

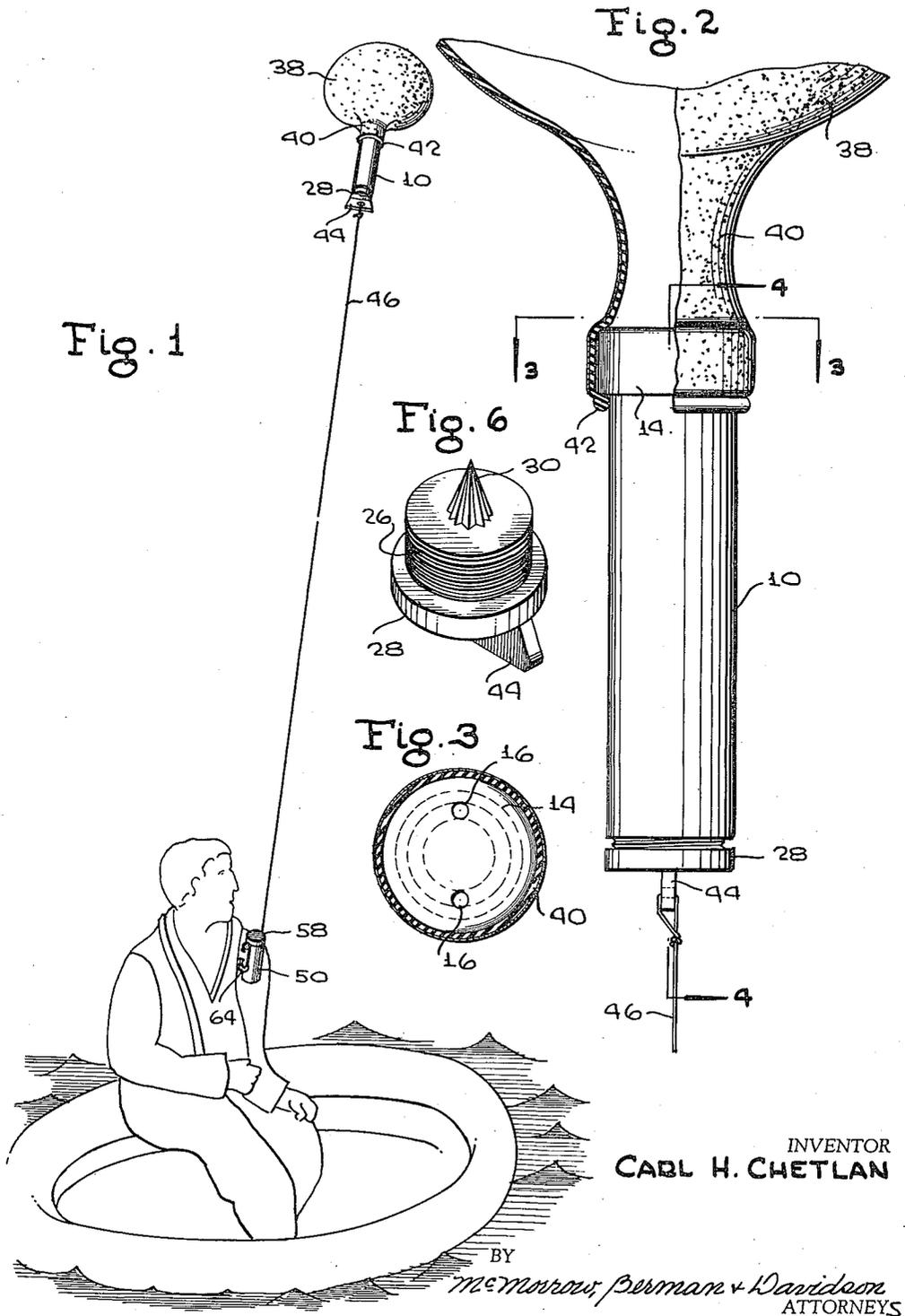
July 21, 1953

C. H. CHETLAN
SIGNAL BALLOON

2,646,019

Filed Sept. 14, 1951

2 Sheets-Sheet 1



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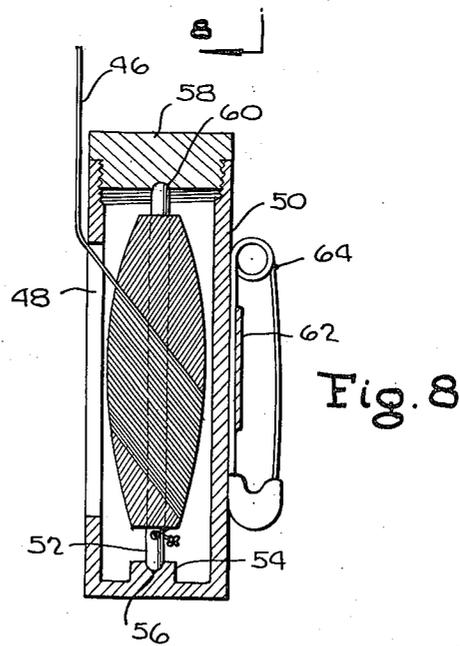
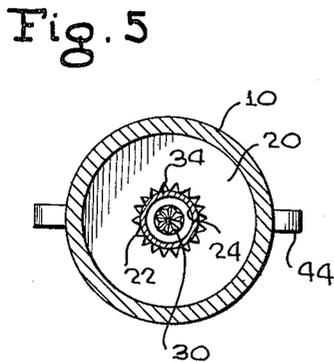
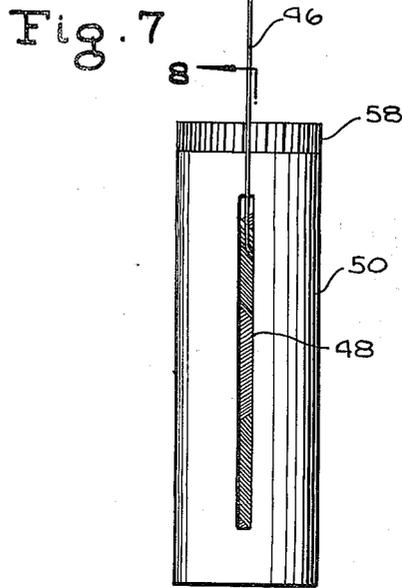
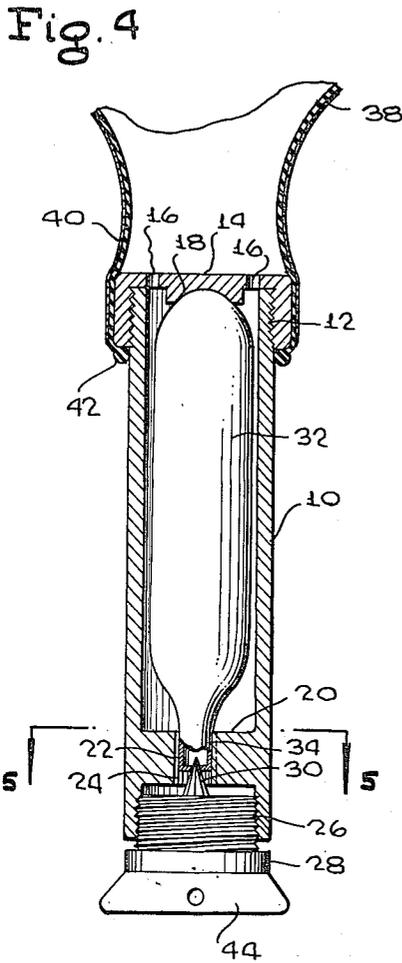
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SIGNAL BALLOON

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2 Claims. (Cl. 116—114)

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This invention has general reference to signal balloons, and more specifically, relates to a signal balloon especially adapted for lifesaving purposes.

One important object of the present invention is to provide a signal balloon as described which may normally be packed in a compact kit or the like, and carried upon the person, upon a life raft, or upon some other object the position of which is to be indicated so that a rescue may be effected.

Another important object is to provide a signal balloon as described which may be packed in a collapsed condition, but in operative association with an inflating medium, so that the balloon may be readily inflated and raised when necessary.

Yet another important object is to provide a signal balloon of the type stated in which the casing carrying the balloon and the balloon-inflating means is connected to one end of a cord wound upon a reel attachable to the clothing of a person to be rescued, so that the balloon when inflated can rise to a substantial height while remaining connected directly, through the medium of the cord, to said person.

Still another object is to provide a signal balloon of the character described which can be manufactured at relatively low cost, considering the benefits to be obtained thereby, will be simple in design, and efficient in operation.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference numerals designate like parts throughout the several views, and wherein:

Figure 1 is a perspective view of a signal balloon formed in accordance with the present invention as it appears when inflated and in use by a person to be rescued;

Figure 2 is an enlarged side elevational view, a portion of the balloon being broken away, the reel and reel casing not being shown;

Figure 3 is a transverse sectional view taken on line 3—3 of Figure 2;

Figure 4 is a longitudinal sectional view through the housing containing the inflating element;

Figure 5 is a sectional view, on an enlarged scale, taken substantially on line 5—5 of Figure 4;

Figure 6 is a perspective view of the cap mounted upon the outer end of the housing illustrated in Figure 4;

Figure 7 is a side elevational view of the reel casing; and

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Figure 8 is a longitudinal sectional view through the reel casing, taken substantially on line 8—8 of Figure 7.

Referring to the drawings in detail, the invention includes a tubular housing 10 the upper end of which is formed open. External threads 12 are provided upon the upper end of the housing 10, and engage the depending peripheral flange of a cap 14 that closes said open end of the casing. The cap 14 is provided with a plurality of outlet ports 16. In the present instance, two such ports have been illustrated, these being diametrically arranged as may be readily noted from Figure 3. However, I believe it will be apparent that more or less openings can be formed in the cap 14, and that the particular relative arrangement and spacing of said openings may be varied if desired.

Formed in the inner surface of the cap 14 is a centrally disposed concavity 18.

Contiguous to the other end of the housing 10, a transverse partition 20 is provided, this being integral, in the present instance, with the wall of said housing. The partition 20 has a centrally located aperture 22 extending therethrough, the wall of the aperture being formed with a circumferential series of radial ribs 24 (Figure 5) extending from end to end of the aperture.

Between the partition 20 and the outer end of the housing 10, the housing is provided with internal threads 26, that are engageable with the threaded neck of a plug 28. The plug 28 (Figure 6) is formed at its inner end with a conical, fluted prong 30, that is adapted to extend into the opening 22 when the plug is rotated in a direction to thread the plug into the housing.

Contained within the housing 10 is a bottle 32, preferably of metal material, which is adapted to contain a suitable balloon-inflating element, such as helium gas or the like. At its upper end, the bottle 32 is rounded complementarily to the concavity 18, thus to hold the upper end of the bottle 32 in properly centered position within the housing 10.

At its lower end, the bottle 32 is tapered to form a neck 34 of small diameter, that extends into the opening 22. As may be noted from Figure 5, the neck 34 is so proportioned as to be engaged by the several ribs 24 of the aperture 22, and thus the ribs coact with the concavity 18 at the other end of the housing to hold the bottle 32 against movement within the housing. Further, the tapered formation at the lower end of the bottle predetermines the extent to which the bottle extended into the opening 22.

As a result, the bottle is properly positioned

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for engagement by the prong 30 when the plug 28 is threaded into the housing 10, and on inward threading of the plug to the proper extent, the prong 30 will puncture the small end of the bottle 32, thus to permit the gas to escape. The gas escapes through the spaces between the flutes of the conical prong 30, and will move upwardly through the spaces defined by and between the several ribs 24. Since the wall of the bottle is spaced inwardly from the wall of the housing 10 (see Figure 4), the escaping gas passes along the bottle 32, and is discharged through the ports 16, so as to pass into a balloon member 38 and inflate the same.

The balloon member 38 is provided with a neck 40, and at the mouth of the balloon an annular bead 42 is provided, that engages under the flange of the cap 14, said flange distending the neck of the balloon to hold said balloon securely upon the housing 10.

Upon the outer end of the plug 28, I provide a wing 44, for convenience in rotating the plug. The wing 44, in addition, is apertured for connection of a cord 46 to the plug. The cord 46 (Figures 7 and 8) extends through a longitudinal slot 48 formed in a tubular reel casing 50, and is wound upon a spindle 52 extending longitudinally and centrally of said casing.

The reel casing 50, at one end thereof, is permanently closed, and a boss 54 is formed upon the closed end of the casing, said boss extending inwardly of the casing and being provided with a recess 56 receiving one end of the spindle 52.

The other end of the reel casing 50 is formed open, and is internally threaded for engagement with the threads of a closure cap 58 having a spindle receiving recess 60 formed in its inner surface. Thus, the spindle 52 is mounted for rotation within the reel casing 50, and as will be obvious, threading of the cap 58 inwardly of the reel casing may be resorted to for the purpose of inhibiting or preventing completely rotation of the spindle, if desired.

Formed upon the outer surface of the reel casing 50, intermediate opposite ends of said casing, is a longitudinal rib 62, which is apertured longitudinally to receive a pin 64. The pin 64 can be a conventional safety pin or the like, and is attachable to the clothing of a wearer, or to any other suitable object.

Considering the formation of the balloon member 38, I prefer that the balloon member be of a fluorescent or luminous material, so as to glow in darkness. Further, it is preferred that the balloon member contain iron oxide or some other suitable material which can be detected by radar or the like.

In use, the lifesaving device illustrated and described is normally packed in a suitable kit, with the balloon member in collapsed condition. For example, the balloon member can be collapsed, and folded against the housing 10, and said housing can be clipped or otherwise releasably connected to the reel casing 50. The entire device can thereafter be pinned upon the clothing of a person, so as to be readily available for use in the event said person subsequently requires rescue.

When the device is to be placed in use, it is necessary merely to thread the plug 28 upwardly within the housing 10, so as to cause the prong 30 to puncture the bottle 32. The balloon member will thereupon be inflated immediately and will tend to rise in the air, unwinding the cord

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46 from the spindle 52. The cord 46, in this connection, should be of some highly durable material, such as nylon or the like.

The cord 46, of course, can be of any suitable length, and desirably, can be formed to a length of perhaps 50 to 150 feet.

The signal balloon, when elevated, provides a clearly visible object capable of being readily detected by rescuers, so that the position of a person lost upon the water will be clearly indicated to the rescuers.

Obviously, the device has application not only at sea, but also, can be used by persons lost in jungles, mountains or wooded country. Most usually, the balloon member would be of a brightly colored material intended to afford a brilliant contrast with the surroundings, so as to be given the characteristic of high visibility in the daytime.

It is believed clear that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor changes in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. In a lifesaving device; a balloon member having a neck; a tubular housing including a removable cap at one end; said cap extending into and being embraced by the neck of said balloon member; there being ports in said cap providing communication between the balloon member and the interior of said housing; a bottle having one end closed and having the other end terminating in a closed neck positioned wholly within said housing and spaced from the wall of said housing with the closed one end engaged with the interior surface of the cap and the closed neck extending axially toward the other end of said housing; said bottle being adapted to contain a balloon inflating element; a transversely disposed partition adjacent to and spaced from the other end of said housing; said partition having an aperture through which extends the closed neck of the bottle; the wall of said aperture being fluted to permit escape of the inflating element between the closed neck of the bottle and the wall of the aperture when the bottle is punctured; and a plug threaded in said other end of the housing and having a fluted prong on its inner end arranged to extend into the aperture to puncture the end of the closed bottle neck responsive to threading of the plug inwardly of the housing, for release of said element to pass through the aperture and into the space between the bottle and the housing side wall for discharge through the ports to inflate the balloon member.

2. In a lifesaving device, a balloon member; a relatively elongated, cylindrical, hollow housing having external threads at one end and internal threads at its other end; a removable cap for said one end of the housing, said cap having an internally threaded, peripheral flange engageable with the external threads of the housing for adjustment of the cap longitudinally of the housing, said cap having a plurality of ports formed in the marginal area thereof and providing communication between the balloon member and the

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interior of the housing, the flange of said cap defining an enlargement upon said one end of the housing about which the mouth portion of the balloon member may be distended to secure the balloon member to the housing, said cap having a centrally disposed concavity opening into the housing; a sealed bottle removably mounted within the housing and having its side wall spaced from the side wall of the housing, to define an annular flow passage surrounding the bottle within the housing, said ports of the cap being in communication with said flow passage at one end of the flow passage, said bottle being rounded at one end for engagement of the bottle within the concavity, the bottle being adapted to contain a balloon-inflating element; a partition integrally formed upon the housing adjacent said other end of the housing and formed with an aperture proportioned to receive the other end of the bottle, so as to cooperate with the concavity in holding the side wall of the bottle in spaced relation to the side wall of the housing, threadable adjustment of the cap longitudinally of the housing in the direction of the partition being effective to fixedly engage the bottle within the housing in said spaced relation to the side wall of the hous-

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ing, the wall of said aperture being fluted to permit escape of the inflating element between said other end of the bottle and the wall of the aperture when the bottle is punctured, thereby to lead the inflating element into said flow passage for movement therealong to the ports of the cap; and a plug threaded for engagement with the internal threads of the housing and having a fluted prong on its inner end arranged to extend into the aperture to puncture the bottle responsive to threading of the plug in the direction of the partition, for release of said element.

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