Abstract: An airbed combination (200) that is convertible into a sofa. In an embodiment, the airbed combination (200) includes two airbeds (202, 204), and the two airbeds are convertible into a sofa. A section (208) of one of the airbeds rotates out of the airbed to create an opening for seating. In an embodiment, the section (208) serves as a back support for users sitting in the opening.
AIRBED THAT CONVERTS INTO A SOFA

REFERENCE TO RELATED APPLICATIONS

(0001) This application claims priority to U.S. provisional patent application serial Number 60/745,707, filed April 26, 2006, incorporated herein by reference.

TECHNICAL FIELD OF THE INVENTION

(0002) The present invention is directed to inflatable products, and more specifically to airbeds.

BACKGROUND OF THE INVENTION

(0003) An airbed, sometimes called an "air mattress," is a large rectangular rubber or plastic (e.g., vinyl) bag that is filled with air so that it may be used as a bed. Airbeds are well known in the art and have proven themselves to be very useful. On the one hand, an inflatable airbed may be deflated and folded to store the airbed in a closet or basement. On the other hand, when guests arrive or when the owner of the airbed takes a trip to a place where there is no bed, the airbed may be inflated and may be used as a bed.

(0004) Although airbeds work well for their intended purpose, one downside to the use of airbeds is that most
conventional airbeds are only 4-10 inches tall. Thus, if an airbed is inflated and placed on the floor, a user must stoop significantly to get on the airbed, and getting off the airbed may also be difficult.

(0005) One type of airbed that has been used to address this problem is the double-high style. As the name suggests, these airbeds are approximately twice as tall as conventional airbeds, and thus are spaced from the floor an amount that is more like a conventional bed. Although these double-high airbeds work well, typically they are provided as double, queen or king sized beds, and smaller sizes are not available. In addition, although the height of the double high airbeds provides some comfort, there is not always room for such a large airbed.
SUMMARY OF THE INVENTION

(0006) The following presents a simplified summary of some embodiments of the invention in order to provide a basic understanding of the invention. This summary is not an extensive overview of the invention. It is not intended to identify key/critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some embodiments of the invention in a simplified form as a prelude to the more detailed description that is presented later.

(0007) In accordance with an embodiment, an airbed combination is provided that is convertible into a sofa. In an embodiment, the airbed combination includes two airbeds, and the two airbeds are convertible into a sofa. A section of one of the airbeds rotates out of the airbed to create an opening for seating. In an embodiment, the section serves as a back support for users sitting in the opening.

(0008) Other features of the invention will become apparent from the following detailed description when taken in conjunction with the drawings, in which:
BRIEF DESCRIPTION OF THE DRAWINGS

(0009) FIG. 1 is a side perspective view of an airbed combination in accordance with an embodiment of the invention;

(0010) FIG. 2 is a side perspective view showing the airbed combination of FIG. 1, with two airbeds of the combination separated;

(0011) FIG. 3 is a side perspective view showing folding together of the two airbeds of the airbed combination of FIG. 1;

(0012) FIG. 4 is a cutaway view showing detail of attachment of a zipper tape to an airbed in accordance with an embodiment of the invention;

(0013) FIG. 5 is a side perspective view showing the airbed combination of FIG. 1 folded into a double high configuration;

(0014) FIG. 6 is a side perspective view showing the airbed combination of FIG. 1 folded and rolled for storage; and

(0015) FIG. 7 is an alternate embodiment of an airbed combination in which the airbed combination is convertible into a sofa.
DETAILED DESCRIPTION

(0016) In the following description, various embodiments of the present invention will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the embodiments. However, it will also be apparent to one skilled in the art that the present invention may be practiced without the specific details. Furthermore, well-known features may be omitted or simplified in order not to obscure the embodiment being described.

(0017) Referring now to the drawings, FIG. 1 shows an airbed combination 20 in accordance with an embodiment. The airbed combination 20 includes first and second twin sized airbeds 22, 24 releasably attached at side edges. For example, as shown in FIG. 1, the top side edges of the two airbeds 22, 24, may be attached by a zipper 26. Although the embodiment shown depicts twin size airbeds for use in the airbed combination 20, other size airbeds may be used, including double, queen, king, or a custom size.

(0018) In accordance with an embodiment, the zipper 26 is formed by two separate zipper tapes, one each attached to a juncture of a side and a top for the airbeds 22, 24. In an embodiment, a seam for the airbed is provided at this juncture, and the zipper tape is attached to the seam. As
is known, when two sheets of material for an airbed are welded, the welded juncture forms a seam. This seam includes excess flashing material that usually extends outward at the seam. In conventional airbeds, such junctures are formed at the connection of a top wall of an airbed to a sidewall for the airbed, and similarly at a connection of the bottom wall to the sidewall. In an embodiment of the invention, zipper tapes for the zipper 26 are attached to this flashing, for example at the connection of the top wall to the side wall. Example flashing 100 for this juncture is shown at FIG. 4.

Although zipper tape may be attached directly to the flashing 100, the flashing material is tearable, and thus does not provide a strong anchor for sewing. To provide direct attachment of a zipper tape 102 to the flashing 100, in accordance with an embodiment, an intermediate strip 104 of material is provided between the zipper tape 104 and the flashing 100 of the airbed. This intermediate strip 104 of material preferably is formed of a composition that is weldable to the flashing and that includes a structure, such as a woven fabric, that permits the zipper tape 102 to be sewn to the strip while anchoring the zipper tape to the strip. In this manner, the strip 104 serves as a solid anchor for the zipper tape 102, and the risk of the zipper tape being torn from the seam is reduced.
In an embodiment, the strip 104 is formed of a woven material impregnated with polyvinyl chloride (PVC), and the airbed 24 (and thus the flashing 100) is also formed of PVC. Thus, the PVC in the strip 104 may be welded to the flashing 100, and the zipper tape 102 may be anchored (e.g., by sewing) into the woven material of the strip 104.

(0020) Another releasable attachment may be provided on the opposite side of the airbeds 22, 24. For example, in the embodiment shown in the drawings, the releasable attachment is made by two snaps 28. These snaps 28 comprise protrusions that extend into openings 29 on the opposite airbed. The snaps 28 may be welded onto one of the airbeds, and the openings 29 may be structures that are molded into the other airbed. Other connectors may be used, including, but not limited to, hook and loop fasteners, a zipper, ties, hooks, loops and toggles, clasps, or other suitable attachments.

(0021) The releasable connections at both sides of the airbeds permit the two airbeds 22, 24 to be used at least three ways. A first way is shown in FIG. 1, where the zipper 26 remains attached, and the two airbeds 22, 24 are aligned side by side to form a king size bed. A second way is shown in FIG. 5, where the two airbeds are folded together (e.g., FIG. 3) and stacked as a twin double high bed. In this embodiment, the zipper 26 and the snaps 28 are
attached to hold the airbeds 22, 24 in place. A third way is shown in FIG. 2, where the two airbeds are separated into two twin beds (i.e., the zipper 26 and the snaps 28 are detached).

(0022) In accordance with an alternate embodiment, a releasable attachment, such as the zipper 26, may be provided to connect one side of the airbeds 22, 24, and a permanent attachment, such as welding of the two airbeds together, may be provided on the opposite side of the two airbeds 22, 24. In such an embodiment, the first and second configurations described in the above paragraph are provided. That is, the two airbeds 22, 24 may be folded flat to form a larger surface, such as a king sized bed, or may be stacked to form a double high bed, such as a double high twin. However, because of the permanent attachment, the two airbeds may not be separated such as in the third configuration. However, by providing just a single releasable attachment along one side, the user still has flexibility in use of the airbed combination.

(0023) In accordance with an embodiment, a sleeve 122 (FIG. 6) is attached to one of the airbeds 22, 24 and is configured so that it may extend around and enclose the airbeds when air is deflated from the airbeds and the airbeds are rolled and/or folded into a tight configuration. As an example, the sleeve 122 may be attached to the lower
flashing of the upper airbed 24, or the upper flashing of
the lower airbed 22. The airbeds 22, 24 may be deflated
while stacked as shown in FIG. 5, and then may be folded
lengthwise and rolled into a tight formation such as is
shown in FIG. 6.

(0024) A strip 124 attaches the sleeve 122 to the
airbed. This strip 124 may be weldable to the flashing and
may have an anchor (e.g., webbing), similar to the strip
104, so that the sleeve 122 may be sewn to the flashing.

(0025) Cords 126, 128 extend along the side edges of
the sleeve 122 within channels formed in the sleeve. These
cords 126, 128 are free to slide within the channels, but
alternatively may be fixed in one position, such as by
sewing a stitch through the sleeve 122 into each cord 126,
128.

(0026) After the airbeds 22, 24 have been rolled
and/or folded into a compressed configuration, the sleeve
122 is pulled upward around the rolled airbeds and then
extended around the airbeds. The cords 126, 128 are pulled
tight and the ends of each cord are tied together so as to
tighten the sleeve 122 about the ends of and around the
airbed. In alternate embodiments, the cords are replaced
with snaps, hook and loop fasteners, clips, clasps, hooks,
or other suitable fasteners or fastening structures.

(0027) In a finished state, the sleeve 122 surrounds
the airbed 22, 24. The sleeve 122 permits the airbeds 22, 24 to be stored and transported when the airbeds are deflated. A handle 130 may be provided on the outside of the sleeve 122 for carrying the rolled and bound airbeds 22, 24.

(0028) FIG. 7 shows an alternate embodiment of an airbed combination 200. Generally described, the airbed combination 200 is convertible to a sofa.

(0029) In the embodiment shown in the drawing, the airbed combination 200 includes a lower airbed 202 and an upper airbed 204. The upper airbed 204 is preferably shorter in height than the lower airbed. As an example, the lower airbed may be 12 inches tall, wherein the upper airbed may be 6 inches tall. The two airbeds 202, 204 may be connected in any way, including permanently.

(0030) In accordance with an embodiment, the upper airbed 204 includes a main body section 206 and a hinged section 208. The hinged section 208 is connected to the main body section 206 at a hinge line 210. This hinge line may be, for example, a seam at which the hinged section 208 is welded, heat-sealed, adhered, or otherwise connected to the main body section 206. The two sections are preferably connected at their upper edges so that they remain in close proximity to one another when the hinged section 208 is folded relative to the main body section 206.
As can be seen by the arrow in FIG. 7, the hinged section 208 may be rotated relative to the main body section 206 between a first position in which the hinged section extends against the upper surface of the lower airbed 202, and a second position in which the hinged section extends against the upper surface of the main body section 206. In the first position, the airbed combination 200 serves as a bed, similar to the previously-described embodiments. In the second position, the airbed combination may be used as a sofa, with one or more users sitting in the opening where the hinged section 208 is stored while in the first position. In this configuration, the lower airbed 202 in the opening serves as a seating surface, the front end of the main body 206 that defines one side of the opening and the front end of the hinge section 208 serve as a back rest for users.

In an embodiment, a front slope of the two sections 206, 208 is slightly angled relative to perpendicular so that when the hinged section 208 is folded over on top of the main body section 206 as is shown in FIG. 7 (i.e., the second position), the two provide a sloped surface against which a back of a user or multiple users may rest. Preferably, the sloped surface permits a user to lean back, but other orientations may be provided. In addition, if desired, contoured features may be provided for further
comfort.

(0033) In an embodiment, arm rests 212 are provided at outer, side portions of the opening into which the hinged section 208 fits. These arm rests 212 may, when the hinged section 208 is folded to the first position, fit into openings 214 on the hinged section 208.

(0034) In an embodiment, each of the arm rests includes a cup holder 216 as a feature in the upper portion of the armrest. Cup holders may be provided in additional locations, and/or other features may be provided.

(0035) To use the airbed combination 200, the upper and lower airbeds 202, 204 are inflated. If desired, the two airbeds 202, 204 may be in fluid communication with another and therefore utilize a single valve. In an alternate embodiment, the two airbeds are not in fluid communication with one another and are inflated separately. Similarly, the hinged section 208 and the main body section 206 may be two separate chambers or may be in fluid communication with one another so that they share a common valve. For the two to be in fluid communication with one another, a structure, such as an inflatable sock may extend between the two so that the sock is out of the way in both the sofa position shown in FIG. 7 (i.e., the second position) and a bed position in which the hinged section 208 is folded against the lower airbed 202 (i.e., the first
position). This sock may, for example, be a flexible tube that is connected between the two sections 206, 208 and extends into notches (not shown) at the upper edges of the hinged section 208 and the main body section 206 at the hinge line 210.

(0036) After the airbeds 202, 204 are inflated, a user may use the airbed as a bed by keeping the hinged section 208 against the upper surface of the lower airbed 202 (i.e., in the first position). If desired, the airbed may be turned over when the hinged portion is in this first position, and the underside of the lower airbed 202 may serve as the top of the bed. Alternatively, a user may rotate the hinged section 208 to the top of the main body section 206 as is shown in FIG. 7 (i.e., to the second position). In this position, one or more users may sit in the opening between the two arm rests 212 and may lean backward against the sloped forward edges of the hinged section 208 and the main body section 206.

(0037) One or more releasable connectors (not shown) may be provided for holding the hinged section 208 in the first or second positions. These connectors may be, for example, a zipper, hook and loop fasteners, clasps, clips, hook and toggle connectors, buttons, snaps, ties, or other suitable fasteners.
Although the embodiment of the airbed combination 200 shown in FIG. 7 includes two airbeds 202, 204, a convertible sofa and airbed may be constructed out of a single chamber airbed. As used herein, even such a single chamber airbed is a "airbed combination" because the airbed combination still includes a hinged section. In such an embodiment, the main body section 206 and the lower airbed 202 are formed as a single chamber. Such an embodiment, however, does not provide the stability of two airbed embodiments shown in FIG. 7, and would be harder to manufacture.

In another alternate embodiment, the hinged section 208 may be provided at an end or at a corner of an airbed combination. The hinged section may be sized as desired, for single or multiple user seating. In addition, an airbed combination may include two or more hinged sections to provide multiple separate seats.

Variations are within the spirit of the present invention. Thus, while the invention is susceptible to various modifications and alternative constructions, a certain illustrated embodiment thereof is shown in the drawings and has been described above in detail. It should be understood, however, that there is no intention to limit the invention to the specific form or forms disclosed, but on the contrary, the intention is to cover all
modifications, alternative constructions, and equivalents falling within the spirit and scope of the invention, as defined in the appended claims.

(0041) The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to," unless otherwise noted. The term "connected" is to be construed as partly or wholly contained within, attached to, or joined together, even if there is something intervening.

Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate embodiments of the invention and
does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

(0042) Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.
WHAT IS CLAIMED IS:

1. An airbed combination, comprising:

   an inflatable structure comprising at least one inflatable chamber and defining a bottom surface and a top surface;

   an opening defined in the inflatable structure, the opening comprising a seating surface intermediate the bottom surface and the top surface; and

   an inflatable section for fitting into the opening, the inflatable section, when fitted into the opening, extending from the seating surface and defining a top surface that is coplanar with the top surface of the inflatable structure.

2. The airbed combination of claim 1, comprising a lower airbed and an upper airbed.

3. The airbed combination of claim 2, wherein the upper airbed comprises the section and a main body.

4. The airbed combination of claim 3, wherein the upper airbed is shorter in height than the lower airbed.

5. The airbed combination of claim 3, wherein the section is connected to the main body along a hinge line.
6. The airbed combination of claim 5, wherein the hinge line comprises a seam at which the section is welded, heat-sealed, adhered, or otherwise connected to the main body.

7. The airbed combination of claim 5, wherein the upper surface of the inflatable structure comprises an upper surface of the main body, and wherein the hinge line connects the main body and the section at the upper surfaces of the main body and the section.

8. The airbed combination of claim 3, wherein the section is connected to the main body and is rotatable, while remaining connected, between a first position in which the section extends against the seating surface, and a second position in which the section extends against an upper surface of the main body.

9. The airbed combination of claim 8, wherein, in the second position, the section comprises a front slope facing the opening, and wherein the main body comprises a front slope below the front slope of the section and facing the opening, and wherein the front slope of each of the main body and the section is angled relative to vertical so that
when the section is in the second position, the two front slopes provide an angled surface against which a back of a user sitting on the sitting surface may rest.

10. The airbed combination of claim 8, further comprising at least one arm rest within the opening.

11. The airbed combination of claim 10, further comprising, for each armrest, an opening in the section, and wherein, for each arm rest, when the section is folded to the first position, the armrest fits into the opening in the section.

12. The airbed combination of claim 10, further comprising a cup holder said at least one arm rest.

13. The airbed combination of claim 8, further comprising one or more releasable connectors for locking the section in at least one of the first and second positions.

14. The airbed combination of claim 8, wherein the section and the main body are in fluid communication with one another so that they share a common valve.
15. The airbed combination of claim 14, wherein the upper and lower airbeds are in fluid communication with another and utilize the common valve.

16. The airbed combination of claim 14, further comprising an inflatable sock extending between the upper section and the lower section.