

Aug. 30, 1938.

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2,128,423

LIFE PRESERVER

Filed June 5, 1935

2 Sheets-Sheet 1

FIG. 1.

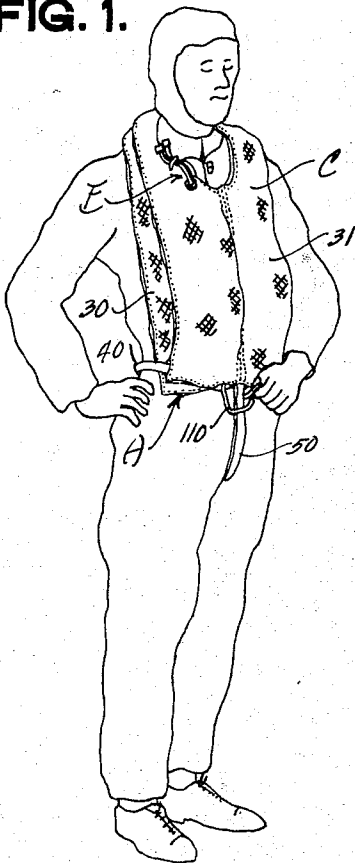


FIG. 2.

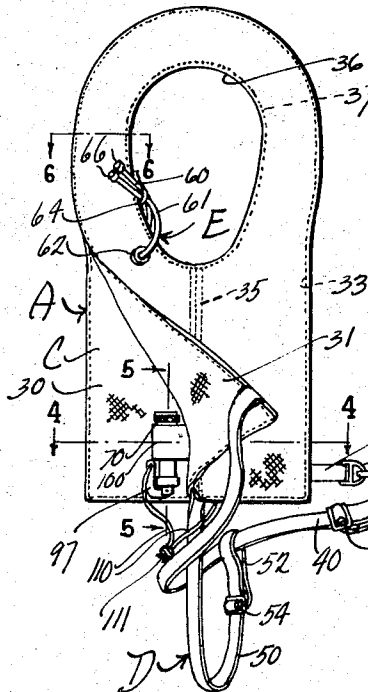


FIG. 3.

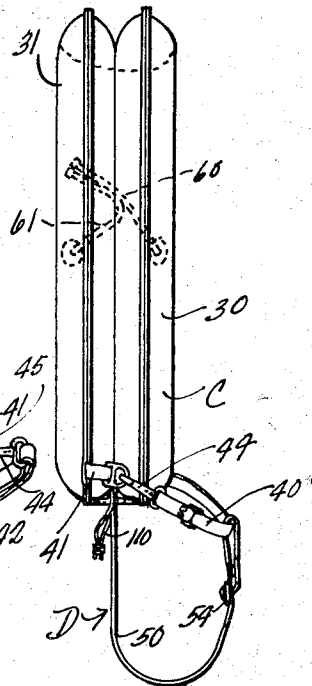


FIG. 5.

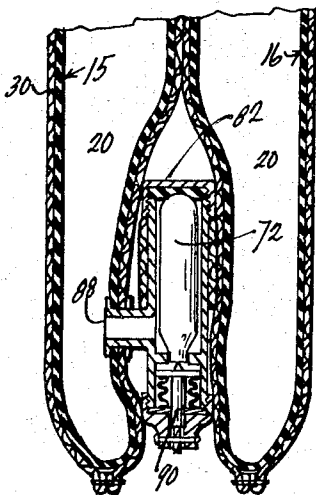


FIG. 4.

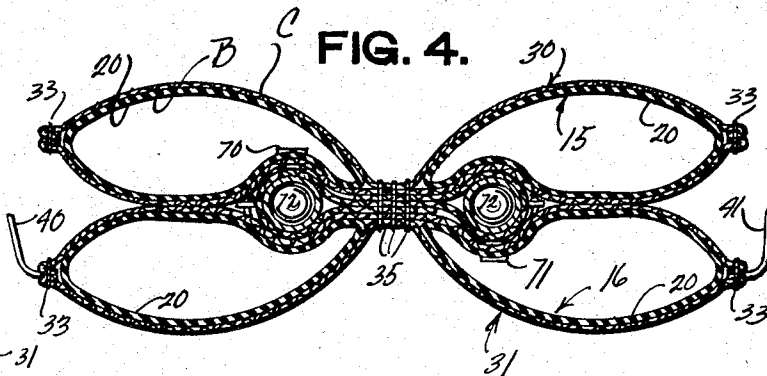
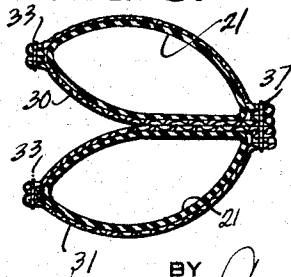


FIG. 6.



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FIG. 7.

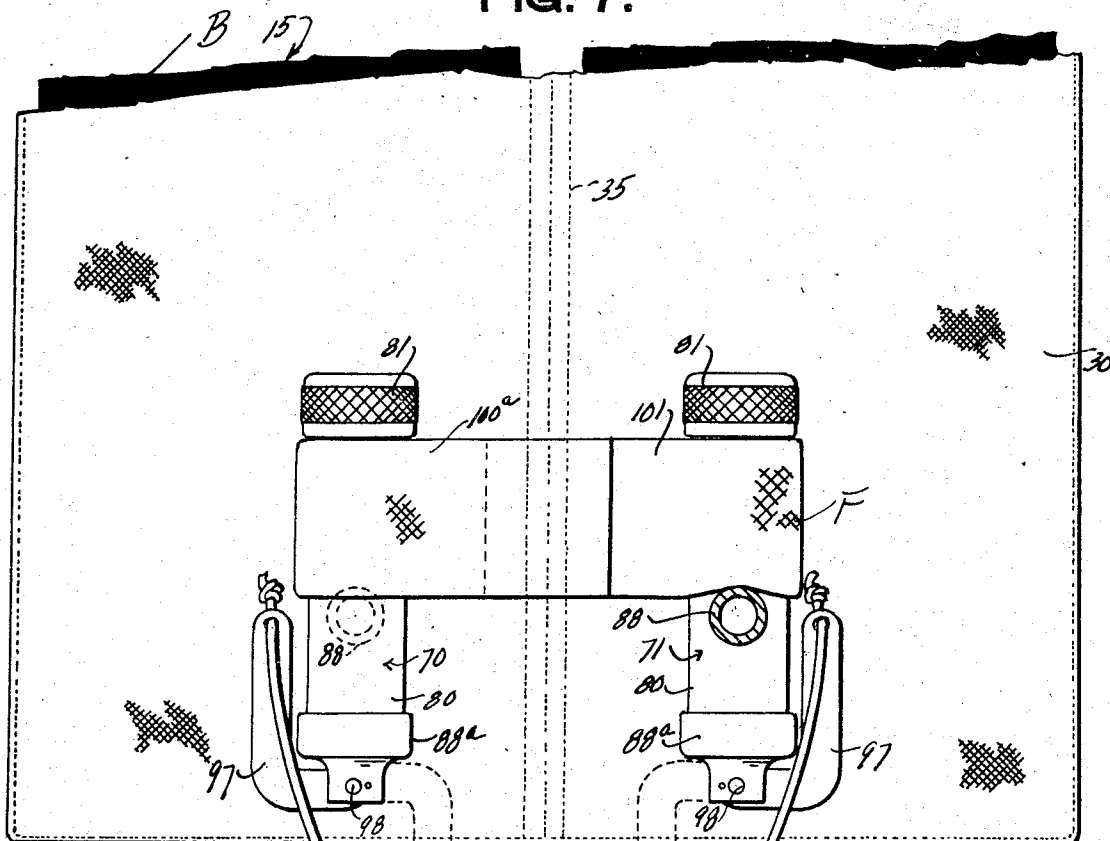
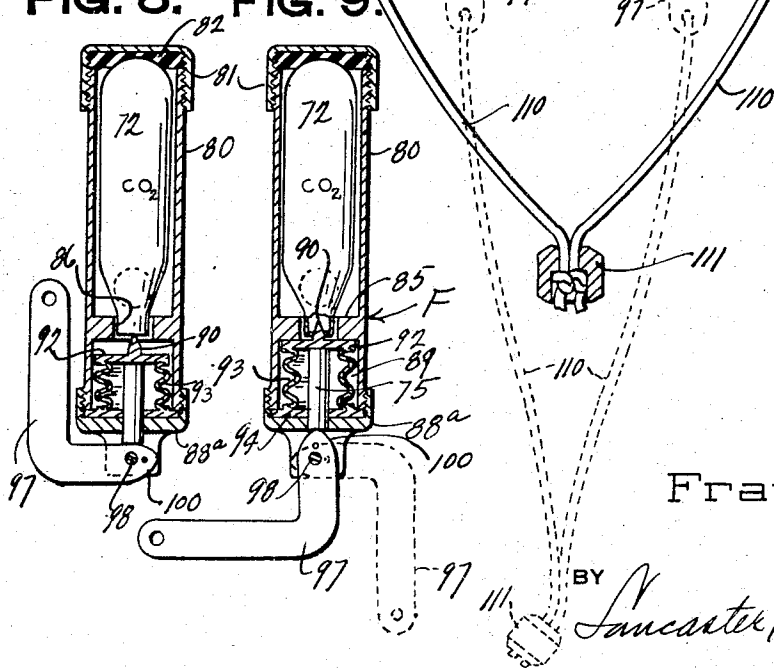


FIG. 8. FIG. 9.



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LIFE PRESERVER

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Application June 5, 1935, Serial No. 25,167

9 Claims. (Cl. 9-19)

This invention relates to improvements in life preservers.

The primary object of this invention is the provision of a life preserver which may be worn as part of regular equipment of an aviator or other person subjected to water hazards. It is preferably of an inflatable character and is worn in a deflated condition without discomfort; improved means being provided to readily inflate the same either automatically or by mouth.

A further object of this invention is the provision of an improved life preserver having an inflatable bladder construction so designed as to most efficiently support a person in water.

A further object of this invention is the provision of improved means for applying a life preserver to the body of a wearer.

A further object of this invention is the provision of improved life preserving inflating means.

Other objects and advantages of this invention will be apparent during the course of the following detailed description.

In the accompanying drawings, forming a part of this specification, and wherein similar reference characters designate corresponding parts throughout the several views,

Figure 1 is a view of an individual having the improved life preserving apparatus applied upon his body.

Figure 2 is a front elevation of the improved life preserver, showing more particularly the arrangement of details thereof.

Figure 3 is a side elevation of the life preserver.

Figures 4, 5 and 6 are cross sectional views taken substantially on their respective lines in Figure 2 of the drawings.

Figure 7 is a fragmentary view showing the improved automatic inflating means for the bladders of the life preserver.

Figures 8 and 9 are views showing cylinders containing the compressed inflating medium, such as carbon dioxide, and the holding and operating means therefor; Figure 8 showing the operating means in inactive position, and Figure 9 after the operating means has punctured the cylinder for releasing the inflating medium.

In the drawings, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may generally designate the improved life preserving device, which may consist of a bladder arrangement B encased within a fabric jacket construction C. Means D is associated with the life preserver for attaching the same upon the body of the wearer. Mouth inflating apparatus E is used for inflating

the construction B, and means F is provided for automatic inflation of the bladder construction.

Referring to the general characteristic of the life preserving device A, the same is in the form of a vest and so arranged that the major buoyant area of the vest is disposed at the front of the wearer, with the buoyant area extending therefrom over the shoulders and around the back at the neck of the wearer so as to most efficiently support the wearer in water, face uppermost with the head lifted above the surface of the water.

Referring to the bladder construction B, the same comprises a pair of bladders 15 and 16, each of inverted U-shaped construction. Preferably latexed rubber is used. Each of the bladder sections 15 and 16 includes the vertical portions 20 arranged in parallel relation. They are reduced at their upper ends and joined together by the inverted U-shaped portion 21 which is of a section smaller than the cross section of the vertical portions 20, as can be understood from Figures 2, 4 and 6 of the drawings. These bladders 15 and 16 are disposed in a superposed conforming relation, and they are held in this assemblage by means of the jacket construction C.

The jacket construction C may be of any approved fabric. It is preferably mercerized and sanforized dyed cotton twill. Its purpose is to snugly enclose the bladders 15 and 16. To that end a fabric section 30 is provided for the bladder 15 and a fabric section 31 is provided for the bladder 16. These fabric sections are each formed of double walls sewed together around the outer marginal edges thereof at 33 and defining a lower substantially rectangular shaped wall panel and the upper ring-shaped panel having a neck receiving opening 36, as shown in Figure 2 of the drawings. The two sections 30 and 31 are stitched together at 35, down the center of the lower rectangular section, and are likewise marginally stitched together at 37 around the neck opening 36, as shown in Figure 2 of the drawings. The two fabric sections 30 and 31 are not stitched together around the outer margins thereof, but only along the stitching points 35 and 37, so that with this arrangement the fabric sections and bladders are held in an assembled relation permitting of maximum inflation and manipulation of the sections comprising the life saving vest or jacket.

Referring to the means D for holding the life preserver upon the body of the wearer, it is of course understood, as shown in Figure 1, that the head of the wearer is slipped through the opening 36. The front section 31 of the fabric jacket, at

opposite margins, and the lower end thereof has the sections 40 and 41 of a waist strap construction secured thereto. The section 40 may be adjustable in length by reason of doubling itself at the end thereof and securing the adjustment by an adapter 42. This doubled portion of the strap section 40 has a snap fastener 44 thereon of any approved construction. The strap section 41 is relatively short and has a ring 45 secured to the outer end thereof with which the complementary snap fastener 44 cooperates in detachably securing the waist strap about the wearer. A crotch strap 50 is preferably secured at an end thereof to the lower end of the life preserver jacket C at the end of the stitched seam 35. At its free end it has an adjustable loop 52 secured by an adjusting adapter 54. The waist strap is threaded through this loop 52 in order to hold the position of the crotch strap between and beneath the legs of the wearer, as is shown in Figures 1, 2, and 3 of the drawings.

Referring to the mouth inflating means E, the same preferably consists of rubber tubes 60 and 61 for the bladders 15 and 16 respectively, secured in sealed relation therewith and extending through suitable eyelets 62 in the jacket construction. They are connected with the bladders 15 and 16 adjacent the margin of the neck opening towards the lower front portion thereof. These tubes 60 and 61 are secured together by a strap loop 64 attached in the neck opening 36. They have air check valves 66 which permit the inflation of the bladders merely by blowing air into the same. As shown in Figure 1 the mouth inflating tubes and valves are conveniently accessible to the mouth of the wearer of the life preserver.

Referring to the automatic means F for inflation of the bladders 15 and 16, the same comprises metallic holders 70 and 71, preferably of identical construction, respectively connected by means of vents with the bladders 15 and 16, and adapted to receive therein carbon dioxide cylinders 72. Each holder 70 and 71 has associated therewith means 75 for puncturing the cylinders 72 and permitting escape of the inflating medium into the respective bladder associated therewith, for inflating the same automatically.

Each of the holders 70 and 71 includes a cylindrical shaped body 80 provided with a screw threaded detachable cap 81 at the upper end thereof. This cap has therein a gasket and cushion member 82 to seal the body 80 against escape of the inflating medium when the cap 81 is screwed tight upon the body, and it also furnishes a buffing seat for the dead end of the CO₂ cylinder 72. The body 80 short of its lower end is provided with an apertured supporting partition 85 whereon the cylinder 72 may rest, and which has the vent opening 86 therein. The holder body 80, as more clearly shown in Figure 5 of the drawings, has a lateral vent boss 88 which is riveted in sealed connection with the bladder and jacket, to permit of escape of the inflating medium from the holder into the bladder compartment, as the case may be. Of course the holder 70 has vent connection with the bladder 15 and the other holder 71 has a similar vent connection with the bladder 16, as is indicated in Figure 4.

The end of the holder body 80 opposite the cap 81 is provided with a detachable screw threaded cap 88. In the small compartment 89 between the partition 85 and the cap 88 there is disposed a plunger pin 90, comprising part of the

operating means 75, which is mounted upon a movable end plate 92 of a syphon bellows or diaphragm 93. The opposite end plate 94 of this diaphragm is secured by the cap 88^a in position on the body. The plunger pin 90 of course moves with the diaphragm plate 92, and it extends axially through the diaphragm bellows 93 and through a center opening in the end wall of the cap 88^a. The cap 88^a furthermore has a pair of spaced lugs interiorly thereon to which an L-shaped operating lever 97 is pivoted as at 98. The plunger pin 90 rests against this lever 97 and the latter is provided with a cam end 100 which actuates the plunger as the lever is moved from an upright L position to a downward inverted position, as represented in the extreme positions of this lever in Figures 8 and 9 of the drawings. If desired, a gasket construction may seal the cap 88^a upon the holder body 80, but the diaphragm bellows plays a part in sealing the inflating gasket against escape at the connection of the cap 88^a, since pressure of the gas when released from the cylinder 72 will press the diaphragm walls into sealing contact with the inside of the body 80, surrounding the same.

As to operation of the plunger mechanism to puncture the CO₂ cylinder 72, in Figure 8 it is shown that the plunger pin rests in position against the puncturable end of the cylinder 72. A downward pull upon the lever 97 will move the cam end of the lever against the plunger pin 90, moving the same into position for puncturing the cylinder 72. Thereafter with the lever in the dotted position shown in Figure 9 gases will of course escape from the cylinder 72 at the punctured end thereof, and enter the bladders 15 and 16 for instantly inflating the same. Inasmuch as the holder 80 is sealed against escape of gas it is apparent that there will be no leakage.

Means is provided to secure the holders 70 and 71 in proper vertical position. This means consists of a strip of fabric defining looped portions 100^a and 101 detachably wrapped around the bodies of the holders 70 and 71, at the upper ends of the bodies 80 thereof, above the lateral by-pass openings 88. This strip of fabric is stitched to and secured at the stitching seam 35 between the fabric jacket sections 30 and 31, as indicated in Figures 4 and 7 of the drawings. The movable ends of the levers 97 are apertured and have secured therewith operating cords or cables 110 which are joined together at their free ends at 111. A pull at this end 111 will operate both levers 97 simultaneously and puncture the cylinders 72 for instant inflation of the two bladders simultaneously.

It is of course within the contemplation of the invention to have a stationary plunger pin and move the cylinder 72 with some sort of operating mechanism as shown by the cam ended lever 97.

In order to safeguard the operating mechanism against accidental release of the inflating medium, a suitable break cord or wire may secure the L-shaped operating levers 97 in their upright positions upon the holders.

It will readily be seen that by disposing the CO₂ cartridge holders between the superposed compartments of the buoyant life preserving vest, one on each side of the center seam, they are protected and placed where they will not interfere with or prove inconvenient to the wearer.

Various changes in the shape, size, and arrangement of parts may be made to the form of invention herein shown and described, without

departing from the spirit of the invention or the scope of the claims.

I claim:

1. A life preserver comprising a pair of inverted U-shaped bladders, a casing housing the bladders in superposed relation and providing a head inserting opening at the bight of the U-shaped bladders, so that the bights will lie at the back of the head of a wearer with the other portions of the bladders extending over the shoulders and lying at the front of the wearer, and other means for holding the casing and bladders in such relation upon the body of the wearer.

2. A life preserver comprising a pair of inverted U-shaped bladders, a casing housing the bladders in superposed relation and providing a head inserting opening at the bight of the U-shaped bladders, other means for holding the casing and bladders in definite relation upon the body of the wearer, mouth inflating means to permit of simultaneous inflation of both of said bladders, and means for simultaneous automatic inflation of both of said bladders.

3. A life preserver comprising a pair of inverted U-shaped bladders, a casing housing the bladders in superposed relation and providing a head inserting opening at the bight of the U-shaped bladders, other means for holding the casing and bladders in definite relation upon the body of the wearer, and means for simultaneous automatic inflation of both of said bladders.

4. In a life buoy the combination of a pair of bladders shaped to define a head inserting opening, jacket means for the bladders securing them together, individual means for automatic inflation of each of said bladders, and means to simultaneously actuate said last mentioned means.

5. In a life buoy the combination of a pair of inverted U-shaped bladders, fabric casings for said bladders each including a lower portion receiving the ends of the legs of said U-shaped bladders therein and an upper arched portion having a head inserting opening and housing the bight of the U-shaped bladders, and means stitching said jackets together at a seam extending around their margins defining the head inserting opening and at a seam extending from the head inserting opening down the center of the lower portions of the jackets whereby to leave the jackets free of outer marginal connection to permit of expanded inflation of said bladders and their jackets.

6. In a life buoy the combination of a pair of inverted U-shaped bladders, fabric casings for said bladders each including a lower portion receiving the ends of the legs of said U-shaped bladders therein and an upper arched portion having a head inserting opening therein and

housing the bight of the U-shaped bladders, means stitching said jackets together at a seam extending around the margin of the head inserting opening and at a seam extending from the head inserting opening down the center of the lower portions of the jackets, the jackets otherwise being free of relative connection to permit expansion of said bladders and means for automatic inflation of said bladders comprising individual compressed gas cartridges for the bladders disposed between the jackets in the lower portion of the life buoy.

7. A life buoy comprising a pair of elongated bladders, independent jackets housing the bladders therein, said jackets and bladders being of a shape to define an opening adapted to receive some part of a wearer in a fitting relation thereabout, said jackets being relatively connected merely around the margins of said opening with the jackets relatively disconnected from said opening directionally outward therefrom to permit of free and unrestricted expansion of the bladders and expansion of the jackets, means for inflation of said bladders comprising inflation devices for each of the bladders disposed in the space between the jackets in a guarded relation therebetween, and means to simultaneously actuate said inflation devices for automatic inflation of said bladders.

8. In a life buoy the combination of a pair of inverted U-shaped bladders, fabric casings for said bladders each including a lower portion receiving the ends of the legs of said U-shaped bladders therein and an upper arch portion having a head inserting opening and housing the bights of the U-shaped bladders, and means stitching said lower portion of the jackets together at a seam extending from the head inserting opening down the center of the lower portions of the jackets between the legs of the bladders whereby to leave the jackets free of outer marginal connection to permit of expanded inflation of said bladders and their jackets.

9. In a life preserving buoy the combination of a pair of bladders defining a head inserting opening, a fabric jacket for each of said bladders in superposed relation, means for securing the fabric jackets together comprising a seam around the margin of the head inserting opening and a middle seam connection extending from said head inserting opening in a direction substantially radial thereto to adjacent the outer edges of the jackets, with the outer marginal portions of said jackets otherwise disconnected to permit of expanded inflation of said bladders and their jackets beyond said seams.

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