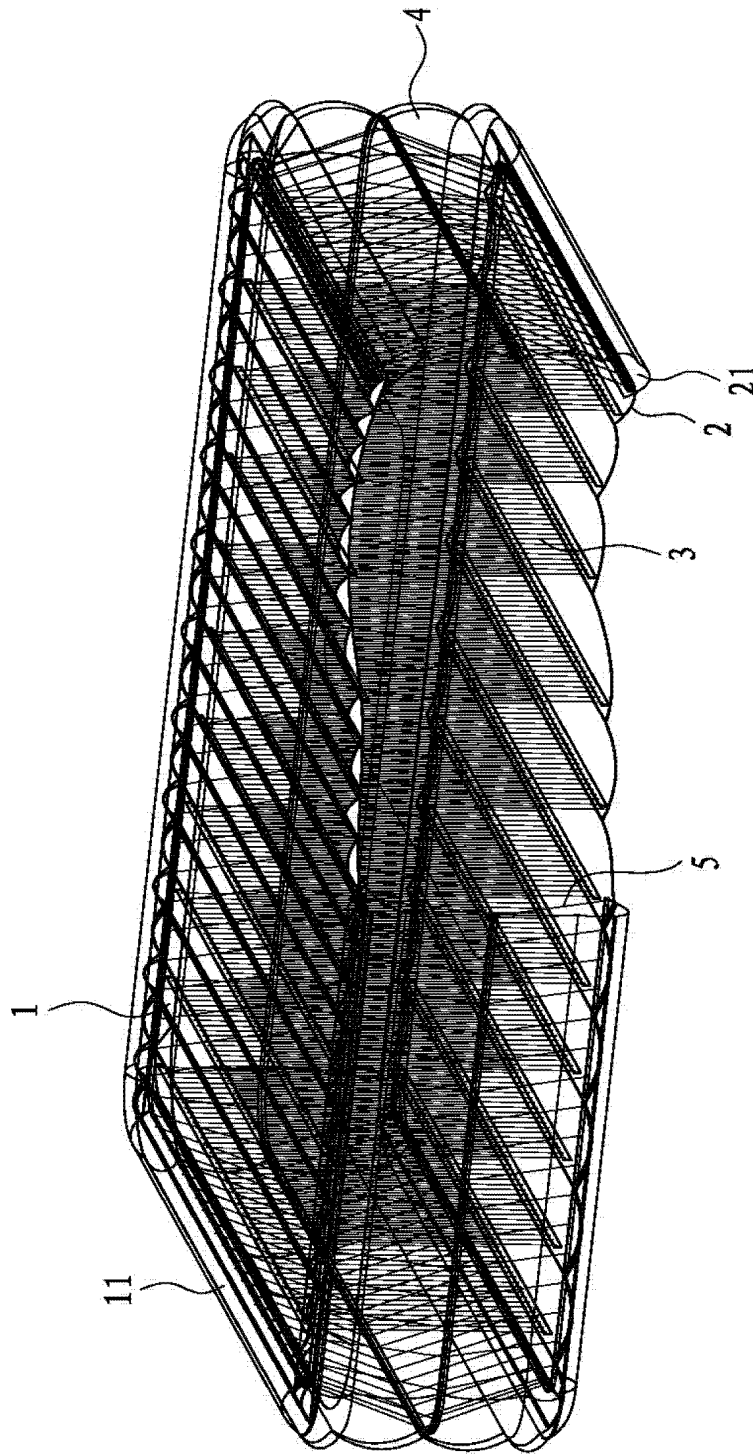


图 4

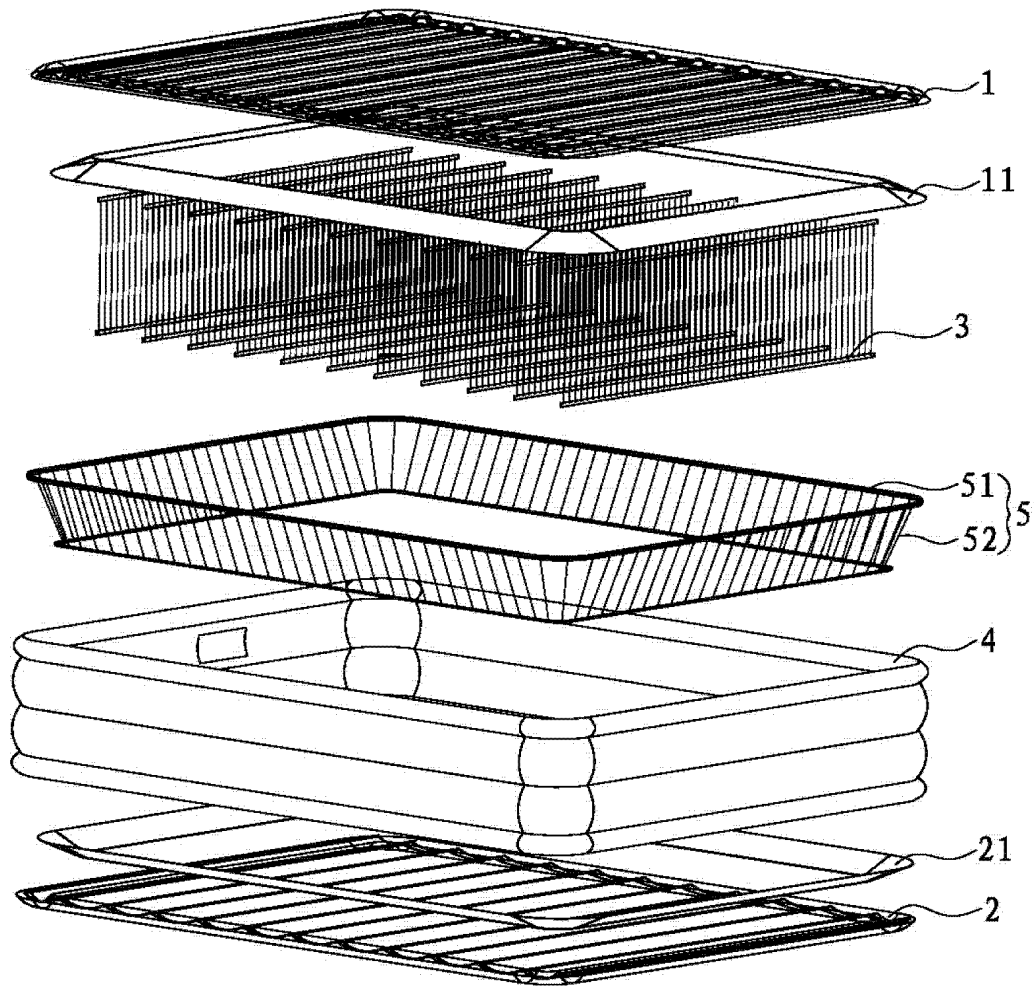


图 5

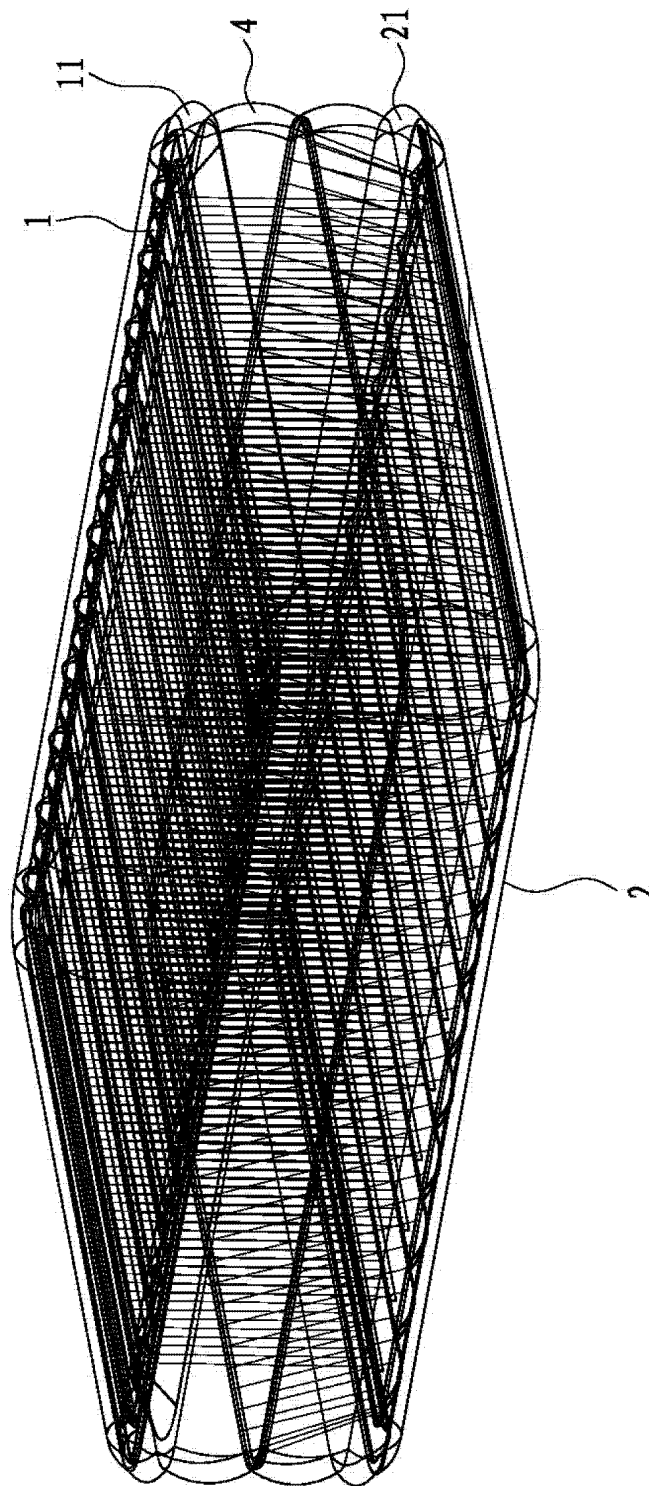


图 6

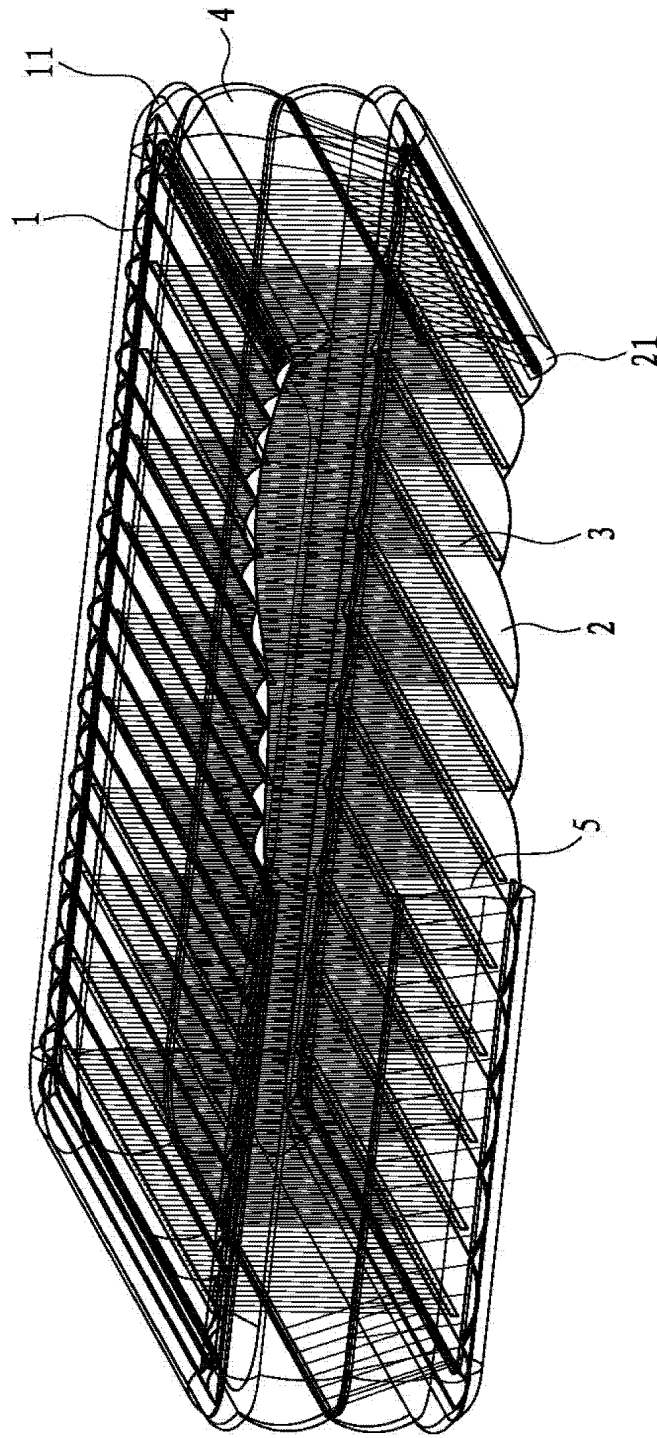


图 7

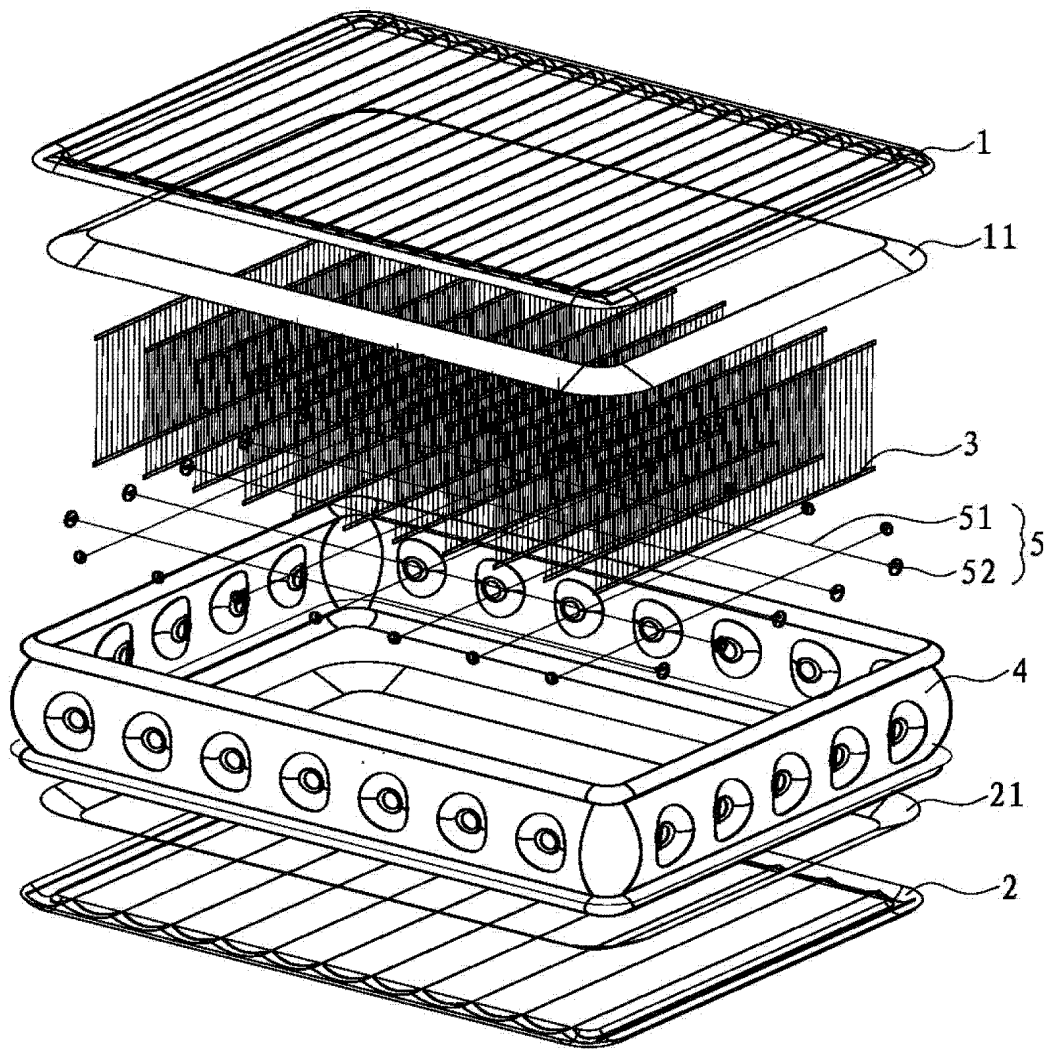


图 8

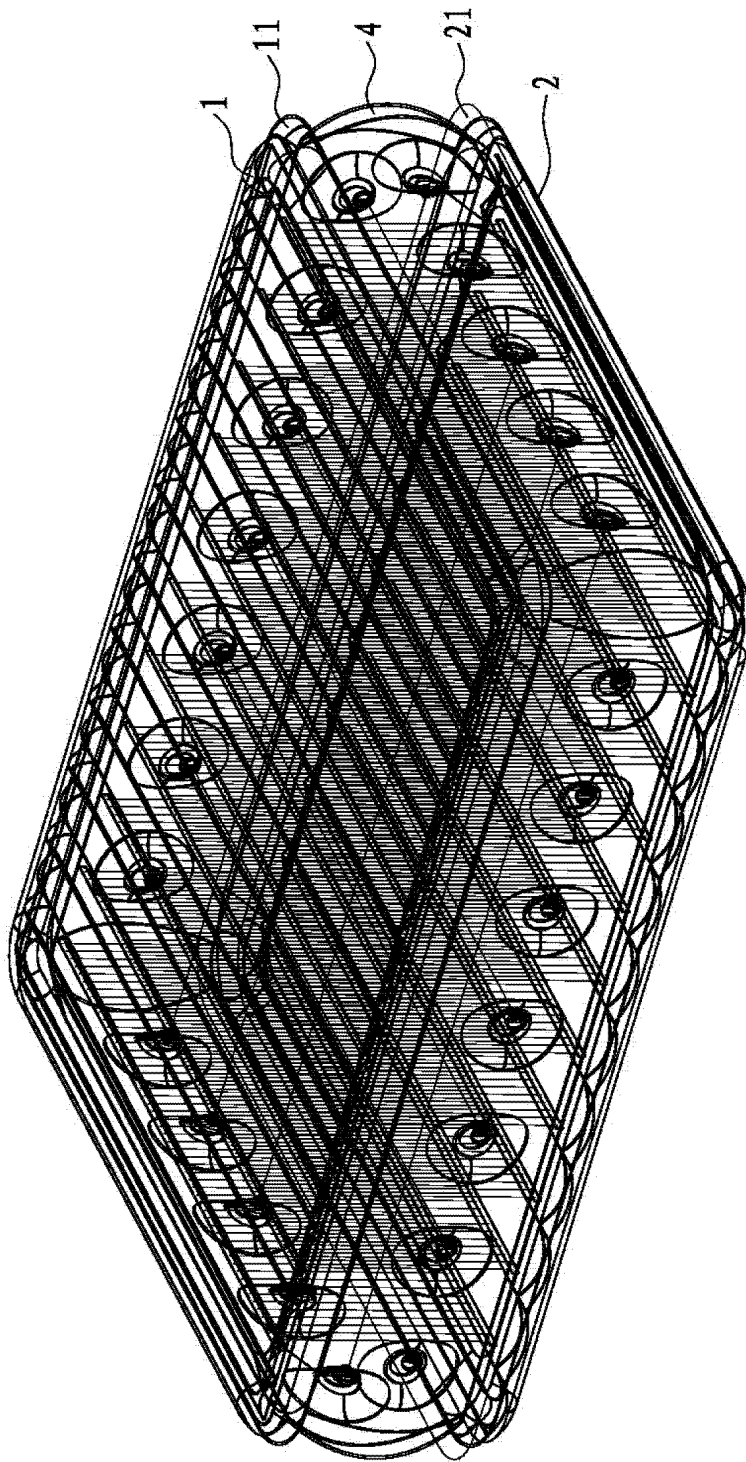


图 9



Espacenet

Bibliographic data: CN201045987 (Y) — 2008-04-16

Air bed

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Classification: - **international:** A47C17/00; A47C27/10
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Also published as: DE202007008326 (U1) FR2914545 (A3) FR2914545 (B3)

Abstract of CN201045987 (Y)

The utility model relates to an airbed, comprising a bottom fabric cloth, a top fabric cloth and a periphery cloth. The utility model is characterized in that: the top fabric cloth is distant from the bottom fabric cloth, and the edge of the bottom fabric cloth is connected with the corresponding edge of the top fabric cloth via the periphery cloth; an air space is generated together with the bottom fabric cloth, the top fabric cloth and the periphery cloth, and an oblique drawstring is arranged in the air space of the airbed; one end of the oblique drawstring is connected with the periphery cloth, and the other end is alternatively connected with the top fabric cloth or the bottom fabric cloth. The utility model has the advantages of greatly saving material and manufacturing cost of the airbed and keeping multilayer structure and appearance of the airbed by using the oblique drawstring.

[19] 中华人民共和国国家知识产权局

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A47C 27/10 (2006.01)

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[12] 实用新型专利说明书

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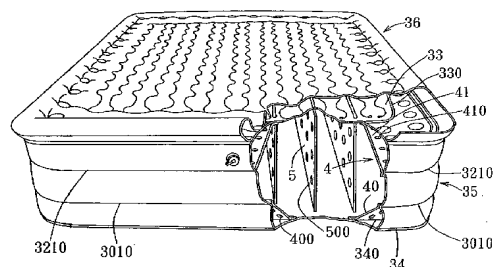
权利要求书 1 页 说明书 4 页 附图 4 页

[54] 实用新型名称

充气床

[57] 摘要

一种充气床，具有一底面料、与该底面料相间隔的一顶面料，及连接该底面料与该顶面料对应边缘的一周边料，该底面料、该顶面料及该周边料共同界定出一可充气空间，该充气床的可充气空间内还具有有一斜拉带，该斜拉带一端连接在该周边料，另一端则选择性地连接该顶面料及该底面料中的任一，利用斜拉带的应用，使一充气床的材料及制造成本可大幅节省又能维持充气床的多层结构外观不改变。



1. 一种充气床，具有一底面料、与该底面料相间隔的一顶面料，及连接该底面料与该顶面料对应边缘的一周边料，该底面料、该顶面料及该周边料共同界定出一可充气空间，其特征在于：

该充气床的可充气空间内还具有一斜拉带，该斜拉带一端连接在该周边料，另一端则选择性地连接该顶面料或该底面料。

2. 如权利要求1所述的充气床，其特征在于：该空气床还具有辅助拉带，该辅助拉带一端连接在该斜拉带，另一端则连接在该周边料。

3. 如权利要求1所述的充气床，其特征在于：该空气床还具有数个直立拉带，该直立拉带一端连接该顶面料，另一端则连接该底面料。

4. 如权利要求1所述的充气床，其特征在于：该斜拉带设有供气体流通的一孔洞。

5. 如权利要求2所述的充气床，其特征在于：该辅助拉带设有供气体流通的一孔洞。

6. 如权利要求3所述的充气床，其特征在于：该直立拉带设有供气体流通的一孔洞。

充气床

【技术领域】

本实用新型涉及一种充气床，特别是指涉及一种多层结构外观的充气床。

【背景技术】

充气床是一种借由填充气体来作为软硬度控制的床垫，可以实现方便充气使用及放气后折收携带不占空间的优点。如图1所示，是一种外观上形成四层结构的充气床，该充气床主要作为下方支撑的部位可以区分为三层料所构成，分别为位在下方的第一层料10、位在第一层料10上方的第二层料11，及位在第二层料11上方的第三层料12，以第一层料10为例，具有上下相间隔的一底面料100与一顶面料102，及连接底面料100与顶面料102对应边缘的一周边料101，而顶面料102同时是第二层料11的底面料，或称为第一层料10与第二层料11的中间料，在底面料100与顶面料102中间，通常会以直立的方向连设有数个拉带2，在底面料100、顶面料102及周边料101所形成的空间充满空气后，利用拉带2的拉力可以来保持底面料100与顶面料102大致的相对距离，以维持基本的床垫形状，而第二层料11及第三层料12的构造也是相同，另外，周边料101可以同时是第一层料10、第二层料11及第三层料12的周边料，但因连接中间料的缘故使得外观上呈现出多层的结构。因此可以知道，随着层数的增加，所需要的顶面料102（或称中间料）数目及总面积将增加，而各层用来连接底面料100与顶面料102的拉带2总数也愈多，不但用料的成本增加，更重要的是，不论是以高周波熔接的方式或是其他的熔接方式，要将每一层的拉带2分别与底面料100与顶面料102作连接，均需要耗费相当的人力与工时，制作成本将大幅增加。

【实用新型内容】

本实用新型的目的在于提供一种节省大量材料与制造成本的充气床。

为了达到上述目的,本实用新型提供一种充气床,具有一底面料、与该底面料相间隔的一顶面料,及连接该底面料与该顶面料对应边缘的一周边料,该底面料、该顶面料及该周边料共同界定出一可充气空间,该充气床的可充气空间内还具有有一斜拉带,该斜拉带一端连接在该周边料,另一端则选择性地连接该顶面料及该底面料中的任一。

本实用新型的功效是利用斜拉带的应用,使一充气床的材料及制造成本可大幅节省又能维持充气床的多层结构外观不会改变。

【附图说明】

下面结合附图及实施例对本实用新型充气床进行详细说明:

图1是现有充气床的立体局部剖视示意图;

图2是本实用新型内具斜拉带充气床第一较佳实施例的立体局部剖视示意图;

图3是本实用新型内具斜拉带充气床第二较佳实施例的部份部位纵剖示意图;及

图4是本实用新型内具斜拉带充气床第三较佳实施例的部份部位纵剖示意图。

【具体实施方式】

如图2,是本实用新型充气床的第一较佳实施例,以外观形状为四层结构的充气床来进行说明。该空气床具有一顶面料33及与顶面料33相间隔距离的一底面料34,顶面料33与底面料34对应的边缘以一周边料35相连接,使得顶面料33、底面料34及周边料35共同界定出一可充气空间,由于没有现有空气床的中间面料,但为了使周边料35在外观上形成有

多层结构的效果，同时也能维持床的形状，本实用新型的做法是在可充气空间内设有一斜拉带4，使斜拉带4的一端连接周边料35，另一端则可以是连接在顶面料33或是底面料34上，如此，周边料35连接斜拉带4的地方可以构成一交接周缘，在充气床充气后，自然能够在周边料35上区分为多层结构的外观。更详细说明请参照图2，本例中的斜拉带4可分为一第一斜拉带40及一第二斜拉带41，第一斜拉带40一端连接底面料34的周缘340，另一端则连接在周边料35上以构成一交接周缘3010，相同地，第二斜拉带41一端连接在顶面料33的周缘330，另一端同样连接在周边料35上以构成一交接周缘3210，如此一来，充气床充满空气后，周边料35因连接第一斜拉带40与第二斜拉带41而对应产生的交接周缘3010、3210在结构上较强，使其他部分会相对膨胀，因此周边料35即因为交接周缘3010、3210的分界在外观上形成三层床的结构。在相同原理下，如果仅使用单一的斜拉带4，一端不管是连接在顶面料33或是底面料34上，周边料35上最少会形成两层床的外观构造。此外，为维持充气床的结构及外观，顶面料33与底面料34中间也可以连设有数个直立拉带5，而在本例中，第一斜拉带40、第二斜拉带41、直立拉带5上都贯穿地设有孔洞400、410、500，方便空气流通，使充气床在充气上更为快速而平均。另外，顶面料33上方可以进一步附加一床垫层36，以增进使用者接触的触感，但床垫层36并非必要条件，也不是本实用新型的重点，在此即不多加叙述。

如图3，是本实用新型充气床的第二较佳实施例，主要说明形成四层床结构的作法，该空气床在顶面料64及底面料65间应用了一第一斜拉带42及一第二斜拉带43，第一斜拉带42一端连接底面料65的周缘650，第二斜拉带43一端连接在顶面料64的周缘640，而第一斜拉带42与第二斜拉带43的另外一端都连接至周边料62上以共同形成一交接周缘6210，此外，在第一斜拉带42中段处进一步地连接一第一辅助拉带70的一端，以水平向为最佳，第一辅助拉带70的另一端则连接至周边料62上以形成一交接周缘6110，相同地，在第二斜拉带43中段处也设置有一第二辅助

拉带71，第二辅助拉带71同样连接至周边料62上以形成一交接周缘6310，在充气床充气后，周边料62因为有交接周缘6310、6210、6110的分界，因此外观上将形成四层床的结构。另与前述相同，第一辅助拉带70、第二辅助拉带71可贯穿地设有孔洞700、710，方便空气流通充气，而顶面料64与底面料65也连设有数个直立拉带5'。

再如图4，是本实用新型充气床的第三较佳实施例，主要说明形成五层床结构的作法，与图3不同的地方在于，第一斜拉带42与第二斜拉带43连接在周边料62上而分别地形成一交接周缘6210、6211，使得充气床在充气后，周边料62因交接周缘6210、6211中间会再多形成一层的外观，因此能够比图3多增加一层床的结构。

借上述斜拉带4的应用，不但可以省下中间面料可观的材料成本，同时制作上相对容易，而外观及结构强度上完全与现有充气床相当，确实能达到本实用新型的目的与功效。

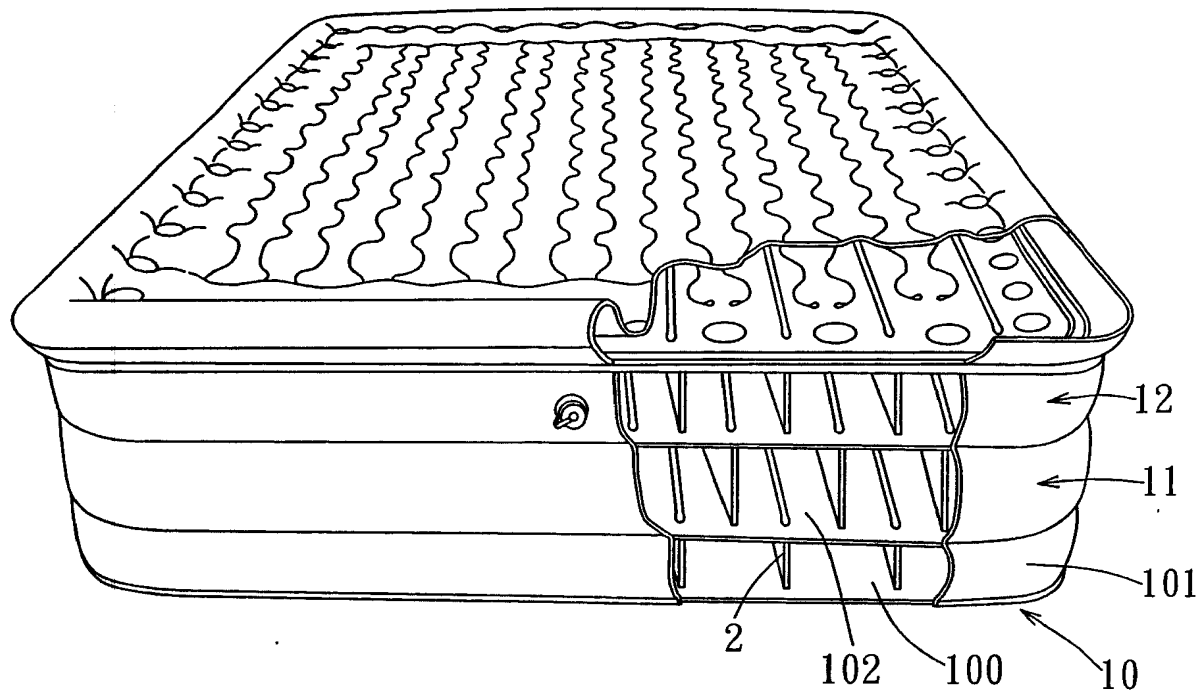


图 1

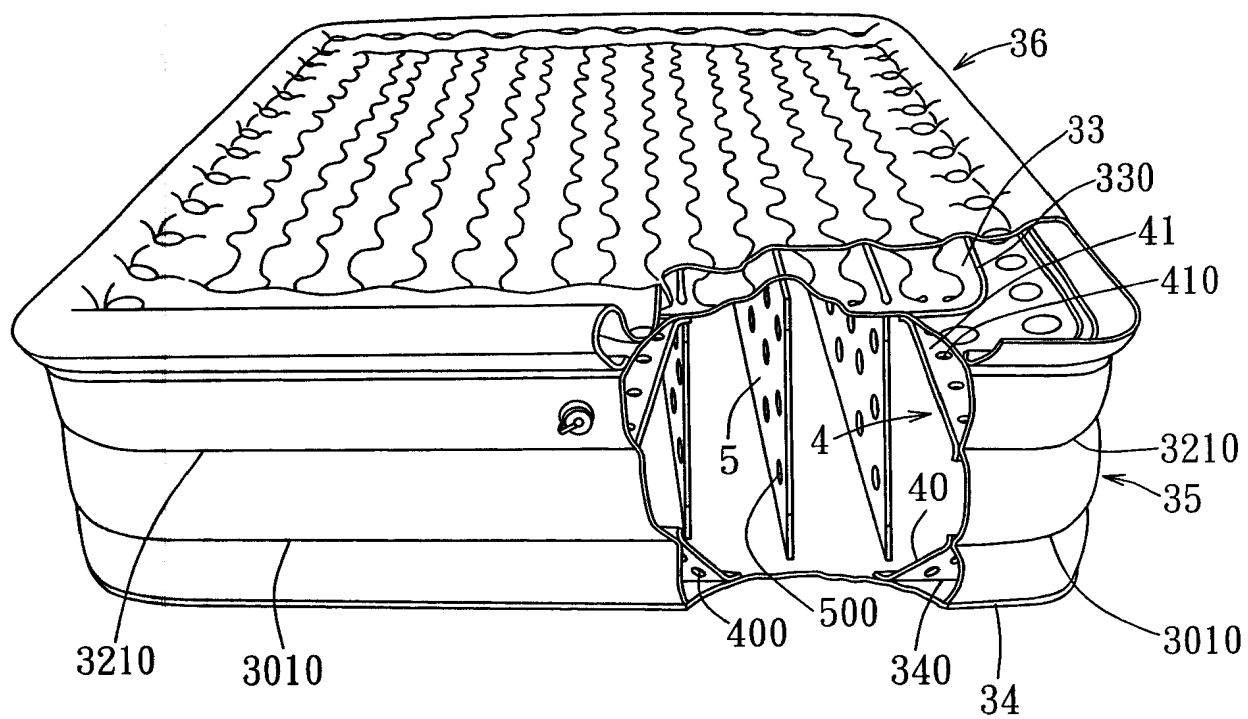


图 2

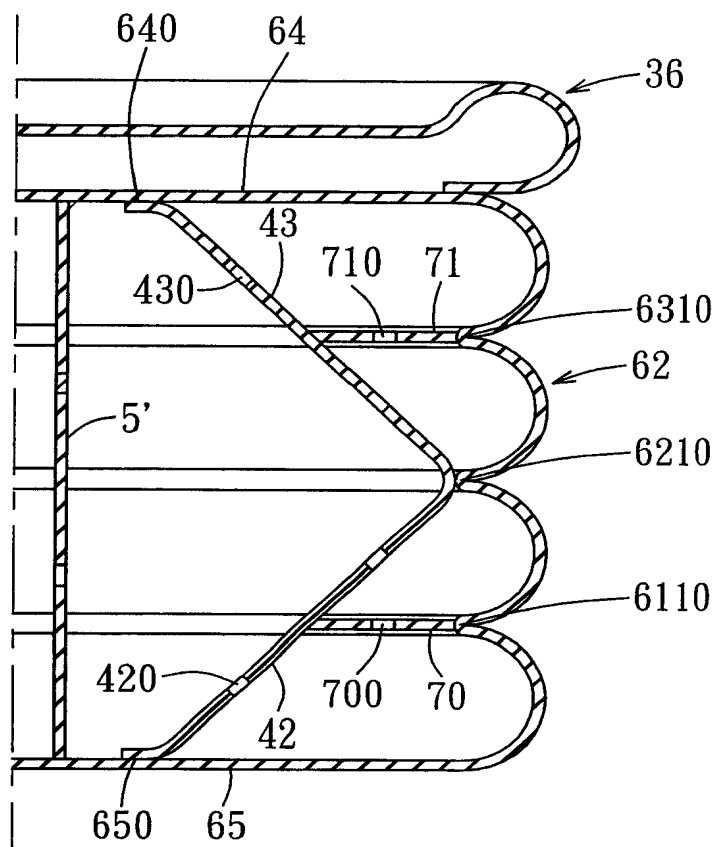


图 3

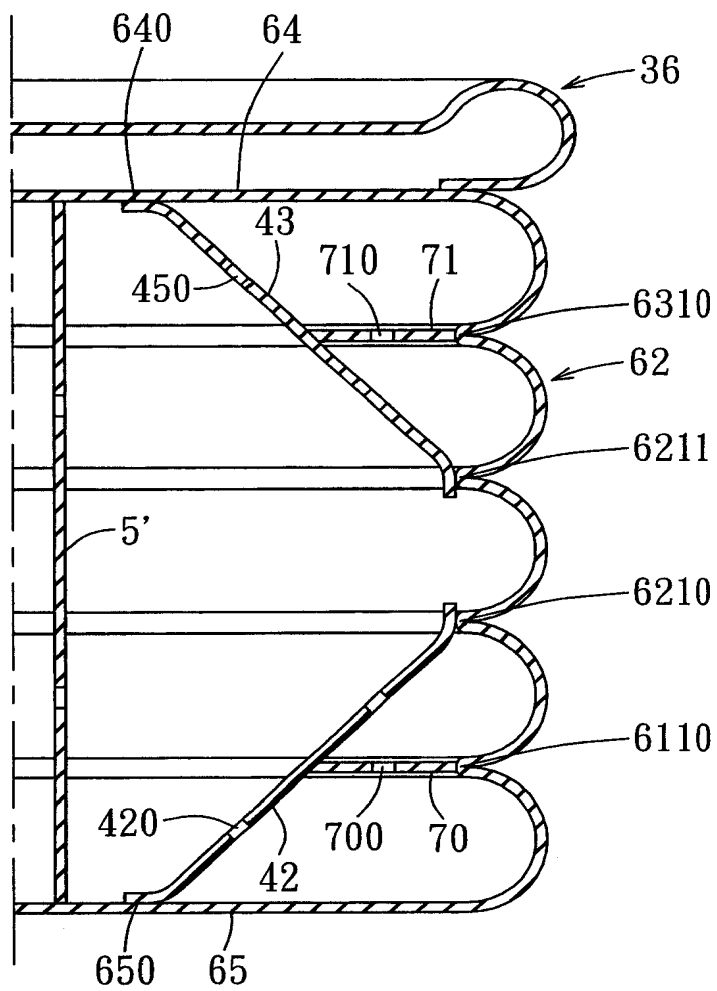


图 4



Espacenet

Bibliographic data: CN202751069 (U) — 2013-02-27

Structure of double-layer air mattress

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(SHANGHAI BESTWAY INFLATABLES & MATERIAL CORP)

Classification: - international: A47C27/08
- cooperative: A47C27/087 (EP)

Application number: CN201220363528U 20120725

Priority number(s): CN201220363528U 20120725

Abstract of CN202751069 (U)

A structure of a double-layer air mattress comprises a top sheet, a bottom sheet and an annular enclosing sheet. The upper edge and the lower edge of the annular enclosing sheet are respectively fixedly connected with the peripheral edge of the top sheet and the peripheral edge of the bottom sheet to form a closed inflatable air chamber, and a plurality of pulling straps which are fixedly connected with the top sheet and the bottom sheet are arranged between the top sheet and the bottom sheet. The structure is characterized in that a middle-layer sheet is arranged between the top sheet and the bottom sheet, the peripheral edge of the middle-layer sheet is fixedly connected with the annular enclosing sheet, a plurality of open pores are arranged on the middle-layer sheet, the quantity and positions of the open pores correspond to the quantity and positions of the pulling straps, and the pulling straps are penetratingly arranged in the open pores of the middle-layer sheet. The structure has the advantages that the internal structure of the air mattress is simplified, the pulling straps are directly spliced with the top sheet 1 and the bottom sheet 2, machining procedures are reduced as compared with the traditional air mattress comprising pulling straps which respectively arranged between a top sheet and a middle-layer sheet and between the middle-layer sheet and a bottom sheet of the traditional air mattress, the machining cost is reduced, and the production efficiency is improved.



(12) 实用新型专利

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31210

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(51) Int. Cl.

A47C 27/08(2006.01)

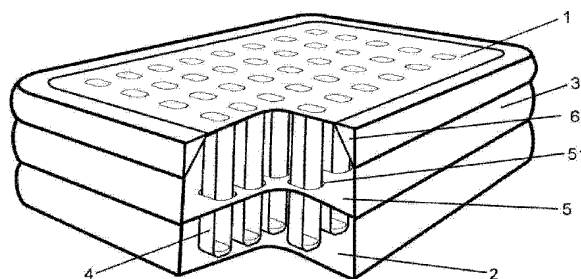
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(54) 实用新型名称

一种双层充气床的结构

(57) 摘要

一种双层充气床的结构,包括顶片、底片、环形围片,环形围片的上边缘和下边缘分别与顶片和底片的四周边缘固接,构成一个密闭的可充气的气室,顶片和底片之间设有与顶片和底片固接的若干拉带,其特征在于在顶片和底片之间设有一中层片,该中层片的四周边缘与环形围片固接,在中层片上设有若干开孔,开孔的数量和位置与拉带的数量和位置相对应,拉带穿设于中层片的开孔内。本实用新型的优点是简化了充气床的内部结构,拉带直接与顶片 1 和底片 2 熔接,相比于传统充气床在顶片与中层片以及中层片与底片之间分别设置拉带,减少了加工的工序,节约加工成本,提高生产效率。



1. 一种双层充气床的结构,包括顶片、底片、环形围片,环形围片的上边缘和下边缘分别与顶片和底片的四周边缘固接构成一个密闭的可充气的气室,顶片和底片之间设有与顶片和底片固接的若干拉带,其特征在于在顶片和底片之间设有一中层片,该中层片的四周边缘与环形围片固接,在中层片上设有若干开孔,开孔的数量和位置与拉带的数量位置相对应,拉带穿设于中层片的开孔内。

2. 根据权利要求 1 所述的双层充气床的结构,其特征在于所述拉带为 I 形拉带。

3. 根据权利要求 1 所述的双层充气床的结构,其特征在于在顶片和围片之间还设有环形拉带。

4. 根据权利要求 3 所述的双层充气床的结构,其特征在于在顶片和围片之间设有的环形拉带为斜拉带,其上边缘和下边缘分别与顶片和环形围片固接。

一种双层充气床的结构

技术领域

[0001] 本实用新型涉及充气床的结构,尤其涉及一种双层充气床的结构。

[0002] 背景技术

[0003] 充气床由于携带方便、便于收藏兼具良好的舒适性等优点越来越得到人们的喜爱,充气床可以在居家和户外多种场合使用。传统的充气床主要有顶片、底片、环形围片和若干拉带构成,由于充气床的高度较充气床垫的高度高许多,充气后环形围片会向外膨胀变形,为了避免这种情况通常在顶片和底片设置四周与环形围片固接的中层片以保持良好的外观,因此在顶片与中层片之间以及中层片与底片之间都需要分别设置拉带,这样的结构复杂,加工的步骤较多影响了生产效率同时也增加了生产成本。

[0004] 发明内容

[0005] 本实用新型针对已有技术中存在的缺陷,提供一种使用舒适、外形美观且加工简便的新型的双层充气床的结构,本实用新型包括顶片、底片、环形围片,环形围片的上边缘和下边缘分别与顶片和底片的四周边缘固接构成一个密闭的可充气的气室,顶片和底片之间设有与顶片和底片固接的若干拉带,其特征在于在顶片和底片之间设有一中层片,该中层片的四周边缘与环形围片固接,在中层片上设有若干开孔,开孔的数量和位置与拉带的数量位置相对应,拉带穿设于中层片的开孔内。

[0006] 所述拉带为 I 形拉带,在顶片和围片之间还设有环形拉带。该环形拉带为斜拉带,其上边缘和下边缘分别与顶片和环形围片固接。

[0007] 本实用新型的优点是简化了充气床的内部结构,拉带直接与顶片 1 和底片 2 熔接,相比于传统充气床在顶片与中层片以及中层片与底片之间分别设置拉带,减少了加工的工序,节约加工成本,提高生产效率。

附图说明

[0008] 图 1 是本实用新型的结构示意图;

[0009] 图 2 是本实用新型局部剖视图,显示内部结构;

[0010] 图 3 是本实用新型的剖面示意图。

具体实施方式

[0011] 下面结合附图进一步说明本实用新型的实施例。

[0012] 实施例一

[0013] 参见图 1、图 2 和图 3,本实用新型的一种充气床的结构包括顶片 1、底片 2、围片 3,围片 3 为环形的,其上边缘和下边缘分别与顶片 1 和底片 2 的四周边缘通过高频熔接构成一个密闭的可充气的气室,顶片 1 和底片 2 之间沿充气床的长度方向和宽度方向设有若干拉带 4,拉带 4 分别与顶片 1 和底片 2 高频熔接固接,拉带 4 和围片 3 共同限定了充气床的高度,以此,充气床形成一个可以供使用者躺在上面的较为平整的表面,拉带 4 可以根据需要制作成环形拉带和 I 形拉带,在顶片 1 和底片 2 之间设有中层片 5 其四周边缘与环形围

片 3 高频熔接固接,中层片 5 在限定了环形围片 3 中段的形状,可避免充气床充气后环形围片向外侧过度膨胀,在中层片 5 沿充气床长度和宽度方向设有若干开孔 51,其数量和位置与拉带 4 的数量和位置相对应,开孔 51 的大小设置为比充气后的拉带 4 外围尺寸相应或略大,以能容纳拉带 4 穿设于中层片 5 的开孔 51 内。

[0014] 在顶片 1 和围片 3 之间还设有环形拉带拉带 6,该环形拉带 6 为斜拉带,其上边缘和下边缘分别与顶片 1 和环形围片 3 固接。该环形拉带 6 的作用同样是防止环形围片 3 充气后的形状,同时增加床垫顶片 1 的美观。

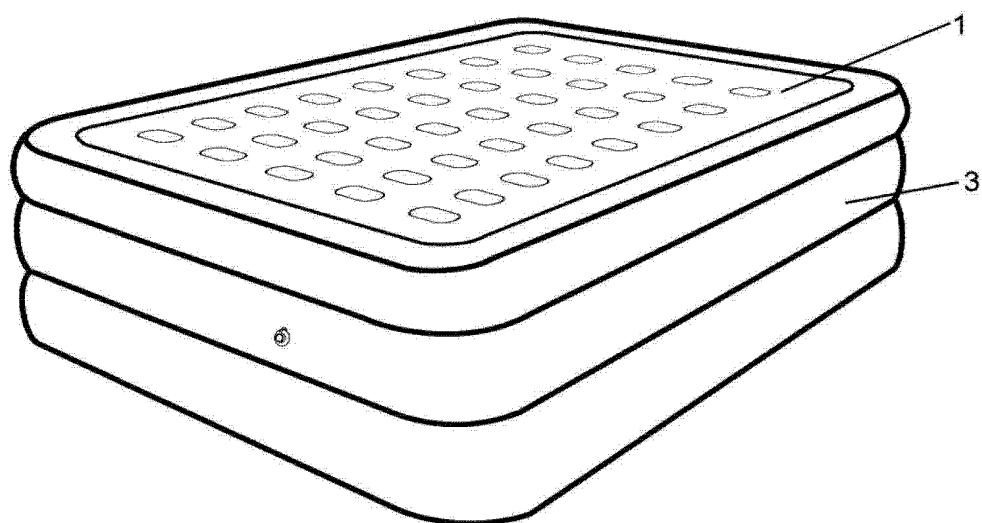


图 1

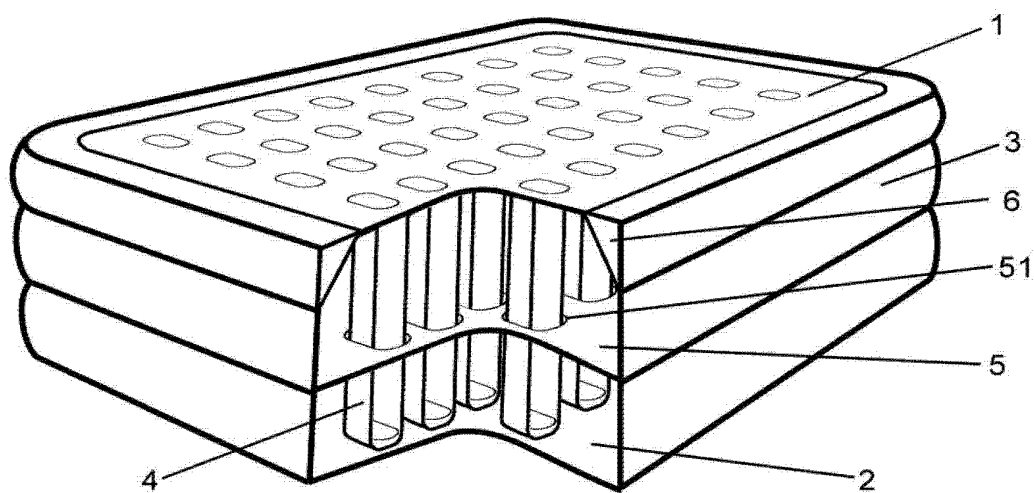


图 2

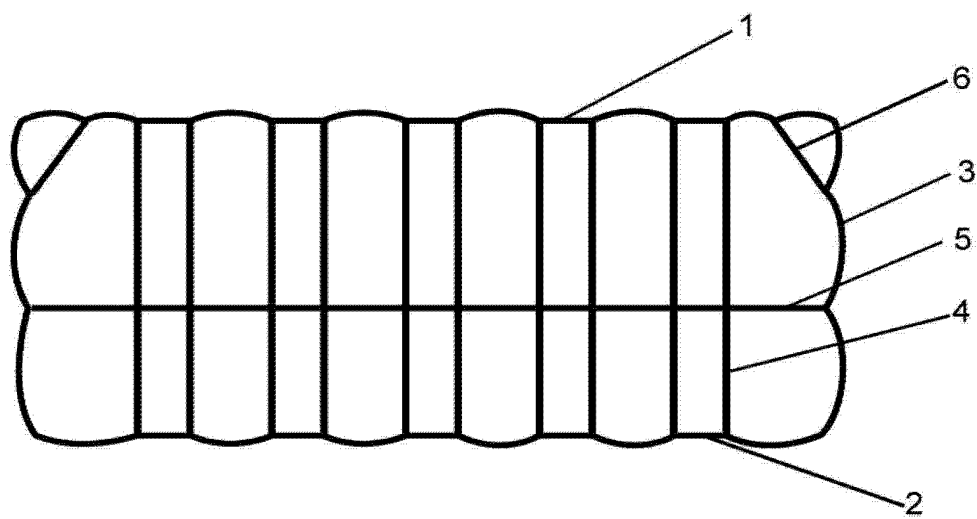


图 3



Espacenet

Bibliographic data: CN203137719 (U) — 2013-08-21

Obliquely pulling fixing structure for air chamber of inflatable product

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Abstract of CN203137719 (U)

The utility model discloses an obliquely pulling fixing structure for an air chamber of an inflatable product. The structure comprises an upper piece, a lower piece, a plurality of drawstrings and an encircling piece, wherein both ends of each drawstring are respectively connected to the lower surface of the upper piece and the upper surface of the lower piece; and meanwhile, the upper and lower edges of the encircling piece are respectively connected with the edges of the upper and lower pieces to form the inflatable product with the air chamber. The structure further comprises a side encircling drawstring, wherein one end of the side encircling drawstring is connected with to the middle part of the inner surface of the encircling piece, while the other end of the side encircling drawstring is connected to the lower surface of the upper piece close to the edge or the upper surface of the lower piece close to the edge. The side encircling drawstring used for connecting the middle of the encircling piece and the upper piece or/and the lower piece of the inflatable product, so that a traction and limiting effect to the middle of the encircling piece of the inflatable product in higher position can be realized. Therefore, not only is the encircling piece prevented from protruding too much to affect the strength and attraction of the product, but also the material cost and manufacturing cost of the product are effectively lowered.



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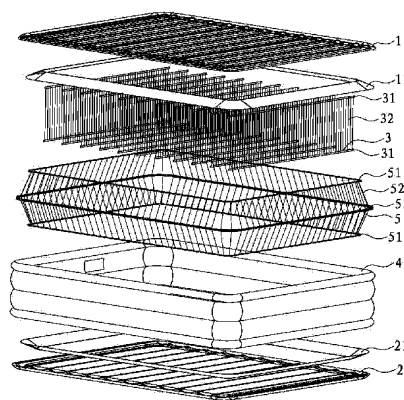
权利要求书1页 说明书3页 附图7页

(54) 实用新型名称

充气产品气室斜拉固定结构

(57) 摘要

本实用新型公开了一种充气产品气室斜拉固定结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气室的充气产品;其中还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上。通过设置的侧围拉带连接充气产品围片的中部与上片或/和下片,实现对具有较高高度的充气产品的围片中部达到一牵引限位作用,不仅防止围片外凸较多而影响产品的强度及美观,而且有效降低了产品材料成本及制作成本。



1. 一种充气产品气室斜拉固定结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气室的充气产品;其特征在于:还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上。

2. 如权利要求 1 所述的充气产品气室斜拉固定结构,其特征在于:所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,其中在复数根线体的中部再固定有一塑胶片条,侧围拉带两端的环形塑胶片条是分别连接上片与下片,而中部的塑胶片条是连接于围片内表面的中部。

3. 如权利要求 1 所述的充气产品气室斜拉固定结构,其特征在于:所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,此侧围拉带一端的塑胶片条连接于围片内表面的中部,另一端是连接于上片与下片上。

4. 如权利要求 1、2 或 3 所述的充气产品气室斜拉固定结构,其特征在于:所述各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片焊接。

5. 如权利要求 4 所述的充气产品气室斜拉固定结构,其特征在于:所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

充气产品气室斜拉固定结构

技术领域

[0001] 本实用新型是关于一种充气产品结构,特别是指一种充气产品气室斜拉加固结构。

背景技术

[0002] 充气产品,如充气床具有易使用、重量轻容易移动,及收藏携带方便的特性,使得其作为临时性或是非固定式的床体使用时是相当适宜的选择。而充气后床体厚度较小的充气床一般均是户外使用较多,若要增进充气床的舒适性以媲美家庭使用的床铺时,充气床充气后的厚度则必须如一般床铺的高度,且要保证床面的平整,同时结构亦必须较稳固。

[0003] 配合图 1 所示,具有床铺高度的充气床,为防止床周外凸较大及支撑力度,以及充气腔内定型强度,通常是采用两个独立气室 A、B 叠加而成,即需要设置中层片体 C,由两个独立围带分别连接此中层片体 C 及上下片体构成两个充气腔,在两充气腔内分别设置拉带组以形成床体造型。如此结构必然存在如下缺点:

[0004] 1、材料成本高,由于中层片体的设置是便于定型及提高床体的功能,该中层片体的设置不仅增加了材料的需求量,同时亦增加了床体的重量。

[0005] 2、两个独立气腔内的拉带需分别焊接,无形中增加了床体制作的繁琐,因而制作成本亦居高不下。

实用新型内容

[0006] 本实用新型的目的是提供一种充气产品气室斜拉固定结构,其在保证产品高度、强度的同时防止产品周缘外凸过多而影响产品的美观性,并可有效减少材料成本及制作成本。

[0007] 为实现上述目的,本实用新型的解决方案是:

[0008] 一种充气产品气室斜拉固定结构,其包括一上片、一下片、复数个拉带及一围片,各拉带的两端是分别连接于上片的下表面及下片的上表面,同时围片的上下边分别与上片的周缘及下片的周缘连接后构成一具有充气室的充气产品;其中:还包括有侧围拉带,侧围拉带的一端是连接于围片内表面的中部,另一端是连接于上片近周缘的下表面或下片近周缘的上表面上。

[0009] 所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,其中在复数根线体的中部再固定有一塑胶片条,侧围拉带两端的环形塑胶片条是分别连接上片与下片,而中部的塑胶片条是连接于围片内表面的中部。

[0010] 所述侧围拉带为一整体的环形拉带,其由两端的环形塑胶片条连接复数根线体构成,此侧围拉带一端的塑胶片条连接于围片内表面的中部,另一端是连接于上片与下片上。

[0011] 所述的各拉带为对应床体宽度或长度的带体,拉带是由两端的塑胶片条连接复数根线体构成,两端的塑胶片条分别与上片及下片焊接。

[0012] 所述上片与围片及下片与围片之间还分别设有一环形上吸地片及一环形下吸地

片,即上片通过环形上吸地片与围片的上周缘连接在一起,而下片通过环形下吸地片与围片的下周缘连接在一起。

[0013] 采用上述方案后,本实用新型通过设置的侧围拉带连接充气产品围片的中部与上片或 / 和下片,实现对具有较高高度的充气产品的围片中部达到一牵引限位作用,不仅防止围片外凸较多而影响产品的强度及美观,而且有效降低了产品材料成本及制作成本。

附图说明

- [0014] 图 1 为习用品的立体外观图 ;
- [0015] 图 2 为本实用新型实施例 1 的立体分解图 ;
- [0016] 图 3 为本实用新型实施例 1 的外观示意图 ;
- [0017] 图 4 为本实用新型实施例 1 的局部剖视示意图 ;
- [0018] 图 5 为本实用新型实施例 2 的立体分解图 ;
- [0019] 图 6 为本实用新型实施例 2 的外观示意图 ;
- [0020] 图 7 为本实用新型实施例 2 的局部剖视示意图。

具体实施方式

[0021] 配合图 2 至图 7 所示,本实用新型揭示了一种充气产品气室斜拉固定结构,特别是针对矩形的充气产品,其包括一上片 1、一下片 2、复数个拉带 3 及一围片 4,还包括有侧围拉带 5,各拉带 3 的两端是分别连接于上片 1 的下表面及下片 2 的上表面,同时围片 4 的上下边分别与上片 1 的周缘及下片 2 的周缘连接后,便构成一具有充气室的充气产品,而侧围拉带 5 的一端是连接于围片 4 内表面的中部,另一端是连接于上片 1 近周缘的下表面或下片 2 近周缘的上表面上。

[0022] 以下充气产品是以充气床为例进行说明,并不局限于充气床。

[0023] 如图 2、3、4 所示的本实用新型实施例 1,其中的各拉带 3 为对应床体宽度或长度的带体,拉带 3 是由两端的塑胶片条 31 连接复数根线体 32 构成,塑胶片条 31 用于与上片 1 及下片 2 的焊接,而线体 32 承拉较强的牵引力;而侧围拉带 5 为一整体的环形拉带,其由两端的环形塑胶片条 51 连接复数根线体 52 构成,其中在复数根线体 52 的中部再固定有一塑胶片条 53,如此侧围拉带 5 两端的环形塑胶片条 51 是分别连接上片 1 与下片 2,而中部的塑胶片条 53 是连接于围片 4 内表面的中部。

[0024] 此处侧围拉带 5 的设置是令围片 4 的中部进一步受到牵制,使其内凹,以保证具有较高高度并具一个充气腔的充气床其周缘的美观性,以防止周缘外凸较多,同时保证床体周缘的强度及床体整体的支撑强度。

[0025] 为提高床体的美观性,在上片 1 与围片 4 及下片 2 与围片 4 之间还分别设有一环形上吸地片 11 及一环形下吸地片 21,即上片 1 通过环形上吸地片 11 与围片 4 的上周缘连接在一起,而下片 2 通过环形下吸地片 21 与围片 4 的下周缘连接在一起。

[0026] 如图 5、6、7 所示的本实用新型的实施例 2,其中的各拉带 3 同样为对应床体宽度或长度的带体,拉带 3 同样是由两端的塑胶片条 31 连接复数根线体 32 构成,塑胶片条 31 用于与上片 1 及下片 2 的焊接,而线体 32 承接较强的牵引力;而侧围拉带 5 为一整体的环形拉带,其由两端的环形塑胶片条 51 连接复数根线体 52 构成,此侧围拉带 5 一端的塑胶片条

51 连接于围片 4 内表面的中部,另一端是连接于上片 1 与下片 2 上,如此防止具有较高高度并具一个充气腔的充气床其周缘外凸较大,保证床体周缘的强度及床体整体的支撑强度。

[0027] 同样为提高床体的美观性,在上片 1 与围片 4 及下片 2 与围片 4 之间还分别设有一环形上吸地片 11 及一环形下吸地片 21,即上片 1 通过环形上吸地片 11 与围片 4 的上周缘连接在一起,而下片 2 通过环形下吸地片 21 与围片 4 的下周缘连接在一起。

[0028] 此处需说明的是,上述实施例 1、2 的拉带 3 及侧围拉带 5 并不局限于此塑胶片条与复数根线体的结构,亦可采用整体塑胶片的线性拉带或柱状拉带同样可以实施,只要其可满足充气产品内压的要求即可。

[0029] 综上所述,本实用新型通过设置连接充气产品围片 4 的中部与上片 1 或 / 和下片 2,实现对具有较高高度的充气产品围片 4 中部达到一牵引限位作用,不仅防止围片外凸较多而影响产品的强度及美观,而且有效降低了产品材料成本及制作成本。

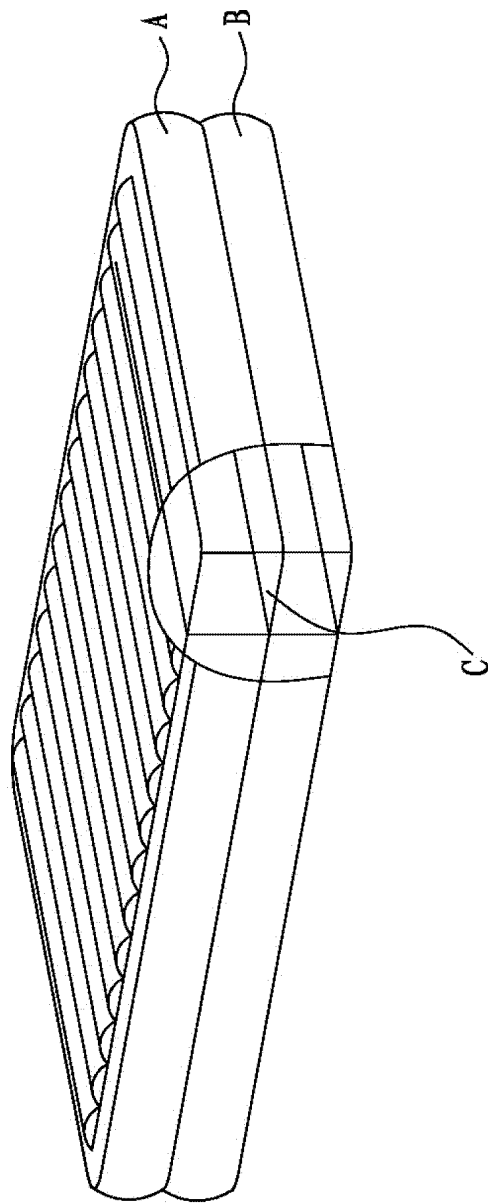


图 1

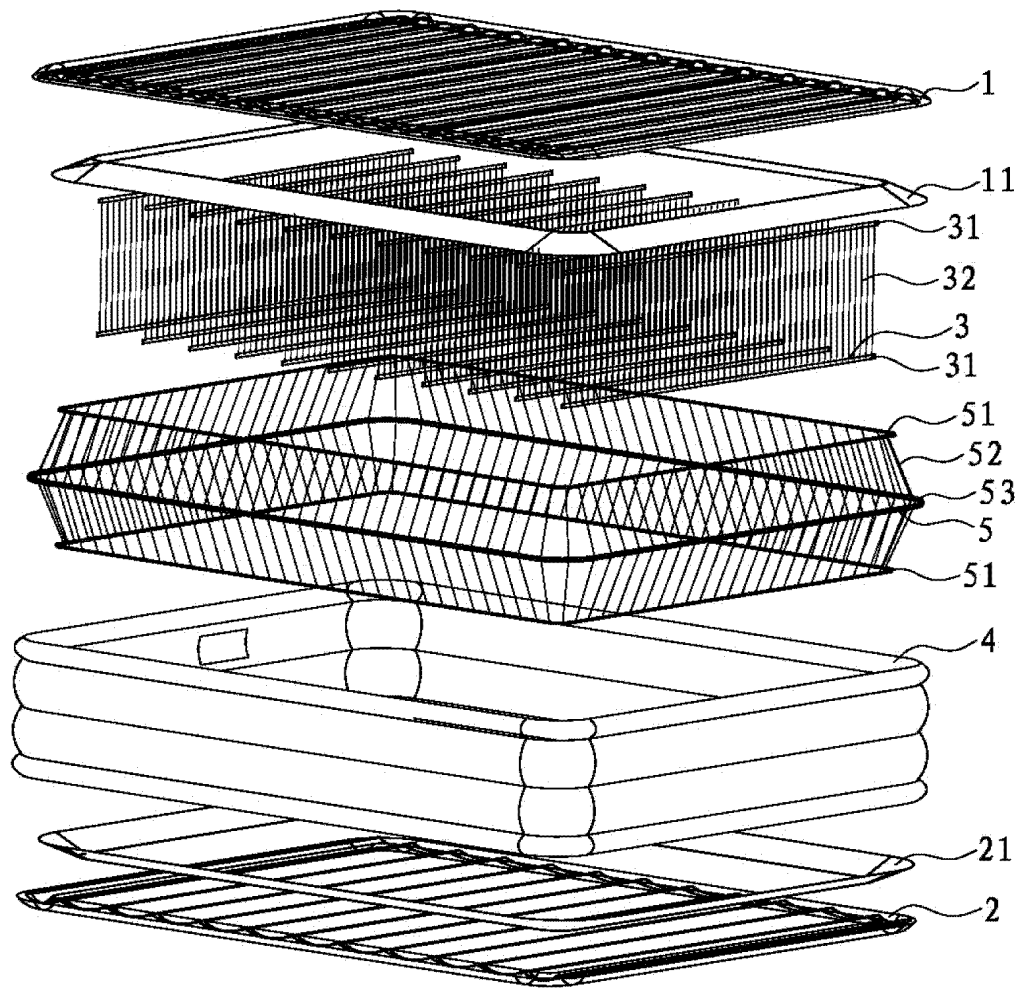


图 2

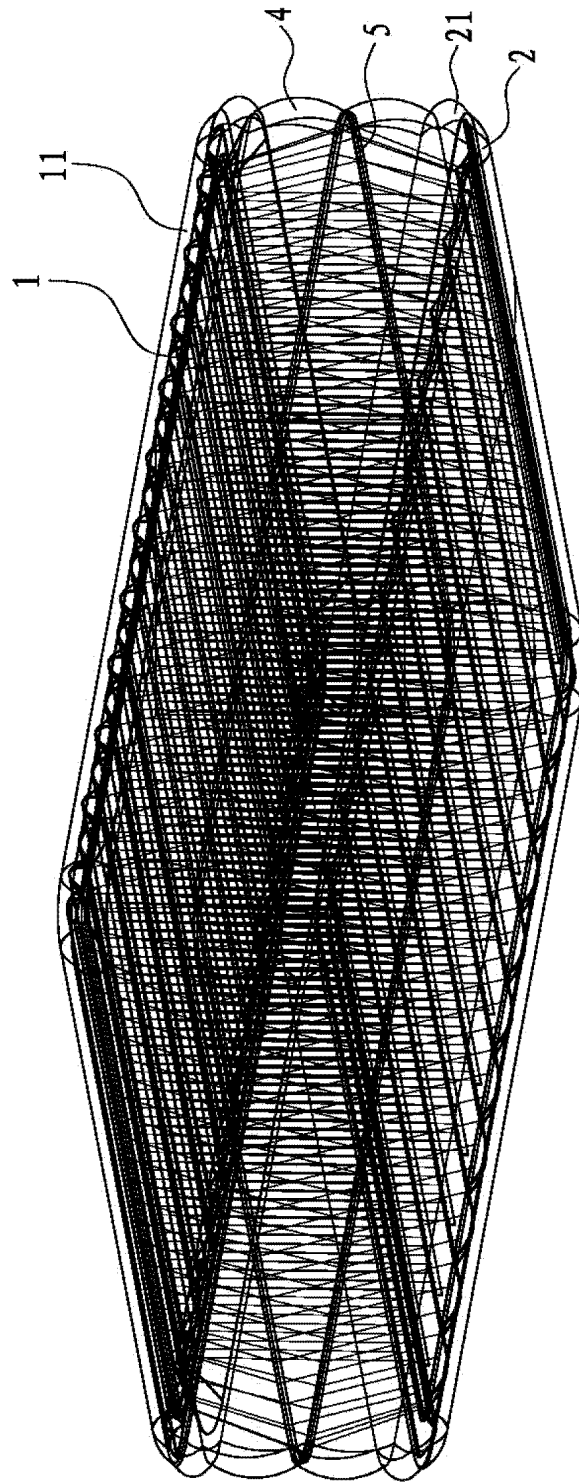


图 3

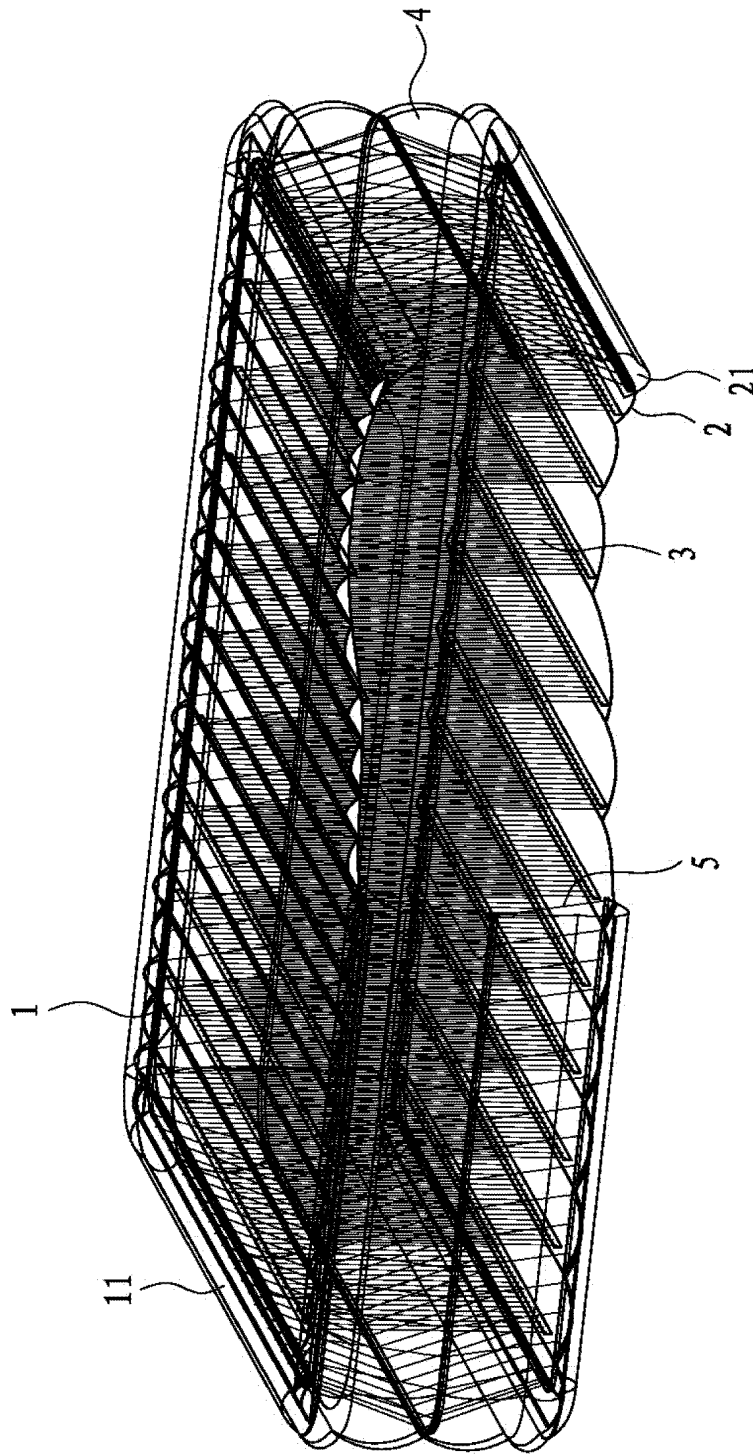


图 4

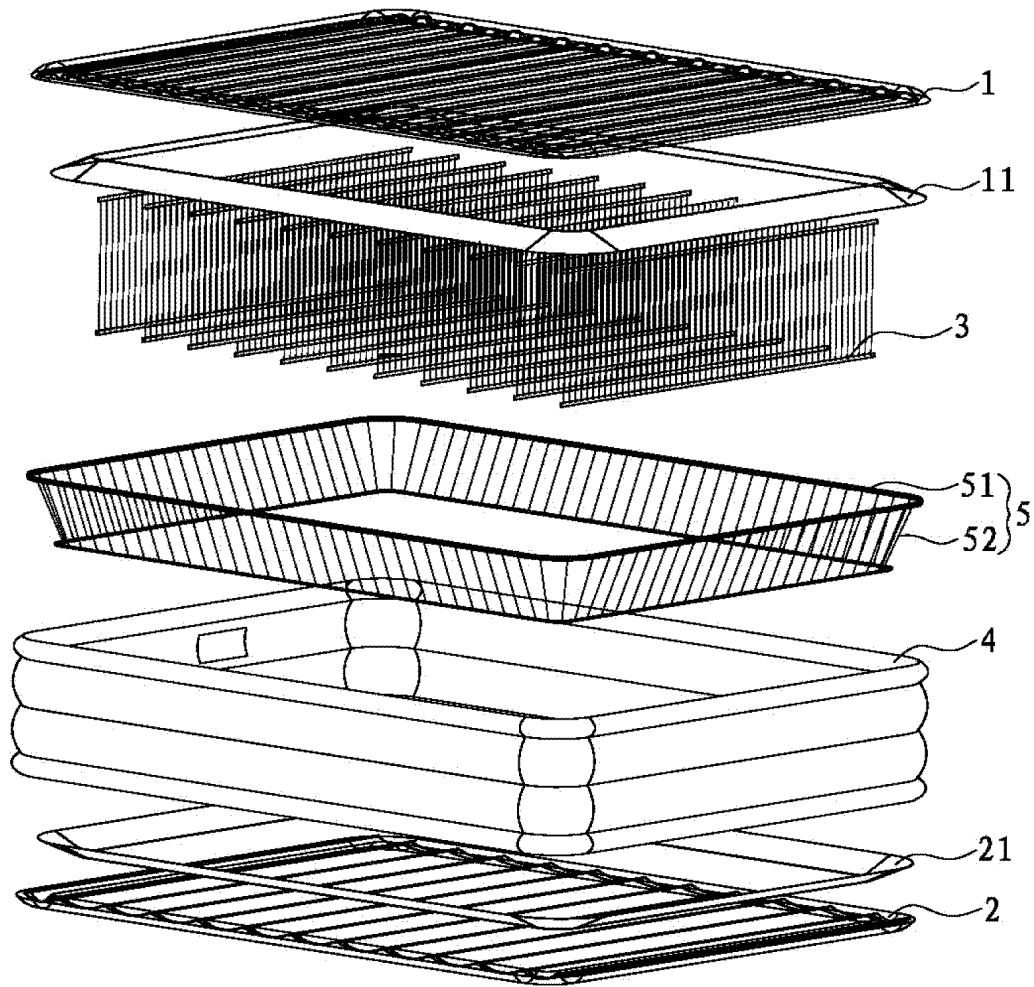


图 5

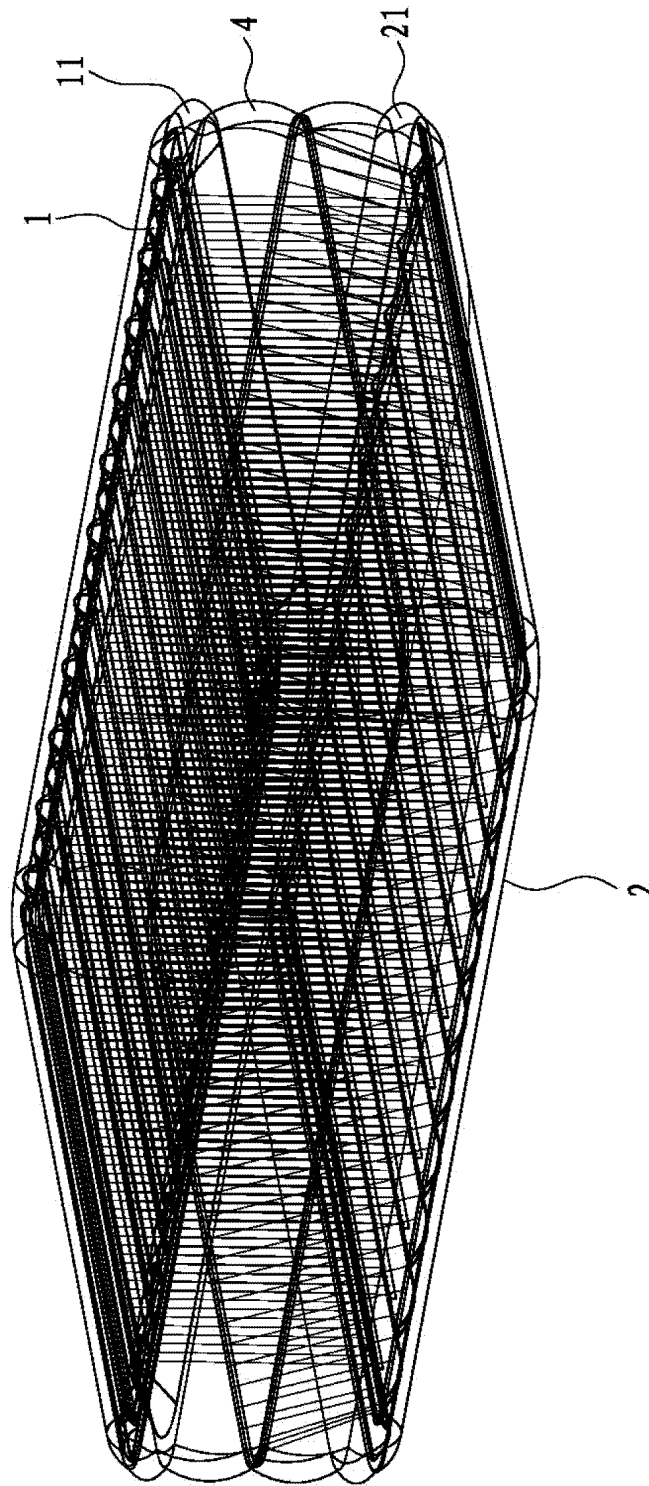


图 6