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COMPARTMENTED BAG HAVING SELECTIVE INFLATION CONTROLS

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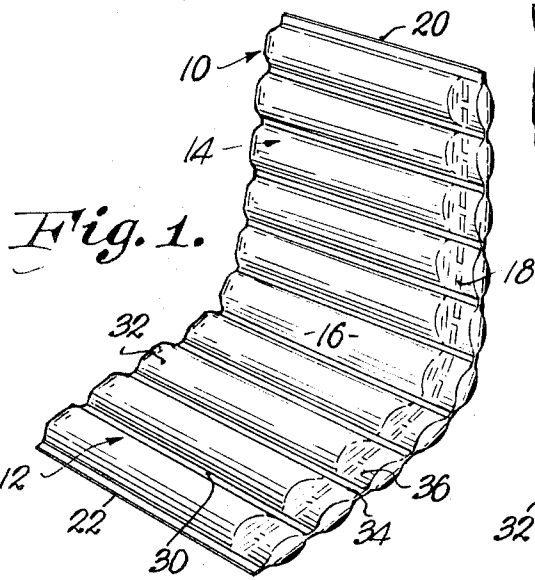


Fig. 1.

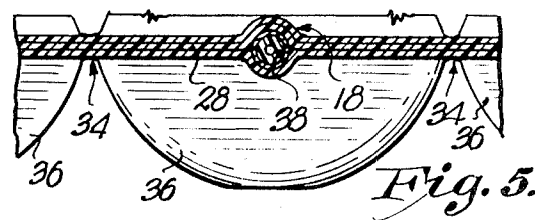


Fig. 5.

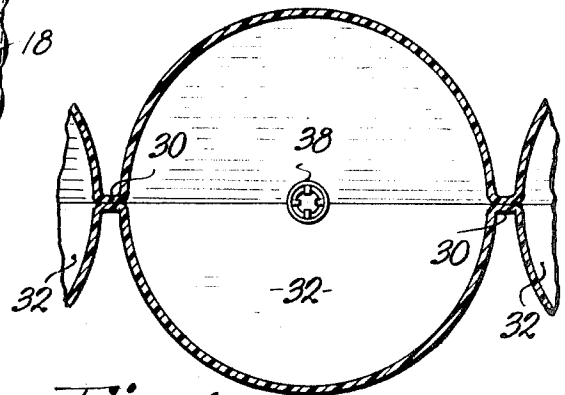


Fig. 4.

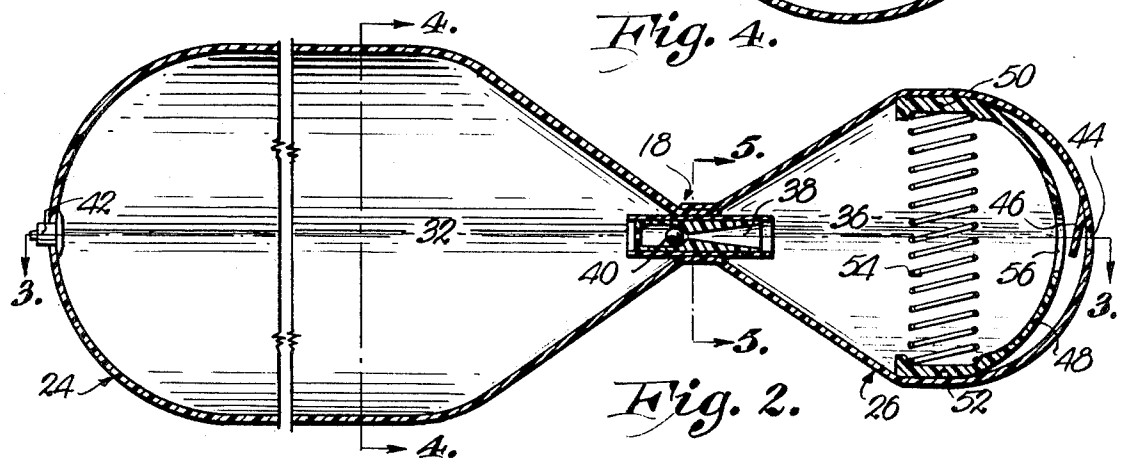


Fig. 2.

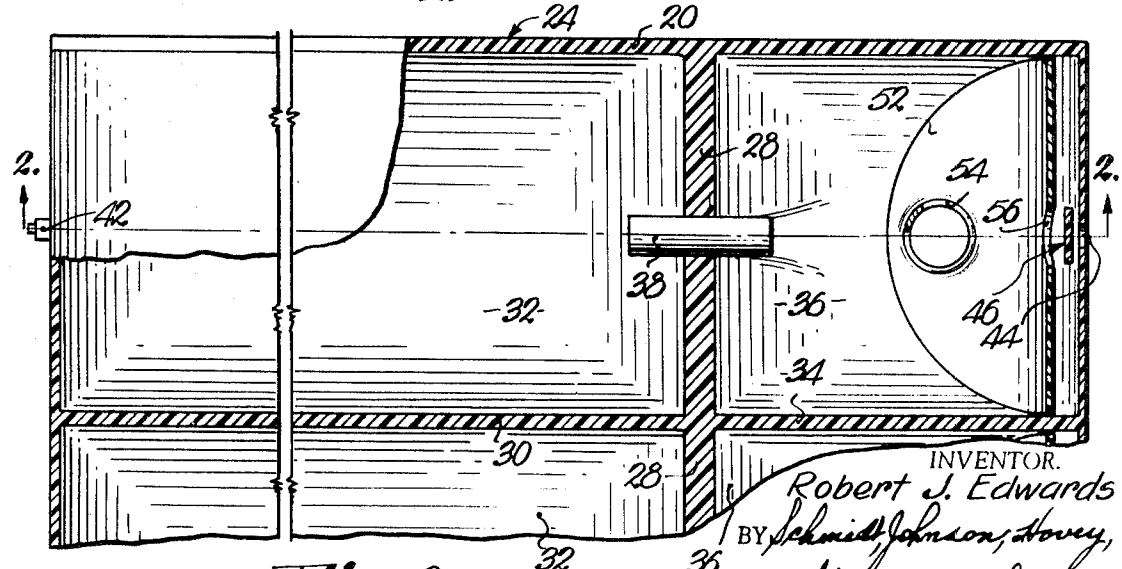


Fig. 3.

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**COMPARTMENTED BAG HAVING SELECTIVE
 INFLATION CONTROLS**

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3 Claims

ABSTRACT OF THE DISCLOSURE

An air cushion or mattress, also adaptable as a life preserver, has a bag so partitioned as to present a plurality of inflatable compartments and a corresponding number of air pumping bulbs, all suitably valved so as to permit user control of the amount of air in each compartment.

An important object of the instant invention is to provide a compartmented bag with structure permitting user control of the extent of inflation of each compartment for adjustment purposes to afford the highest degree of comfort.

Another important object of the present invention is the provision of an air bag which may be quickly and easily altered from time to time during use, insofar as the extent of inflation of various areas thereof is concerned, thereby maintaining comfort over extended periods of use.

Still another important object of my present invention is to provide an air bag which continues to function for its intended purpose notwithstanding air leakage in one or more zones thereof due to damage requiring repair.

In the drawing:

FIG. 1 is a perspective view of a compartmented bag having selective inflation controls made pursuant to my present invention;

FIG. 2 is an enlarged, cross-sectional view taken on line 2—2 of FIG. 3;

FIG. 3 is a fragmentary, cross-sectional view taken on line 3—3 of FIG. 2, partially in elevation;

FIG. 4 is a fragmentary, cross-sectional view taken on line 4—4 of FIG. 2; and

FIG. 5 is a fragmentary, cross-sectional view taken on line 5—5 of FIG. 2.

Inflatable bag 10 as shown in FIG. 1 of the drawing is in the nature of a cushion which may, because of its flexible nature, be placed in a chair, automobile or other support such as to present a seat portion 12 and a back rest 14. Alternately the bag 10 may be sized for use as an air mattress, and still further, through use of straps or other body attachment means (not shown), be used as a life preserver, presenting therefore a combination cushion or mattress and life preserver for use in airplanes, boats and the like.

Bag 10 is in the nature of a hollow, nonporous body 16 of tough, light material made from any suitable, waterproof elastomer, such as rubber or plastic, capable of being filled with air. Such material may, if desired, take the form of an initially flat sheet or panel capable of heat fusion, folded to place its longitudinal, marginal edges into overlapping relationship, presenting a sealed joint 18, with its transverse, overlapping, marginal edges similarly sealed together, presenting ends 20 and 22.

The upper and lower layers of the bag 10 are also sealed together from end 20 to end 22 thereof at the joint 18 to present a main section 24 and a secondary section 26 by partition 28 thus formed. The two layers of bag 10 are additionally sealed together transversely of bag 10, presenting a series of spaced, parallel partitions 30 perpendicular to partition 28, dividing the main section 24 into a plurality of compartments 32. Such transverse sealing

is continued across the partition 28 to present partitions 34, thereby dividing the secondary section 26 of bag 10 into a row of air pumping bulbs 36 equal in number to the compartments 32.

Each compartment 32 is placed into communication with a corresponding bulb 36 by an air passage tube 38, and each tube 38 is, in turn, provided with a check valve 40 for preventing escape of air from the compartments 32 to the bulbs 36. Each compartment 32 has a manually controlled air outlet valve 42 in opposed relationship to corresponding tube 38, and each bulb 36 is provided with an air inlet orifice 44 having a corresponding check valve 46 for preventing escape of air from the bulbs 36 to the atmosphere.

Resilient means for yieldably maintaining the bulbs 36 distended includes a U-shaped spring 48 within each bulb 36 respectively, having a pair of spaced legs 50 and 52, together with a coil spring 54 between the legs 50 and 52, the bight of the spring 48 having a hole 56 for passage of air from inlet orifice 44 toward the tube 38.

In operation, the bulbs 36 are sequentially and manually grasped and squeezed against the action of springs 48 and 54 to compress the bulbs 36, thereby expelling air from the bulbs 36 to the compartments 32 through tubes 38. During the squeezing of bulbs 36 the ball check valves 40 permit air flow to the compartments 32 and valves 46 and prevent escape of air from the bulbs 36 to the atmosphere through holes 56 and orifices 44 by the action of flapper check valves 46 within bulbs 36 closing across the orifices 44.

During expansion of the bulbs 36, valves 40 close to prevent reverse flow of air from the compartments 32 through tubes 38 to the bulbs 36, and the valves 46 open to permit flow of air into the bulbs 36 from the atmosphere via orifices 44 and holes 56. In preparation for storage by rolling or folding of the bag 10, the valves 42 are manually opened to permit exhaustion of the air from within the compartments 32.

The amount of air that is pumped into the compartments 32 is discretionary with the user, it being especially notable that all of the compartments 32 need not be inflated to the same extent. Moreover, while the bag 10 is in use, the user may, from time to time, as he may so desire, for comfort purposes, exhaust some or all of the air from one or more of the compartments 32, through use of valves 42, or he may increase the extent of inflation of one or more of the compartments 32 from time to time through use of the air pumping bulbs 36.

For example, during long, continued use of the bag 10 as a cushion, a change in position can, in effect, be produced by exhausting some or all of the air from some of the compartments 32 where pressure against certain portions of the body of the user becomes tiring. At the same time, or conversely, the user can increase the inflation of one or more compartments 32 where certain portions of his body appear to need added support in order to be more comfortable. This periodic pressure variance attribute of my invention is especially advantageous when the bag 10 is made or used as a mattress. Bedridden patients particularly will be able to maintain a continuing comfortable condition by the simple and rapid expedient of manipulating the valves 42 and the bulbs 36 while remaining on the mattress without need for assistance.

Not to be overlooked also is the important feature of continued use even if one or more of the compartments 32 should spring a leak. In conventional structures of this nature, a leaky condition results in causing the inflatable bag to become inoperable until the leak is repaired. This is an aggravating problem when it occurs while the bag is in use as a cushion in an automobile, and even more provoking when it occurs during the night

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when the bag is used as a mattress. In my invention, on the other hand, a leak in one or several of the compartments 32 will not, of itself, render the entire bag 10 inoperable. This same feature becomes important from a safety standpoint when the bag 10 is adapted for use as a life preserver.

There is no upper or lower surface in my bag 10; accordingly, it may be positioned for operation, while in use, of the bulbs 36 with either the right or the left hand, all without the need for mouth inflation or use of separate air pumping devices.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. An inflatable bag comprising:

a flexible bag having partition means dividing the same into a main section and a secondary section, partition means dividing the main section into a plurality of compartments, and partition means dividing the secondary section into a number of air pumping bulbs,

air passage means placing each compartment respective-

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ly into communication with a corresponding bulb, each bulb having an air inlet, each passage and each inlet having a check valve; and resilient means in each bulb respectively for yieldably maintaining the same distended, each yieldable means including a U-shaped spring having spaced legs, and a coil spring between said legs.

2. The invention of claim 1, each air passage means including a tube traversing the partition means between said sections.

3. The invention of claim 1; and an air outlet valve for each compartment respectively.

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