INFLATABLE CHAIR WITH CUSHION TOP

Inventors: Timothy F. Austen, Glencoe, IL (US); Brian Coleman, Hawthorn Woods, IL (US); Michael Prince, Chicago, IL (US); Vincent Wen, Taipei City (TW)

Correspondence Address:
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610 (US)

ABSTRACT

Disclosed herein is an inflatable chair having at least three sections. The inflatable chair has a lower inflatable support chamber that has a top and bottom layer. The inflatable chair also has an upper cushioning portion and a stabilizing member. The upper cushioning portion and the stabilizing member are in fluid communication with the lower inflatable support chamber. The inflatable chair is made of a high elastic PVC material.
Fig. 1
INFLATABLE CHAIR WITH CUSHION TOP

BACKGROUND

[0001] 1. Technical Field

[0002] The present invention relates to the field of inflatable support systems, particularly to an inflatable chair having at least three sections and an improved level of comfort.

[0003] 2. Background Information

[0004] Inflatable chairs have been known in the art for many years. It is desirable for an inflatable chair to have as high a comfort level as possible while maintaining the stability of traditional solid furniture.

[0005] Many existing inflatable chairs suffer from a tendency to roll over. Furthermore, many are uncomfortable, unsightly and cumbersome to store.

[0006] The invention provides a unique functional configuration and provides improved comfort and style.

BRIEF SUMMARY

[0007] Disclosed herein is an inflatable chair having at least three sections. The inflatable chair has a lower inflatable support chamber including a top layer, a rear gusset, opposing side gussets, and a bottom layer. The inflatable chair also has an upper cushioning portion including a first layer and a second layer. The upper cushioning portion is in fluid communication with the lower chamber. The chair also includes at least one stabilizing member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a perspective view of an embodiment of the present invention;

[0009] FIG. 2 is a front plan view of the embodiment of FIG. 1;

[0010] FIG. 3 is a rear planar view of the embodiment of FIG. 1;

[0011] FIG. 4 is a bottom planar view of the embodiment of FIG. 1;

[0012] FIG. 5 is an exploded view of the embodiment of FIG. 1, showing the upper cushioning portion separated from the lower inflatable support chamber;

[0013] FIG. 6 is a perspective view of the embodiment of FIG. 1, presented such that the side gussets and upper cushioning portion have been removed;

[0014] FIG. 7 is an exploded view of the embodiment of FIG. 1, showing the side gussets separated from the top layer of the lower inflatable support chamber;

[0015] FIG. 8 is an alternative embodiment of the present invention;

[0016] FIG. 9 is an alternative embodiment of the present invention; and

[0017] FIG. 10 is an alternative embodiment of the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

[0018] Referring in combination to FIGS. 1-4, a first embodiment of the inflatable chair 10 of the present invention is shown. In this embodiment, the lower inflatable support chamber 12 may be in the shape of a conventional overstuffed chair, but other sizes and shapes are envisioned. The chair 10 may be comprised of at least a lower inflatable support chamber 12, an upper cushioning portion 14, and an inflatable stabilizing member 16. The lower inflatable support chamber 12 may be further defined by a top layer 18, opposing side gussets 20 and 22, a bottom layer 24 (see FIG. 4) and a rear gusset 26 (see FIG. 3). The rear gusset 26 may be a member separate from the bottom layer 24 and the top layer 18, or may be integral with either or both of the respective layers 18 and 24.

[0019] Referring in combination to FIGS. 5-7, the construction of the embodiment of FIGS. 1-4 is illustrated. The lower inflatable support chamber 12 may be formed from a top layer 18, opposing side gussets 20 and 22, a bottom layer 24, and a rear gusset 26. Generally, the proximal edge 18a of the top layer 18 may be welded, using conventional methods such as heat or sonic welding, to the proximal edge 26a of the rear gusset and the distal edge 18b of the top layer 18 may be welded to the distal edge 24b of the bottom layer 24, as shown in FIG. 6. The distal edge 26b of the rear gusset may also be attached to the distal edge 24a of the bottom layer 24 to define two generally L-shaped outer peripheries.

[0020] Also shown in FIG. 6, structural elements may be defined within the lower inflatable chamber 12. These elements, or “coils” 32, 34 as referred to herein and in the art, function to keep the individual gusset members and layers from over-expanding when the chair is inflated, over-inflated or when pressure is exerted upon the chair in use.

[0021] In a first embodiment, the coils may be bands or strips of PVC or other suitable material, welded to the inner surfaces of the inflatable chair 10. The weld can take many shapes, forming desired patterns on the outer surface of the inflatable structure. The coils 32, 34 may be a single strip of PVC welded at each end to the lower inflatable support chamber 12 to provide structure and support to the chair 10.

[0022] In another embodiment the coils 32, 34 may have the shape of elongated cylinders, oval or squares. The coils 32, 34 may be sealed at each end providing interstitial spaces between them. The sealed ends of the coils 32, 34 are sonically welded to the top and bottom layers 18, 24 and the top layer 18 and rear gusset 26, respectively. The coils 32, 34 may be formed from K-80 16-gauge PVC, 16-gauge PVC laminated to 150D polyester, or high elastic 16-gauge PVC, or similar material to provide flexibility. Desirably, channels or holes are left around the respective welds so that air may flow through the entire construction during inflation of this embodiment.

[0023] At least a first coil 32, and optionally a second coil, of any suitable shape or configuration, may extend from approximately the center portion of the bottom layer 24 of the lower inflatable support chamber 12 to a substantially horizontal portion or seating portion of the top layer 18 of the inflatable chamber 12. In this construction, the coil(s) prevent the top layer 18 and the bottom layer 24 from bowing outwards when the inflatable chair is inflated.

[0024] A second set of coil(s) 34 may connect a substantially vertical portion of the top layer 18 of the inflatable chamber 12 with the rear gusset 26 of the chamber 12. This second set of coils prevents the top layer 18 and the rear gusset 26 from bowing outwards when the inflatable chair is inflated.

[0025] The coil 32, 34 configuration forms a generally L-shaped frame that includes a back rest portion, for the lower inflatable support chamber 12, much like a conventional overstuffed chair. To complete the lower inflatable support chamber 12, opposing side gussets 20 and 22 may be sonically welded to the generally L-shaped frame created by the top layer 18, the bottom layer 24, the rear gusset 26, and the coils 32a, 32b, 34 as shown in FIG. 7. Optionally, the opposing side gussets 20, 22 may include additional in-laid panels that add
style and comfort to the overall design of the chair. The panels may be welded to the surface of the side, top, or bottom gussets with an opening in between the respective layers to allow the entire structure to inflate.

[0026] The use of materials such as high elastic K-80 16-gauge PVC adds to the flexibility and comfort of the lower chamber 12. Other materials, such as K-70 18-gauge PVC and K-70 28-gauge PVC may also be used in the construction of the inflatable chair, particularly, in the lower inflatable support chamber 12. The flexibility of each component is defined by the type of material used to construct each panel. Furthermore, if a lighter configuration is desired, some or all of the components may be constructed from thermoplastic polyurethane (TPU).

[0027] Referring in combination to FIGS. 1, 2, and 5, the first embodiment of the present invention also comprises an upper cushioning portion 14 that may be affixed to the top layer 18 of the lower inflatable support chamber 12. As shown in exploded view in FIG. 5, the upper cushioning portion 14 may be constructed from a first 28 and second 30 layer, each constructed from materials such as high elastic K-80 16-gauge PVC. The first 28 and second 30 layers may be welded or otherwise attached to each other so as to form a narrow inflatable cushioning chamber between them. The cushioning chamber formed by the first 28 and second 30 layers may then be welded or otherwise attached to the top layer 18 of the lower inflatable support chamber 12.

[0028] The cushioning chamber formed by the first 28 and second 30 layers is shaped to substantially match the shape of the top layer 18 of the lower inflatable support chamber 12, but the cushioning chamber does not extend completely to the side gussets 20, 22 of the lower inflatable support chamber 12. The upper cushioning portion 14 may be constructed in various sizes and lengths and the welding pattern can take any configuration, as shown in various alternative embodiments, such as those shown in FIGS. 8-10. As shown in FIGS. 8-10, the chair may be decoratively imbued with different patterns on its upper surface. These patterns may be created by welding or otherwise sealing the first 28 and second 30 layers of the upper cushioning portion 14, and optionally the top layer 18 of the lower inflatable chamber to one another. Sinusoidal waves, flowers, paisley patterns, or geographic prints are just some of many examples of suitable welding patterns used on embodiments of inflatable chairs.

[0029] The first 28 and second 30 layers are welded together around the edges of the top and bottom layers 28, 30, and the bottom layer 30 of the upper cushioning portion 14 is preferably welded to the top layer 18 of the lower chamber 12 along the outer edge of the bottom layer 30. This allows the upper cushioning portion 14 to extend above the top layer 18 of the lower chamber 12. This positioning creates a more comfortable seating area. The upper cushioning portion 14 is welded to the lower chamber 12 by sonic welding or chemical bonding. Other types of welding known in the art are also envisioned.

[0030] Another embodiment of inflatable chair of the present invention may include a cushioning portion comprised of only a first layer 28. In this embodiment, the first layer 28 may be directly welded to the top layer 18 of the lower inflatable chamber 12. In this embodiment, the first layer 28 and the top layer 18 form the upper cushioning portion 14. In this embodiment, the welding patterns described above are formed by welding or attaching the first layer 28 of the upper cushioning portion 14 and the top layer 18 of the lower inflatable support chamber 12 together in various decorative patterns.

[0031] The lower inflatable support chamber 12 may include openings 38 or air passageways, preferably in its top layer 18, that are in fluid communication with the internal surfaces of the upper cushioning portion 14 of the chair 10. In one embodiment, shown in FIG. 5, the top layer 18 includes at least two openings 38 near the proximal and distal edges of the layer. The bottom layer 30 of the upper cushioning portion 14 has corresponding openings 40 that allow the upper cushioning portion 14 to be inflated simultaneously with the lower inflatable support chamber 12. In an embodiment of the chair 10 wherein the upper cushioning portion includes only a top layer 28, the top layer 18 of the lower inflatable support chamber 12 may have air openings or passageways 38. When the top layer 28 of the upper cushioning portion 14 is welded or attached to the top layer of the lower inflatable support chamber 12, both portions will inflate. It is contemplated that the openings 38 and 40 may be placed at any suitable location on the respective layers, so long as they allow fluid communication between the layers or chambers.

[0032] Referring again to FIGS. 1-4, the chair 10 of the present invention may also include an inflatable stabilizing member 16. The stabilizing member 16 and the bottom layer 24 may be constructed out of 16-gauge PVC laminated to 150D polyester material, or other suitable material. The stabilizing member 16 may be defined as a c-shaped tube attached near the base of the lower inflatable support chamber 12 and extending around the periphery of the bottom layer 24 of the lower inflatable support chamber 12 at the junction between the top layer 18 and the bottom layer 24. Alternatively, the stabilizing member 16 may extend around the entire periphery of the bottom of the inflatable chamber 12.

[0033] As shown in FIG. 1, the stabilizing member 16 may have a top gusset 40 and a bottom gusset 42 and may be attached to the opposing side gussets 20, 22 and the bottom layer 24 of the inflatable chamber, respectively. The top and bottom gussets 40, 42 may also be welded together at both of their sides, and attached only to the opposing side gussets 20, 22 or only the bottom layer 24. Alternatively, the stabilizing member 16 may be constructed of one continuous piece of material, and attached to the sides and bottom of the inflatable chamber 12, as described above.

[0034] The stabilizing member 16 may also be in fluid communication with the lower inflatable support chamber 12. In one embodiment, shown in FIG. 4, the stabilizing member includes at least one opening (not shown) in each end that is in fluid communication with the lower inflatable support chamber 12. Each opening may be formed at any position along the length of the stabilizing member 16, but generally, the openings are disposed at opposing distal and proximal end portions of the member 16. It is contemplated that there are other methods of creating fluid relationships between the lower inflatable support chamber 12 and its stabilizing member 16 and the upper cushioning portion 14 of the chair 10.

[0035] The inflatable chair of the present invention may be inflated/deflated using a pump (not shown) attached to a valve (not shown) on the rear gusset 26 of the lower inflatable support chamber 12. Different pumps and valves may be utilized in the present invention and their positioning may be adjusted depending on their size and/or shape. In one embodiment, the pump can be battery or DC-powered. Alternatively, the pump can plug into a standard household electrical socket.
The pump 36 may be externally or internally mounted, and may incorporate a control that allows a user to control the pressure within the chair 10 such as those described in U.S. Pat. Nos. 5,267,363 and 5,367,726, both to Robert Chaffee. The pump 36 should be powerful enough to fill both the upper cushioning portion 14 and inflatable chamber 12 of the chair 10 with a gas or fluid, such that the inflatable chamber 12 in combination with the upper cushioning portion 14 provide a comfortable surface for a user. The pump 36 can be designed to automatically stop inflating the chair 10 when the pressure within the chair 10 reaches a certain level. Furthermore, the pump 36 could also monitor the pressure within the chair 10 and automatically activate in order to maintain a specific pressure.

It is also possible to utilize a detachable pump (not shown). Such a pump could be removably attached to the chair 10. If such a pump was used, a single valve 36 could be used to both inflate and deflate the chair 10. In such an embodiment, the pump could removably attach to the valve 36 for inflation, and then be removed and the valve 36 opened for deflation. An example of such a detachable pump and corresponding valve are described in U.S. Pat. No. 6,287,635 to Robert Chaffee. Only one valve 36 is necessary in such an embodiment.

The inflatable chair 10 may also include various additional components, such as side mesh pockets 44. The mesh pockets 44, as shown in FIG. 1, may be attached to the respective side gussets 20, 22 of the lower inflatable support chamber 12. The pockets can store television remote controls, beverages, or gaming controllers, for example. The pockets 44 may be sonically welded to the side gussets 20, 22 or attached in any suitable manner known in the art.

The claimed invention also encompasses a method of supporting a user. The present method comprises first providing an inflatable chair 10 having two fluidly connected air chambers 12, 14, which may be formed by a sheet of material having varying levels of elasticity. As in the previously described embodiments, these panels are preferably formed from PVC materials having high elasticity such as K-80 16-gauge PVC or lower elasticity such as K-70 18 or 28-gauge PVC. Alternatively, the panels may be formed from TPU. A pump is also provided and is connected to at least one of these air chambers 12, 14, and the chambers 12, 14 are inflated using this pump. The method further comprises the step of providing a plurality of structural elements such as the coils 32, 34 described previously. These coils 32, 34 are defined within at least one of the chambers 12, 14 and help maintain the shape of the chair by preventing the outer surfaces from bowing outwards.

It should be noted that there could be a wide range of changes made to the present embodiments without departing from the scope of the claimed invention. As noted, the welding pattern on the upper cushioning portion 14 could take different forms. The entire chair 10 could also be constructed in any number of shapes and sizes.

It is therefore intended that the foregoing detailed description be regarded as illustrative rather than limiting, and that it be understood that it is the following claims, including all equivalents, that are intended to define the spirit and scope of this invention.

1. An inflatable chair comprising:
   A lower inflatable support chamber comprised of a top layer, opposing side gussets, a rear gusset, and a bottom layer, wherein said top layer includes a proximal edge and a distal edge, said rear gusset includes a proximal edge and a distal edge, and said bottom layer includes a proximal edge and a distal edge;
   said proximal edge of said top layer being connected to said proximal edge of said rear gusset, said distal edge of said rear gusset being connected to said proximal edge of said bottom layer, and said distal edge of said bottom layer being connected to said distal edge of said top layer;
   an upper cushioning portion, said upper cushioning portion in fluid communication with said lower inflatable support chamber, comprising at least a first layer, wherein said first layer of said upper cushioning portion is disposed adjacent to said top layer of said lower inflatable support chamber; and
   a stabilizing member in fluid communication with said lower inflatable support chamber, said stabilizing member being disposed near a base of said lower inflatable support chamber and extending around at least a portion of a periphery of said base of lower inflatable support chamber.

2. The inflatable chair of claim 1, wherein said lower inflatable support chamber, said upper cushioning portion, and said stabilizing member are formed of PVC material.

3. The inflatable chair of claim 2, further comprising a pump connected to said lower inflatable support chamber.

4. The inflatable chair of claim 1, wherein said upper cushioning portion further comprises a second layer.

5. The inflatable chair of claim 4, wherein said first layer of said upper cushioning portion is attached to said second layer of said upper cushioning portion and said upper cushioning portion is attached to said top layer of said lower inflatable support chamber.

6. The inflatable chair of claim 5, wherein said first layer of said upper cushioning portion is comprised of material having a lower elasticity than said side gusset and said top layer of said lower inflatable chamber.

7. The inflatable chair of claim 6, wherein said fluid communication is provided by at least one opening defined in said second layer of said upper cushioning portion in substantial alignment with at least one opening defined in said upper layer of said bottom chamber.

8. The inflatable chair of claim 1, wherein said lower inflatable support chamber further comprises at least one structural element defined within said lower inflatable support chamber.

9. The inflatable chair of claim 8, wherein said at least one structural element is an elongated oval.

10. The inflatable chair of claim 8, wherein said lower inflatable support chamber comprises at least one structural element having a first end and a second end, said at least one structural element being attached to said top layer of said lower inflatable support chamber at said first end and attached to said rear gusset of said lower inflatable support chamber at said second end.

11. The inflatable chair of claim 10, wherein said lower inflatable support chamber further comprises a second structural element having a first end and a second end, said first end of said second structural element being attached to said top layer of said lower inflatable support chamber and said second end of said second structural element attached to said bottom layer of said lower inflatable support chamber.

12. The inflatable chair of claim 1, wherein said chair further comprises at least one side pocket disposed on one of said side gussets.
13. A method of supporting a user, said method comprising the steps of: providing a lower inflatable support chamber; said lower support chamber having a top layer, opposing side gussets, a rear gusset, and a bottom layer; wherein said top layer includes a proximal edge and a distal edge, said rear gusset includes a proximal edge and a distal edge, and said bottom layer includes a proximal edge and a distal edge, said proximal edge of said top layer being connected to said proximal edge of said rear gusset, said distal edge of said rear gusset being connected to said proximal edge of said bottom layer, and said distal edge of said bottom layer being connected to said distal edge of said top layer; attaching an upper cushioning portion to said lower inflatable support chamber, said upper cushioning portion being disposed adjacent to said top layer of said lower inflatable support chamber; providing a stabilizing member in fluid communication with said lower inflatable support chamber, said stabilizing member being disposed near a base of said lower inflatable support chamber and extending around at least a portion of a periphery of said base of lower inflatable support chamber; and providing a pump and inflating said lower inflatable support chamber, said upper cushioning portion, and said stabilizing member with said pump.

14. The method of claim 13, further comprising the step of providing at least one structural element attached at a first end to said top layer of said lower inflatable support chamber and attached at a second end to said rear gusset of said lower inflatable support chamber.

15. The method of claim 14, further comprising the step of providing a second structural element attached at a first end to said top layer of said lower inflatable support chamber and attached at a second end to said bottom layer of said lower inflatable support chamber.

16. The method of claim 13, wherein the step of providing said upper cushioning portion further includes providing a second layer, wherein said first layer of said upper cushioning member and said second layer of said upper cushioning portion are attached to each other to define a cushioning chamber, said cushioning chamber being in fluid communication with said lower inflatable support chamber.

17. The method of claim 13, wherein the method further comprises the step of providing at least one pocket disposed on at least one of said opposing side gussets.

18. The method of claim 13, wherein said lower inflatable support chamber, said upper cushioning portion, and said stabilizing member, are comprised of PVC material.

19. The method of claim 13, wherein said fluid communication between said lower inflatable support chamber and said upper cushioning portion is provided by at least one opening defined in said top layer of said lower inflatable chamber.

20. The method of claim 19, wherein said fluid communication between said lower inflatable support chamber and said stabilizing member is provided by at least one opening defined in at least one of said side gussets and said stabilizing member.

21. The inflatable chair of claim 1, wherein said bottom layer of said bottom inflatable support chamber is comprised of 150D polyester material and 16 gage PVC material.

22. The inflatable chair of claim 21, wherein said stabilizing member is comprised of 150D polyester material and 16 gage PVC material.