

[54] **COLLAPSIBLE WATER MATTRESS FRAME**

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[51] Int. Cl. **A47c 27/08, A47c 19/00**

[58] Field of Search **5/348-350, 230**

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[57] **ABSTRACT**

A water mattress frame comprising a semi-rigid resilient frame of rectangular cross section covered with a sheet of flexible, pliant plastic such that the plastic extends as a membrane between the lower edges of the frame members, wrapping around said frame members the edges being suitably sealed and thereby forming a hollow watertight recess into which a water mattress is placed giving proper support to the sides of the mattress.

9 Claims, 6 Drawing Figures

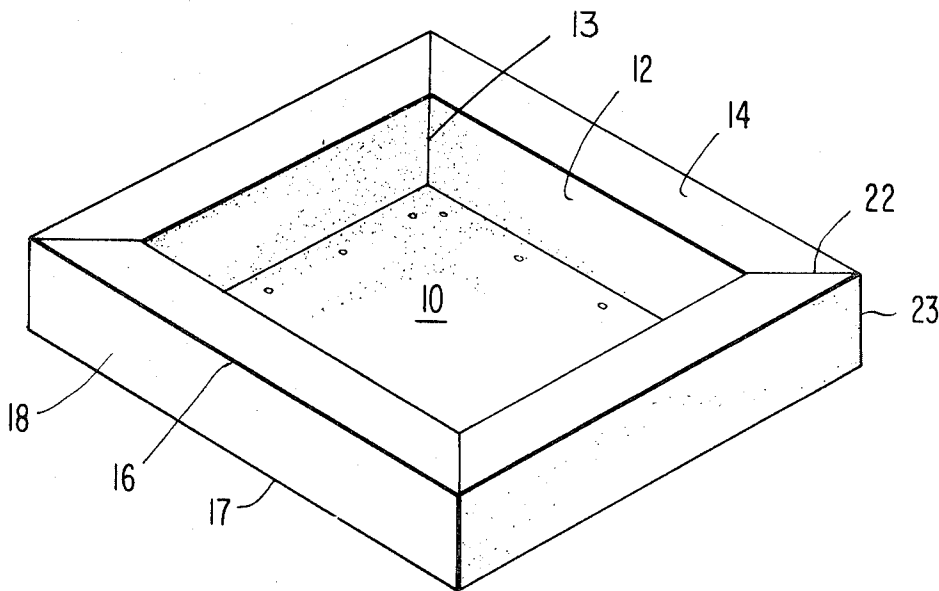


FIG. 1

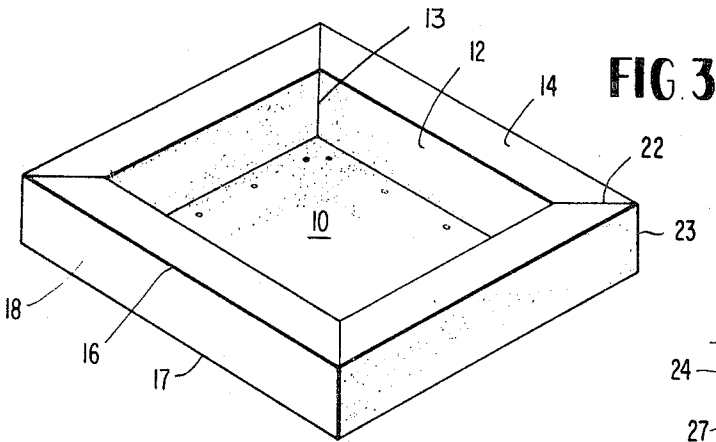
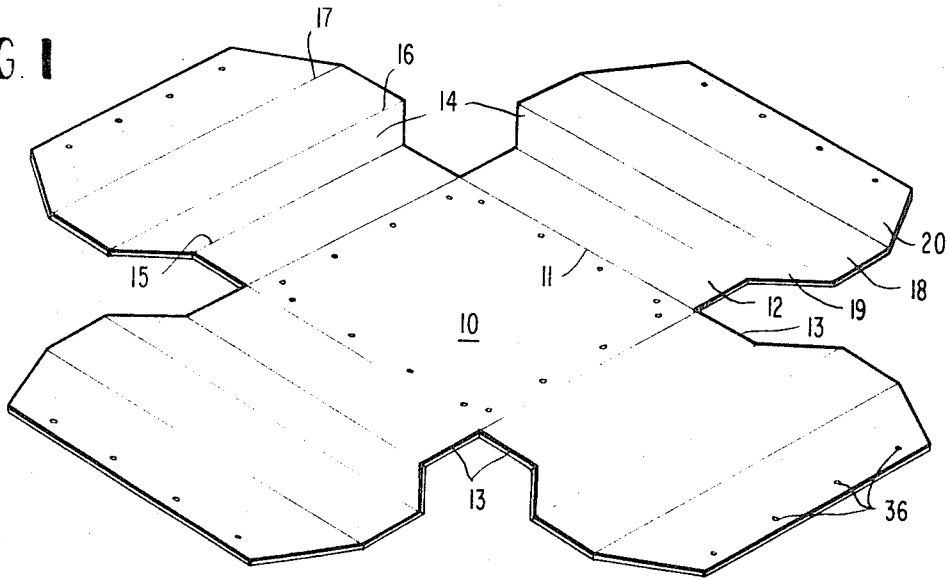


FIG. 3

FIG. 4

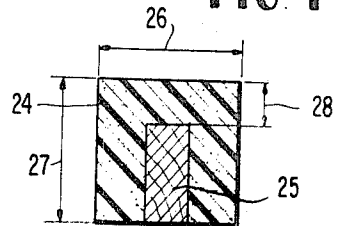


FIG. 2

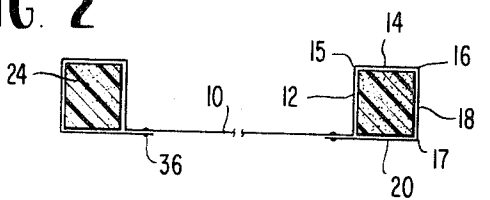


FIG. 5

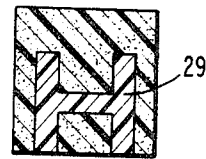
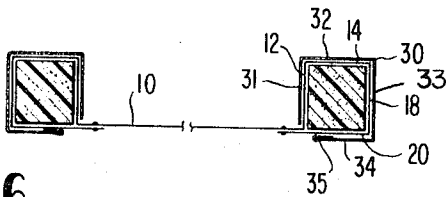


FIG. 6



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COLLAPSIBLE WATER MATTRESS FRAME

This invention relates to beds and more particularly to water beds and the proper support thereof.

Beds with the mattresses filled with water have been used for their therapeutic value in that the water temperature may be adjusted but more that the mattress provides a comfortable surface yielding easily to the contour of the body providing soothing rest. Water mattresses have been devised, for example, to fit standard hospital beds as disclosed in the art and made to fit wooden or rigid plastic frames of various dimensions which support the mattresses rigidly on the bottom and on all sides. Beds of this construction have a number of disadvantages. When getting into or out of the bed, the rigid sides form an obstruction, a hard edge on which a person can bump himself and further, it makes it uncomfortable to sit on the edge of the bed which many people are accustomed to doing. Also, if a wave is set up within the mattress, it is reflected from the hard sides, causing a harsh feeling to the occupant of the bed. Also, in order to assure safety against a leak in the water mattress itself the rigid frames are usually of one piece watertight construction making them difficult to transport and handle.

Mattresses have been used without frames with success, however, the internal pressure from the weight of the water and occupant puts a strain on the seams which then tend to fail prematurely.

Ideally, the mattress should be supported on all sides with a resilient material with enough structure to maintain a low stress level on the seams of the mattress and soft enough to allow absorption of wave energy, reducing reflected water waves to a minimum. Further, a resilient support is pleasant to sit upon and removes the danger of being hurt, should the occupant roll toward the edge of the bed.

In view of the foregoing, it is the principal object of this invention to provide a resilient frame for extending the life of water mattresses.

It is a further object of this invention to provide a frame which supports a water mattress and is soft, pliable and easy to sit upon.

It is another object of this invention to provide a frame for a water mattress which is light in weight and collapsible for ease in shipment.

It is another object of this invention to provide a frame which is watertight for safety in the event the water mattress should leak.

The invention will be better understood and further objects and advantages will become more apparent from a reading of the following specification taken in conjunction with the drawing in which:

FIG. 1 shows in perspective the cover into which the flexible framing assembly is to be placed;

FIG. 2 shows a cross sectional view of the mattress frame and cover;

FIG. 3 shows in perspective the mattress frame and cover in an assembled condition;

FIG. 4 shows in a cross sectional view one type of a support member;

FIG. 5 shows another embodiment of a support member; and

FIG. 6 shows in a cross sectional view the addition of a tonneau cover.

Turning now to FIG. 1, there is shown a perspective view of a thin, flexible, pliant rectangular membrane means or bottom wall 10 made of a plastic, a plastic

composite material, or other watertight material of approximately 0.010-0.050 inches thickness, its plan size equalling the plan size of the mattress to be used with the frame. Affixed by heat welding or other suitable watertight construction or simply an extension of the same material along each of the seams 11 are sides 12 which are extensions made of the same material as membrane means 10, with the sides 12 being arranged to be folded perpendicularly upwardly from membrane or bottom wall 10 so as to bring them into abutment along adjacent edges at 13, these edges being suitably affixed to each other such as by heat welding or any other suitable method such as mentioned earlier, thereby forming a watertight rectangular box of flexible pliant material which is open at the top to receive the water mattress as more clearly illustrated in FIG. 3. The height of sides 12 is made to be complementary to the height of a standard water mattress, many being approximately 12 inches high or the side portions may be made suitable to correlate with other non-standard mattress heights. Extending perpendicularly outwardly as shown in FIG. 3 is a top surface 14 made of the same or similar flexible pliant material as membrane 10 and the sides 12 and heat-welded or otherwise suitably affixed to side 12 along upper seam 15. Further extending from top surface 14 is panel 18 attached to top surface 14 along edge 16 and panel 20 attached to panel 18 along edge 17. Alternately panels 10, 12, 14, 18 and 20 may be made from the one piece of material where edges 11, 15, 16 and 18 become fold lines. Top surface 14 and panels 18 and 20 are suitably shaped in their plan view so that when folded as hereinafter described, they completely enclose and form one hollow rectangular side of the overall mattress frame to be described later. The panel 18 is arranged to be folded perpendicularly downwardly from the top surface 14 along fold 16 and panel 20 folded perpendicularly to panel 18 along fold 17 parallel to seam 15 to form a hollow rectangular side shown more clearly in FIG. 2, panel 18 being equal in width to panel 12, and panel 20 being somewhat larger in width than panel 14 so that it may extend under membrane 10 to a sufficient extent, say, two inches, where panel 20 is removably affixed to the bottom of membrane 10 for example by snaps 36, zippers, or permanently affixed by heat-welding or other suitable means. Each of the sides are thus folded to form the basic mattress frame cover as shown in FIG. 3. Seams 22 and 23 are not to be sealed for reasons to be described later.

Referring now to FIG. 3, there is contained within each hollow rectangular side formed of flexible panels 12, 14, 18 and 20 a support member 24 not shown here but illustrated clearly in cross section in FIG. 2, formed of a suitable resilient material such as polyurethane, foam rubber, or suitable air-tight bag filled with air to provide the mattress frame with a required amount of rigidity since without the support members the thin flexible material of which the mattress frame cover is made, would otherwise collapse.

Four separate support member means 24 are used for purposes of ease in transportation and assembly. The ends of the support 24 are suitably perpendicularly mitered and abutted so that when held in place by the flexible pliant mattress frame cover, they provide the necessary rigidity. The support member means may be assembled to the mattress support means in the following manner.

The mattress support means may be positioned upside down and the support member means 24 placed alongside the outer side of panel 12, thereafter the panels 18 and 20 wrapped around said support member means and panel 20 snapped, zippered, or otherwise affixed to the bottom of membrane 10. Upon assembly of the four support members with its cover the completed mattress support is turned over for use. Another method of assembly is also available, if desired, when panel 20 is heat-welded or otherwise permanently affixed to the bottom of membrane 10. In this instance, the support member means 24 is slidably fitted to the internal hollow space formed of panels 12, 14, 18 and 20, seams 22 and 23 being spread apart to allow each support member means 24 to be slidably introduced endwise into place. Of course, the seams 22 and 23 may be later heat sealed.

Referring now to FIG. 4, there is shown in cross section another embodiment of a typical support member means 24 in which a core 25 made of wood, strong plastic or other suitable relatively rigid material, is covered by molded or otherwise suitably applied resilient material 25, such as polyurethane or foam rubber. The dimensions 26 and 27 are made to completely fill the space provided within the mattress support, the distance 28 being placed upwardly when the element is assembled with the mattress support and being made suitably thick so as to provide a soft feel when any part of the human anatomy is placed thereon.

Referring at this time to FIG. 5, there is shown still another embodiment of a support member means 24, wherein the rigid body provided within said support means resembles an "H" beam indicated by the numeral 29 this element being constructed of thin molded rigid plastic for lightness, the polyurethane or other resilient material being molded or affixed thereto in the manner described hereinbefore. It will be now obvious to those skilled in the art that the support member means may be made with any number of different rigid cores or indeed, no core at all, if the resiliency of the semi-rigid material is chosen to give some required rigidity in itself. Further, the support member means 24 may be an air-tight air-filled bag of suitable dimensions gaining its rigidity from its internal air pressure and still providing a soft surface on which to sit.

The basic mattress frame cover is made of a plastic or other material having watertight properties and in itself provides but one decorator surface which may not match the decor of the room in which it is to be placed.

To make the mattress frame match any decor, a tonneau cover may be used providing a large variety of colors and textures from which to choose.

Referring now to FIG. 6, there is shown a cross section of the mattress frame with the tonneau cover 30 comprising panels 31, 32, 33 and 34 in place upon it. Elastic edge 35 is suitably affixed to the edge of panel 34 to hold the tonneau cover in place in a similar manner to the commonly used fitted bed sheet. To those skilled in the art it should be obvious without a detailed description thereof that the tonneau cover 30 is formed in much the same manner as the mattress support, but without a panel corresponding to membrane panel 10 and with all seams corresponding to seams 13, 22 and 23 arranged to form an enclosing cover, the inner panel 31 being held in place by being tucked between the water mattress and the mattress frame. Alternate methods for attachment of the tonneau cover may be used

such as snaps, zippers, Velcro strips or other attachments of a removable nature. The tonneau cover may be made of velvet, fur, plastic, corduroy or any other desirable material to match the decor of the room in which the mattress frame is used and may be easily changed without removing or emptying the water mattress from the mattress frame.

Although a basic form of this new and novel invention has been described, there are obvious modifications to its construction, for example, the corners of the mattress frame cover may be made in different ways, they may overlap or snap together to give greater strength rather than abutting on seams 22 and 23, the limitations being only that of the basic pattern design used. Further, the shape of the mattress support may be changed to include octagonal, circular and other shapes to fit specialized water mattress designs using the same basic construction. The collapsibility and portability of the mattress support and such flexible and pliant construction to achieve this are basic to this invention and should be only limited by the recitations in the claims.

What is claimed is:

1. A blank constructed of a flexible pliant waterproof material including a planar wall portion having top and bottom areas provided with integral offstanding foldable side and edge members, each of said side and edge members including first radial side wall portions capable of being folded and suitably secured in abutted relation to form a walled tray-like member, each of said radial side wall portions communicating with first integrated oppositely disposed divergent edge portions capable of being brought into abutting relation to form a horizontal offstanding uniformly shaped edge surface, said first edge portions being integral with second radial side wall portions adapted to be folded downwardly to provide opposite pairs of parallel spaced walls, at least one each of which is arranged in spaced relation from said tray-like member, said second side wall portions each being integral with second edge portions, said second edge portions arranged to be secured to said bottom area of the planar wall portions to form spaced first and second edge portions and spaced first and second side wall portions, said respective spaced portions forming a communicating channel-shaped area capable of having mounted therewithin elongated shock-absorbing members including abutting termini.

2. A blank constructed of a flexible pliant waterproof material as claimed in claim 1, wherein each of said radial portions is heat sealed in abutting relation.

3. A blank constructed of a flexible pliant waterproof material as claimed in claim 2, wherein the further extensions integral with said divergent edge and side portions are heat sealed in abutting relation.

4. A blank constructed of a flexible pliant waterproof material as claimed in claim 1, wherein each of said radial portions and the further extensions integral therewith are heat sealed in abutting relation.

5. A blank constructed of a flexible pliant waterproof material as claimed in claim 4, wherein the terminal portions are permanently affixed to the bottom area of the planar wall.

6. A blank constructed of a flexible pliant waterproof material as claimed in claim 1, wherein the terminal portions are detachably secured to said bottom area of the planar wall.

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7. A blank constructed of a flexible pliant waterproof material as claimed in claim 1, wherein a tonneau cover having inner and outer edge areas is arranged to embrace the area between the walled tray-like member and terminates adjacent to the terminal portions.

8. A blank constructed of a flexible pliant waterproof material as claimed in claim 7, wherein the outer edge

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area includes elastic means.

9. A blank constructed of a flexible pliant waterproof material as claimed in claim 7, wherein the outer edge area is detachably secured adjacent to said bottom area of the planar wall.

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