June 3, 1969 S. SULLIVAN 3,447,175

INFLATABLE BODY-ATTACHMENTS FOR MARINE LIFESAVING

Filed Dec. 26, 1967

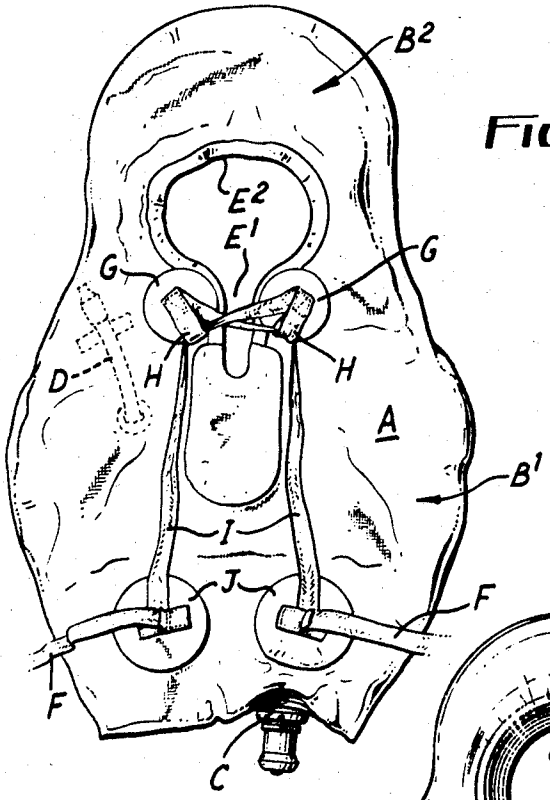


FIG. 1.

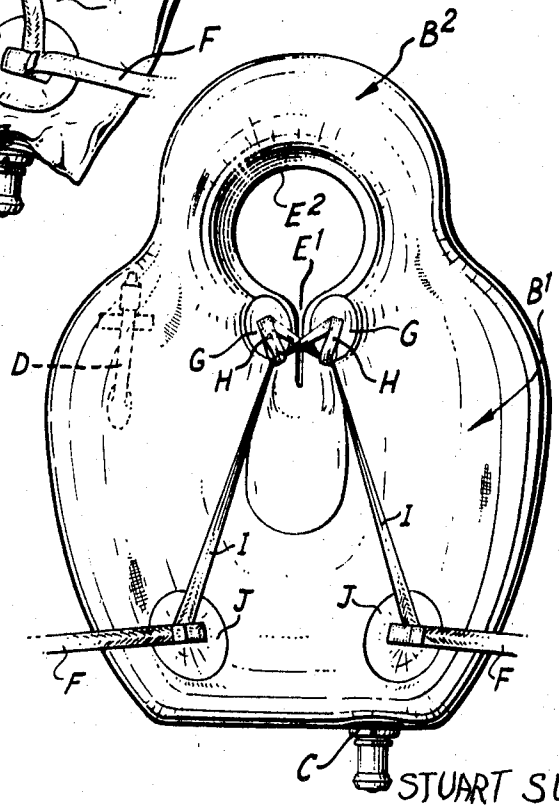


FIG. 2.

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United States Patent Office 3,447,175
Patented June 3, 1969

3,447,175

INFLATABLE BODY-ATTACHMENTS FOR MARINE LIFESAVING

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Filed Dec. 26, 1967, Ser. No. 693,491
Claims priority, application Great Britain, Jan. 5, 1967, 702/67
Int. Cl. B63c 9/16
U.S. Cl. 9—316 4 Claims

ABSTRACT OF THE DISCLOSURE

An inflatable lifejacket comprised of two similar superimposed panels of flexible material, formed to present a keyhole shaped aperture for the head of a wearer and flexible means attached to one panel to decrease the effective size of the aperture automatically upon inflation of the life jacket.

This invention relates to inbatable body-attachments for marine lifesaving, with particular reference to that type of appliance which comprises two similar superimposed panels of a flexible impermeable material united at their inner and outer peripheries to provide an unitary envelope with an aperture near one end for the reception of the wearer's neck, such envelope when inflated providing a main buoyancy chamber adapted to overlie the upper part of the chest when the appliance is correctly positioned and a secondary buoyancy chamber or headrest at the sides of, and behind, the neck aperture.

With this type of appliance, generally termed the "one-piece" lifejacket to distinguish it from the "split-stole" type with two main or front lobes connectable across the chest, it is known practice so to design the neck-encircling portion that after inflation it will resist passage of the wearer's head through the aperture aforesaid.

For example, in the jacket described in our prior British patent specification No. 673,035, the neck aperture is of keyhole shape to allow the jacket to be pulled over the head before inflation, subsequent distention of those parts of the envelope which define the narrow portion of the envelope resisting their separation and causing the wider part of the aperture closely to confine the wearer's neck.

Experience with such jackets, however, has shown that if the wearer drops into water from a substantial height, it is by no means unusual for the upthrust on the inflated headrest portion of the jacket to roll it forwardly over his head, leaving him supported solely by the waist tapes or their equivalent which are intended to position the main buoyancy chamber over his chest.

Such partial displacement of the jacket, besides being painful to the wearer, may well have fatal consequences should he be unconscious, or rendered so, on entering the water and hence unable quickly to re-position the appliance upon his body.

The object of the present invention is to provide simple means whereby the risk aforesaid is eliminated independently of the act of securing the appliance around the waist of the wearer.

According to this ivnention, in an inflatable lifesaving appliance of the type referred to and having a keyhole-shaped neck aperture, each of those parts of the envelope which define the narrow portion of such aperture has anchored thereto a flexible member which passes through a loop on the opposing part to a second anchorage on the lower part of the main buoyancy chamber, the inflation of the latter being arranged to tension the two flexible members and hence mechanically to close the narrow portion of the neck aperture.

In the accompanying drawings:

FIG. 1 is a plan view of one form of lifejacket embodying the present invention and shown before inflation, whilst

FIG. 2 is a plan of the same jacket in inflated condition.

The envelope of the "one-piece" lifejacket illustrated is produced in known manner by marginally unitting two similar apertured panels A of rubberized fabric to provide a main buoyancy chamber B^1 intended to overlie the wearer's chest and a secondary buoyancy chamber B^2 around the neck aperture of the appliance.

Provision is made for self-inflation of such envelope from a cylinder C of compressed gas disposed internally or externally thereof, as well as for oral inflation through a valved tube D which projects from one of the panels A.

The neck aperture aforesaid is of keyhole shape with a narrow or slot portion E^1 approximately equal in length to the diameter of its wide or circular portion E^2, the overall length of the aperture being such that the uninflated appliance can readily be pulled over the wearer's head prior to location upon his body by means of waist-encircling tapes F connected to the lower corners of the main buoyancy chamber B^1.

Adjacent each of the corners formed where the circular portion E^2 of the neck aperture joins the slot portion E^1 thereof, one panel A of the envelope is reinforced by a cemented fabric patch G to which is sewn a loop H of nylon tape and one end of a suitable length I of the same material.

Each tape I has its free end threaded through the loop H at the opposite side of the aperture's narrow part E^1 and brought lengthwise of the envelope to a second anchorage patch J near the lower end of the main buoyancy chamber B^1.

The patch J may be one to which the adjacent waist-tape F is connected, or alternatively both of the threaded tapes I may be secured to a common anchorage on the medial line of the panel A.

Assuming that the uninflated envelope is laid out flat and that the crossed nylon tapes I are rectilinear from their upper attachments G to the loops H through which they respectively pass, the length of tape I left below each loop H must be less than the distance from the latter to the lower anchorage J of such tape; in other words, the attachment of the lower ends of the tapes I is effected whilst the envelope is longitudinally deformed as shown in FIG. 1.

It will be appreciated that, with such an arrangement, the nylon tapes I in no way hamper the pulling of the uninflated jacket over the wearer's head, since they run freely through their loops H when the neck aperture is extended laterally and merely cause the lower part of the main buoyancy chamber B' to be further drawn up.

On inflation, however, to the form shown in FIG. 2, the natural tendency of the expanding jacket to straighten itself out tensions the nylon tapes I, which thereupon positively and automatically draw together the envelope portions bounding the narrow part E' of the keyhole aperture which thereafter securely confines the wearer's neck and effectively locates the jacket in position regardless of how loosely the waist-encircling tapes F are tied.

Although the automatic adjustment means above described will normally be provided at the inner face of the jacket, it should be understood that the invention is equally applicable to reversible jackets, such as that forming the subject of our prior British patent application No. 13430/65, in which the waist-encircling tapes are slidably engaged with two loops of flexible material which extend around opposite lateral edges of the lower part of

the appliance and each of which has its ends secured to opposite faces of the latter.

I claim:

1. A lifesaving appliance comprising two similar superimposed panels of flexible impermeable material each with an eccentric neck-receiving aperture therein and united at their inner and outer perpheries to provide an inflatable envelope with front and rear buoyancy chambers, means for inflating said envelope said neck-receiving aperture being of keyhole shape with its narrow portion extending medially of said front chamber, two loops attached to one of said panels at opposite sides of said narrow aperture portion, and two flexible restraining members attached to the same panel, respectively adjacent the attachment points of said loops and connecting such points to the further end of said front chamber, such restraining members respectively passing through the loops at the sides of said narrow aperture portion remote from their own attachment points and being of such lengths as to be tensioned on inflation of said envelope to thereby automatically constrict said narrow aperture portion.

2. A lifesaving appliance as claimed in claim 1 and having external reinforcing patches to which said loops and

restraining members are sewn, said loops and members being formed of tape.

3. A lifesaving appliance as claimed in claim 1, wherein said restraining members have a common anchorage at the end of said front chamber.

4. A lifesaving appliance as claimed in claim 1 and having waist-attachment tapes secured to the end of said front chamber adjacent the anchorages of said restraining members thereto.

References Cited

UNITED STATES PATENTS

2,784,426	3/1957	Boyle	9—333
3,068,500	12/1962	Silverman et al.	9—338

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U.S. Cl. X.R.

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