FLUID-FILLED BED

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Filed: June 21, 1971
Appl. No.: 154,963

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ABSTRACT

A bed with a supporting frame having two adjacent compartments for supporting and containing to separate fluid-filled bags positioned in side-by-side abutting relation. The bags are partially separated by a rib extending upward from the bottom of the supporting frame.

10 Claims, 3 Drawing Figures
FLUID-FILLED BED

BACKGROUND OF THE INVENTION

Water beds of one type or another have long been used by hospitals for treatment of patients having varying problems such as bed sores and skin burns. Its primary advantage is that it uniformly distributes the body weight so that the entire body surface in contact with the mattress is evenly supported rather than having uncomfortable pressure points as with an innerspring mattress. In any type of therapeutic application, the bed would be for a single person rather than a double bed, as primarily being currently used by the general public. In recent years, the water bed has become very popular with the general public to the point where some authorities feel eventually it will replace the innerspring mattress. Most water beds currently being sold to the general public are of the double bed size to which the present invention is specifically directed.

DESCRIPTION OF THE PRIOR ART

A water bed is essentially a mattress-sized vinyl bag filled with water surrounded by some type of frame structure. While they vary in size from single to king, most of the beds are double size or larger. The most notable characteristic of the bed is the oscillating wave action caused by a person’s movement on the bed. While this wave action only lasts for a matter of seconds, it echoes or reverberates completely through the bed. If a second person is lying on the bed, any movement by the first person is directly felt by the other, which in some cases prevents one from sleeping. One attempt to solve this problem has been to place a flexible baffle in the middle of the bag which partially restricts the movement of water back and forth through the baffle. This type of structure has a minimal effect on the wave action of the water since the baffle itself is flexible. Another problem experienced with dual-person beds is the situation where there is a substantial weight difference between the persons. The heavier person will sink in the mattress, while the lighter person will hardly make an impression. To the heavier person, the mattress would appear sufficiently soft, while to the lighter person it would feel overly firm.

SUMMARY OF THE INVENTION

To alleviate the above mentioned problems, the present invention incorporates two individual bags in a buttling relation, one for each person. The bags are supported in a pan-shaped rigid frame structure divided into two compartments by an upstanding rib in the bottom of the bed frame. The upstanding rib partially extends up between the two bags, minimizing the contacting surface area between the bags. When a wave is created on one side of the bed, its transmission to the opposite side is very much restricted by the upstanding rib, as well as the fact that the fluid in motion has a separate envelope from that of the other side. Since the rib only partially extends between the bags, a person can roll across the rib without contacting it. By using two separate bags, a light person will make a similar impression in his bag as that made by a heavier person on the adjoining bag. Another problem with the water bed is its substantial weight due to the 200 gallons plus of water required to fill the bags. The present invention minimizes the amount of water required in the bags by usage of angled side walls where the depth of the mattress decreases.

It is therefore the principal object of the invention to provide a water bed wherein the wave action of the water is dampened from one side to the other. Another object of the invention is to provide a water bed which requires less water.

A further object of the invention is to provide a double-size water bed with independent mattresses for each person.

Still another object of the invention is to provide a water bed of maximum simplicity, strength and safety.

Further objects will be made clear from the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of the bed support frame with the fluid-filled mattresses removed;

FIG. 2 is a lateral sectional view of the bed frame and mattresses with a person lying thereon; and

FIG. 3 is a longitudinal sectional view taken along line 3 — 3 of FIG. 2.

Referring to FIG. 1 of the drawings, reference numeral 10 generally identifies the water bed frame structure which can be fabricated of fiberglass or any other lightweight high strength material. The frame 10 includes vertically disposed outer side walls 13 and 14 joined by outer end walls 16 and 18. Positioned inside the outer side walls 12 and 14 are inner side walls 20 and 22, as best seen in FIG. 2. The inner and outer walls are joined by a narrow web 21.

The lower portions of inner walls 20 and 22 are slanted inward at approximately a 45° angle until they join the bottom 24. The outer end walls 16 and 18 have inner walls 17 and 19 which are identical in cross-section to the inner side walls, as seen in FIG. 3. Connecting with the inner side end walls 20, 22, 17 and 18 is the bottom wall 24. Dividing the bottom 24 in half is an upstanding rib 25 which extends the length of the frame 10, forming two adjoining compartments 27 and 29. Positioned in each compartment, respectively, are two water-filled bags 30 and 32. The bags can be constructed of any type of flexible waterproof material such as vinyl. Any type fluid with greater or lesser specific density can be used, depending on the buoyancy desired. The two bags lie in contact with each other along the center of the bed, except for that portion A separated by the upstanding rib 25. The lower edge of outer walls has an increased width portion 35 to give the frame 10 additional strength and rigidity.

OPERATION

The firmness of a water bed is controlled by the amount of water placed in the bag. When a person lies on a water-filled mattress, he is supported not only by the buoyancy of the fluid but also the tension created in the bag due to the displacement.

With the arrangement of separate bags for each person, the presence or absence of the second person does not affect the firmness of the individual bag 30. With two persons on a large single bag, as done in the prior art, you not only have the problem of changing firmness, depending on how many persons are on the bed, but also the problem of the lighter person not sinking in to the same degree as the heavier person. This doesn’t happen with the dual-bag arrangement since the tension of the vinyl in one bag cannot be transferred to the adjacent bag.
When a person moves or rolls over on bag 30, it causes a wave action of movement of the water inside the bag. Transfer of this wave action to the adjacent bag 32 is partially prevented by reason of the separately confined bodies of water, in other words separate bags. Also, the rigid rib 25 prevents any water movement across the bottom of the bed frame 10. The surface 36 of the rib exposed to the bag has a tendency to reflect any moving water upward, whereby the wave is absorbed in its own bag rather than transmitted to the adjacent bag. The upstanding rib 25 is sufficiently below the top surface of the bags 30 and 32 so that if a person rolls across the center of the bed he does not come in contact with the rib 25.

Since the full depth of the bag 30 is only required in the center area of the mattress, the side walls 20 and 22 can be slanted toward the center, thereby reducing the amount of water in the mattresses which in turn is less weight on the floor. While there is no pedestal shown in the drawing, the bed frame 10 can be located on a pedestal or directly on the floor.

Having described the invention with sufficient clarity to enable those familiar with the art to construct and use it, I claim:

1. A fluid-filled bed comprising:
   a support frame structure including side walls and a bottom, an upstanding rib located in the bottom, extending the length thereof, dividing the frame into two adjoining compartments; and
   a pair of flexible fluid-filled bags each being supported and contained in one of said compartments with one side of each bag in partial contacting relation with the other, excepting that portion separated by the upstanding rib.

2. A fluid-filled bed as set forth in claim 1, wherein the side walls of the frame structure slant inward toward the bottom of the support frame.

3. A fluid-filled bed as set forth in claim 1, wherein the side walls of the frame structure have a lower portion that slants inward toward the bottom of the support frame.

4. A fluid-filled bed as set forth in claim 1, wherein said rib extends upward from the bottom of the support frame approximately one-half the height of the side walls.

5. A fluid-filled bed as set forth in claim 1, wherein said rib extends upward between the bags a distance of approximately one-half the bag depth.

6. A fluid-filled bed as set forth in claim 1, wherein the side walls of the frame structure slant inward toward the bottom of the support frame, and the rib extends upward between the two bags a distance of approximately one-half of the bag depth.

7. A fluid-filled bed as set forth in claim 1, wherein the upstanding rib has a height of at least one-half the side wall height with an increasing cross sectional thickness toward its juncture with the bottom.

8. A fluid-filled bed as set forth in claim 1, wherein the upstanding rib is tapered upward from the bottom of the support frame.

9. A fluid-filled bed as set forth in claim 1, wherein the upstanding rib is tapered upward with radius fillets at its juncture with the bottom of the support frame.

10. A fluid-filled bed as set forth in claim 1, wherein the upstanding rib is tapered upward to a rounded edge.

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