

[54] **LIFE PRESERVER BUBBLE**

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52/2, 272/1 B

[51] Int. Cl. **A62b 7/00**

[58] Field of Search **128/145, 1, 1 B,**
128/191 A; 52/2; 135/1; 9/11 A, 312; 272/1
R, 1 B

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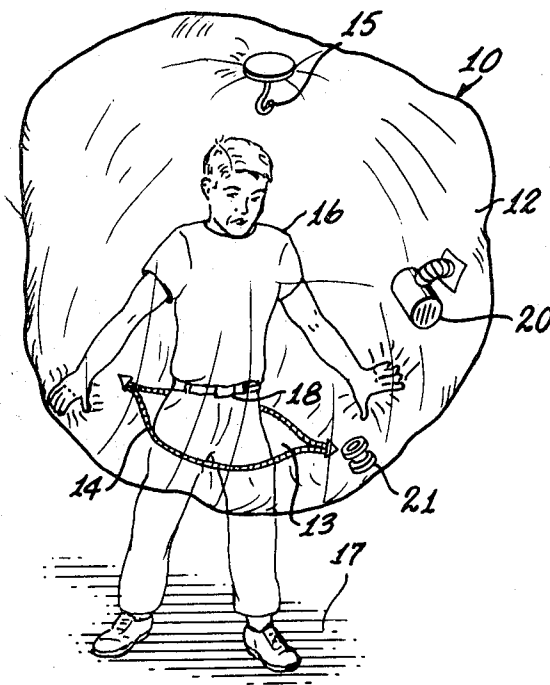
Attorney—Warren F. B. Lindsley

[57]

ABSTRACT

A self-inflatable bubble for the protection and preservation of life on land and water. The bubble is formed of a pliable air and water impervious material which when arranged around the user provides an environment in which he may comfortably exist in the bubble whether on land or sea. A hook is provided in the bubble interior to provide means to secure the user to the bubble wall to properly position the user within the bubble interior.

1 Claim, 11 Drawing Figures



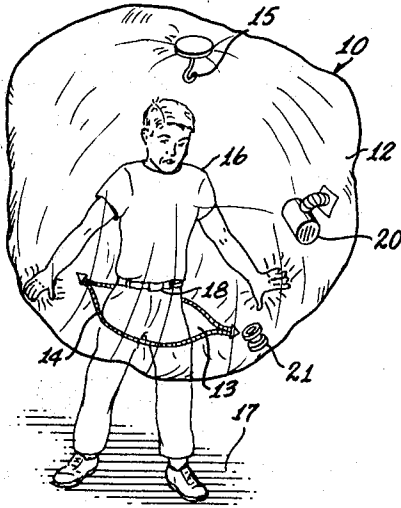


FIG. 1

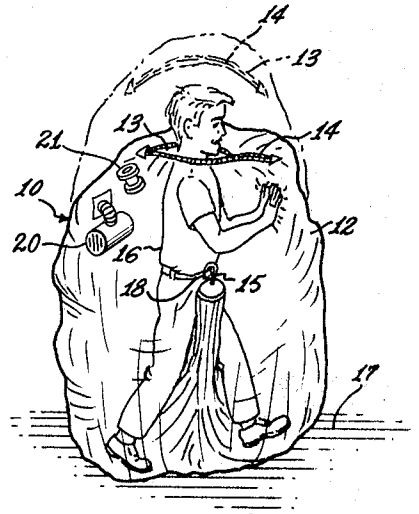


FIG. 2

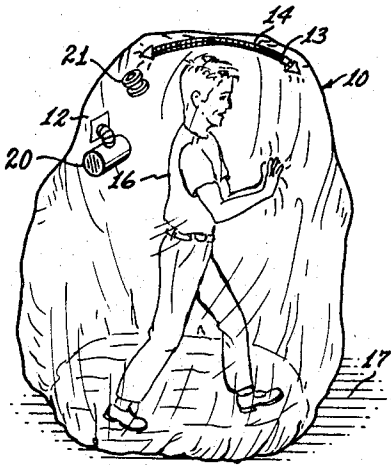


FIG. 3

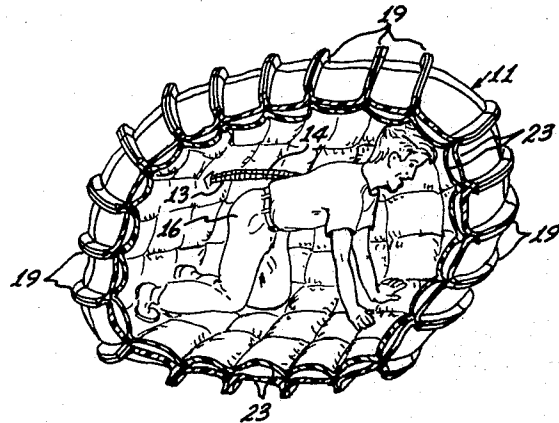


FIG. 4

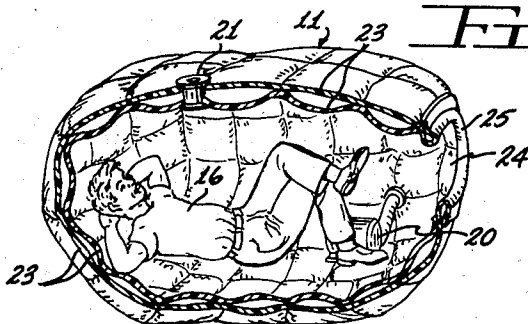
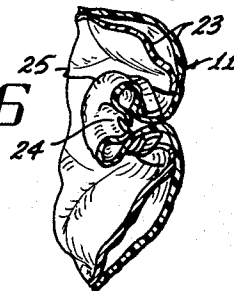


FIG. 5

FIG. 6



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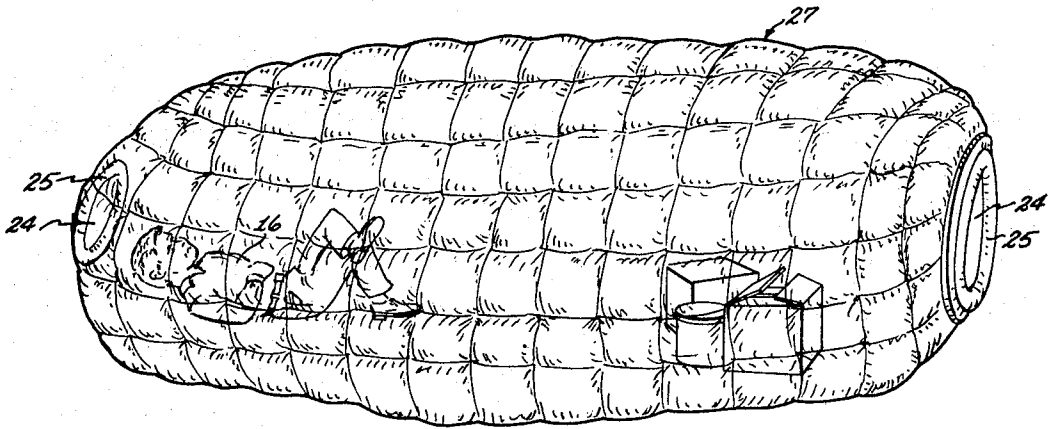


Fig. 7

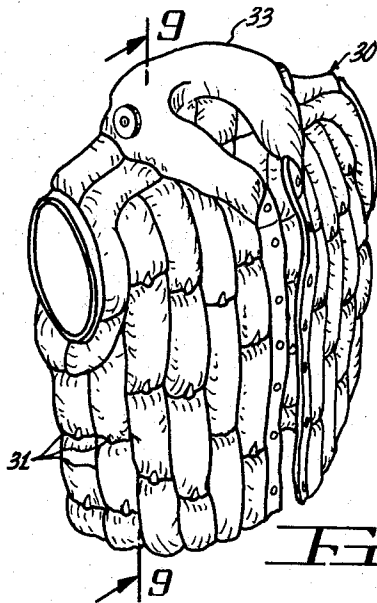


Fig. 8

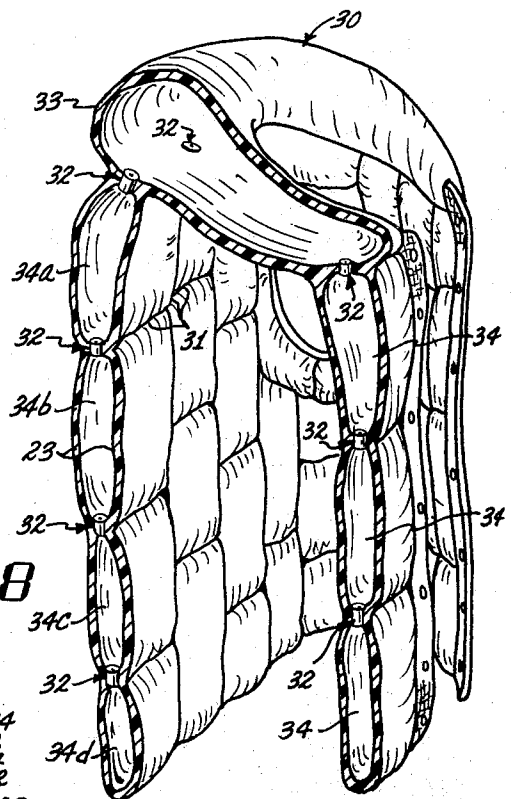


Fig. 9

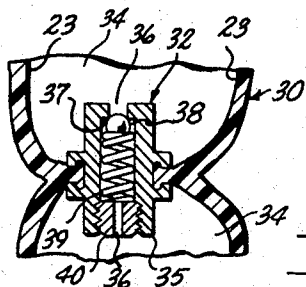


Fig. 10

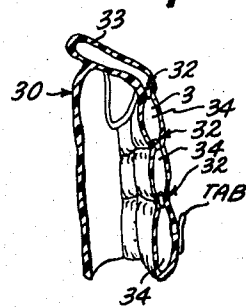


Fig. 11

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LIFE PRESERVER BUBBLE

BACKGROUND OF THE INVENTION

This invention relates to life preservers and more particularly to life preservers of the bubble and air pressure types which may be used on land and water.

1. Field of the Invention

This invention is particularly directed to the protection and preservation of life by assuring that an atmosphere to sustain life is at all times available to the user of the disclosed devices. When an atmosphere harmful or dangerous to the user exists, or if danger to life due to lack of attentiveness occurs the disclosed device is capable of eliminating or greatly reducing that hazard.

2. Description of the Prior Art

Life preservers of the life belt type have been provided on most mercantile marine and passenger ships together with various kinds of buoyant pillows, life jackets of india-rubber cloth and mattresses. The cork-mattress can float three men in an upright position and life belts made of cork covered with canvas are both strong and buoyant enough to hold upright a full-size man. None of these prior art devices, however, can assure the user of a sustaining atmosphere around him.

Life belts must have sufficient extra buoyancy to support a man heavily clothed with head and shoulders above the water. It must be securely fastened around the waist so as not to impede breathing or the muscular action of the chest or arms.

Life rafts of various types have been used and all have the need for preserving their buoyancy in case of upsetting, water absorption and some overloading. Additionally, the life raft must contain compartments for storing the life-sustaining needs.

One of the significant contributions of this invention is that the new and improved life-sustaining devices disclosed contain all the benefits of the prior art but additionally provide means for assuring the sustaining atmosphere around the user regardless of his position, condition, or reasonable length of exposure to harmful atmospheric conditions or environments.

SUMMARY OF THE INVENTION

In accordance with the invention claimed a new and improved life-preserving device is provided which employs a plurality of cooperating parts which when assembled assure the user of a life-sustaining atmosphere at least partially around him. In one form of the device a life-sustaining air bubble is arranged around the user so that he may comfortably exist in the bubble whether on land or sea for a reasonable length of time.

It is, therefore, one object of this invention to provide an improved inflatable water tight vessel or receptacle which when expanded and used on land or sea will sustain the weight of the individual or individuals' without rupturing or collapsing.

Another object of this invention is to provide a new and improved life preserver in which the wearer can at will withdraw into the preserver or project his legs and arms outwardly when he desires to propel himself.

A further object of this invention is to provide an improved life preserver in which the wearer can at will withdraw into and propel himself from within to move the preserver and himself along a surface.

A still further object of this invention is to provide an improved life preserver in which the wearer is sequen-

tially covered by the preserver until entirely encased to exclude water under all ordinary conditions.

A still further object of this invention is to provide a life saving apparatus which is made from modular units, one connected with another for buoyancy purposes and so connected together that rupture of one does not deflate the others.

A still further object of this invention is to provide an improved life preserver which is not limited to use on water or to the size of the user.

A still further object of this invention is to provide an improved life preserver which is of simple construction, light in weight and very strong and durable, which can be quickly adjusted to the user, and be easily stored.

Further objects and advantages of the invention will become apparent as the following description proceeds and the features of novelty which characterize this invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

BRIEF DESCRIPTION OF THE DRAWING

The present invention may be more readily described by reference to the accompanying drawings, in which:

FIG. 1 is a view showing the user pulling the life preserver device down over his head through a suitable opening and embodying the invention;

FIG. 2 is a view of the next sequential step of the user wherein each of his feet are placed in the life preserver, the hook shown in FIG. 1 is fastened to his clothing around his waist and the head of the user is pushed through the opening in the preserver;

FIG. 3 is a view showing the user in the life preserver with the opening closed and propelling the preserver by normal walking effort;

FIG. 4 is a view showing the user in a crawling position and propelling the life preserver;

FIG. 5 is a view showing the user in the preserver in a reclining position;

FIG. 6 is a cross-sectional view of the structure for closing the opening of the preserver;

FIG. 7 is a view of a large life preserver including life supporting supplies;

FIG. 8 is a new and improved life preserver of the vest type embodying the invention;

FIG. 9 is a cross-sectional view of FIG. 8 taken along the line 9-9;

FIG. 10 is a cross-sectional view of one of the valves interconnecting two juxtapositioned gas supporting modular units; and

FIG. 11 is a modification of the life preserver vest shown in FIGS. 8 and 9 wherein the back of the vest is free of air pockets.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more particularly to the drawings by character of reference, FIGS. 1-3 disclose a life preserving device of a bag, envelope or bubble shaped configuration 10 formed out of a pliable air and water impervious material such as one of the many plastic materials known in the art. This bubble 10 may be of any suitable size such as that shown in FIGS. 1-3 or of a larger living and storage compartment 11 as shown in FIGS. 4 and 5.

The bubble like configurations 10 and 11 are self-supporting, frameless enclosures which are inflated and

expanded to usable condition without distending the material to cause it to stretch and weaken. The material is, however, inflated enough to cause a hollow interior to exist which contains enough atmosphere to sustain life and to be refreshed through openings or by suitable air pumps for forcing air from the outside into the interior living compartment.

As shown in FIGS. 1-3 the bubble configuration 10 comprises a pliable, impervious material 12 having an opening 13 closed by a zipper 14. A hook 15 is secured to the inside of the bubble configuration at a position opposite to the opening 13.

To utilize the bubble like configuration 10 the user 16 slips his head and torso through unzipped opening 13 with his feet standing on a firm surface 17. He then pulls his feet into the bubble like configuration 10 and spaces them on premarked spots in the bag and sequentially fastens hook 15 to his belt 18. This action permits the user to pull his head out through opening 13 again to the atmosphere.

The opening is now zippered closed and the user may enter the water. If some air is forced out of the opening the impervious material 12, the user may travel with the bubble by walking or crawling on land or water as shown in FIGS. 2, 3 and 4. Fins or flanges 19 shown in FIG. 4 will help impel the bubble and act as paddle wheels.

The bubble configuration 11 shown in FIG. 4 serves as an igloo or shelter for outdoor use on land as well as water with the opening opened or closed as desired.

Each of the configurations 10 and 11 should contain some suitable means for providing compressed air to sustain life and keep the bubble like configuration properly expanded. FIG. 5 illustrates an air pump structure 20 and an air valve 21 which expels inside air out while maintaining a given inside atmospheric pressure caused by the admission of fresh air from pump 20. Each configuration shown may contain such air pump and pressure release devices.

As shown in FIGS. 1-3 the bubble like configuration 10 may be formed of a single layer material 12 or formed of a double layer material 23 as shown in FIGS. 4 and 5. The double layer material map contain trapped air between the layers to add to the buoyant effect of the material and the device.

In FIG. 5 opening 24 is shown with a collapsible collar 25 which as shown in FIG. 6 may be disformed to substantially close the opening and remain closed to protect the user from the elements outside.

In FIG. 5 the intent is to provide a shelter for land or sea which serves as a life preserving igloo. The user enters through opening 24 and collapses its collar 25 to close the opening.

FIG. 7 illustrates a tunnel like configuration 27 which may be formed of a double layer of material as shown in FIGS. 4 and 5 but provided with two openings 24 having collapsible collars 25 around each opening. This tunnel may serve as an igloo or a tunnel connection between two spaced objects.

FIGS. 8-10 disclose a life preserver vest 30 formed of the same type of double layer material 23 as shown in FIGS. 4 and 5. Each compartment of the device is formed by stitching or plastic welding 31 to separate each from the other and are interconnected by a one-way valve 32. This vest as shown in FIGS. 8 and 9 may be inflated by compressed air being forced into a collar 33 forcing air under pressure through the one-way

valve 32 substantially simultaneously into each vertical compartment 34 formed of a plurality of interconnected sections such as sections 34a, 34b, 34c and 34d.

As air under pressure in collar 33 is increased the valves interconnecting collar 33 and sections 34a of each vertical compartment 34 is inflated. The one-way valves 32 as shown in FIG. 10 comprise a valve housing 35 interconnecting juxtapositioned sections by a passageway 36. A valve seat 37 is formed in the high pressure end of passageway 36 and is closed by a valve 37 formed by a ball 38 which is normally spring biased to valve closed position by a spring 39. Spring 39 extends between a collar 40 and the downstream side of the ball 38.

As the pressure builds up in collar 33 of the vest 30 it overcomes the spring bias of spring 39 causing the valve ball 38 to be unseated compressing spring 39. Air under pressure then builds up in each of the compartments 34a until it overcomes the pressure of the spring 39 in the valve 32 interconnecting sections 34a and 34b. This buildup of pressure in sections 34a then unseats ball 38 of the valve structure causing the pressure to build up in section 34b. This sequence is continued until all of the sections of the vest have been inflated. When the pressure in sequentially connected sections is about equal the valves will reseat the ball valve elements closing each section from the next as well as each vertical compartment from any other vertical compartment.

The puncturing of any section in any compartment will deflate that section but since each section and compartment is separated from the next by valves 32 the vest will remain serviceable.

It is intended to be within the scope of this invention to be able to deflate substantially simultaneously any given portion of the vest by a single action. This could be accomplished by a pull tab opening a pre-weakened portion of the vest as shown in FIG. 11.

Since the configurations shown in FIGS. 1-10 may be made from plastic materials, the colors of the various sections may be made to suit the users.

FIG. 11 illustrates a modification of FIGS. 8 and 9 wherein the back of the vest may be made of a sturdy material such as nylon and free of any air pockets. Thus, if the user were unconscious, he would float face up.

Although but a few embodiments of the invention have been shown and described, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

What I claim is:

1. A device for protecting and preserving life comprising a waterproof pliable bubble-like surrounding envelope for the reception of a person, means for providing an entrance opening for said person, means for closing said opening, the shape of said envelope being distorted by the movement of said person in the envelope in a given direction causing movement of the envelope along a supporting surface, means for exhausting and refreshing the air of the interior of the envelope, said refreshing means keeping the envelope inflated, and a hook mounted inside said envelope at a position opposite said opening for hooking onto said person for aiding in positioning himself in said envelope.

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