

June 7, 1938.

T. O. DAY
LIGHT BUOY

2,119,854

Filed Aug. 28, 1937

2 Sheets-Sheet 1

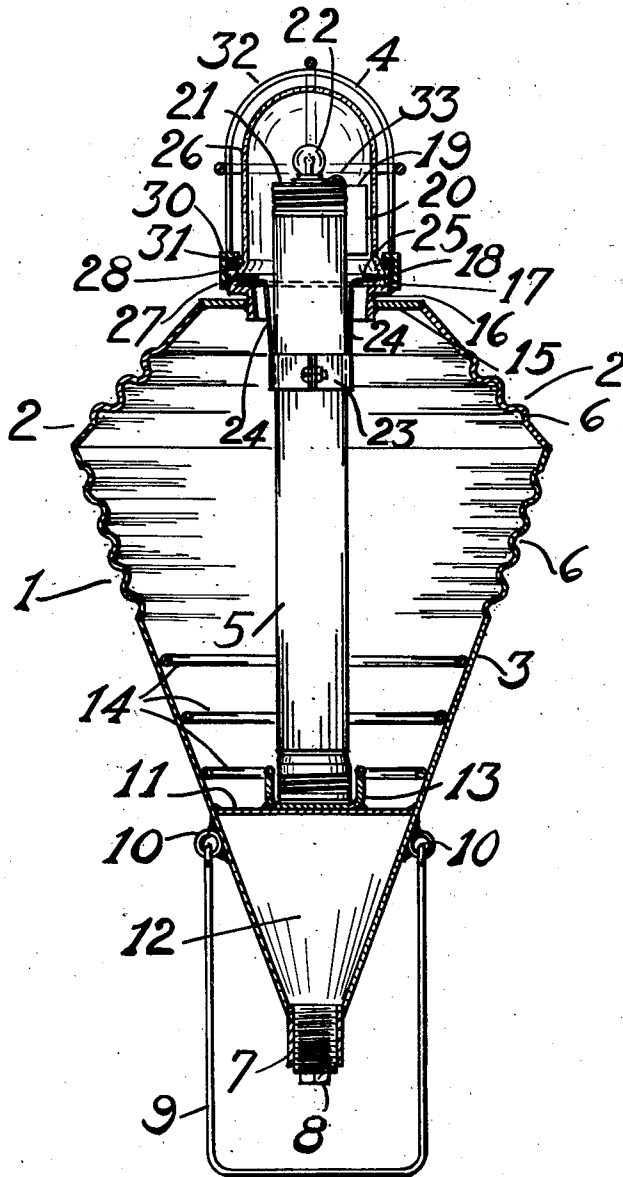


Fig. 1

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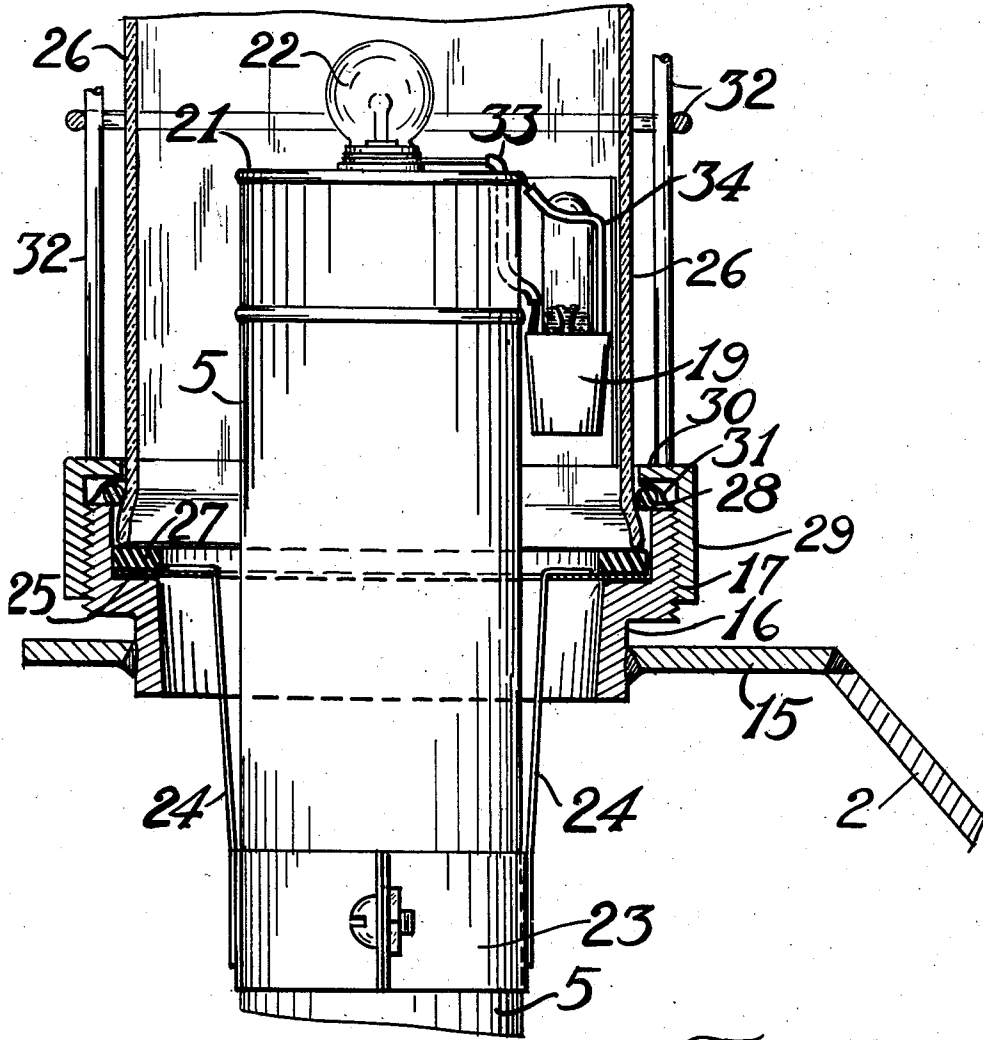


Fig. - 2

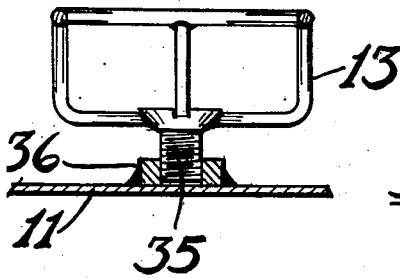


Fig. - 3

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UNITED STATES PATENT OFFICE

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LIGHT BUOY

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4 Claims. (Cl. 9—8.3)

The present invention relates to a light buoy of the type used to temporarily and in an approximate fashion, mark a general area on the surface of a body of water when the buoy is cast overside from a moving vessel. Most vessels carry buoys of some such type for the purpose of marking the approximate positions at which a passenger or a member of the crew may have gone overboard and to which position it is desired to return for search. For such emergency use it has been customary in the past to use floating flares which are ignited upon contact with the water. However, such flares constitute a considerable fire hazard when used aboard vessel transporting petroleum or other highly inflammable or explosive materials or if used when the vessel is proceeding thru substantially closed bodies of water in which there is little or no circulation and on the surface of which oil or other inflammable substances may have accumulated. Under such circumstances it is desirable to use a self-contained electric buoy and according to the present invention a most efficient buoy of such type is provided as illustrated in the accompanying drawings in which:

Fig. 1 is a side elevation in vertical section;

Fig. 2 is an enlarged view of the upper portion of the buoy also in section; and

Fig. 3 is an enlarged view of a portion of the transverse partition within the buoy showing an alternate means for mounting the receptacle for the lower end of the battery casing.

Referring now to the drawings, and particularly to Fig. 1, numeral 1 indicates a buoy composed of upper and lower hollow conic sections 2 and 3 respectively, a lamp-casing or lantern head 4 secured to the upper section 2 and a battery-casing 5 within the buoy and extending into the lamp-casing.

The sections 2 and 3 are of equal diameter at their bases and are joined to each other thereby by welding or brazing or in an equivalent manner. The projected and actual altitudes of the lower section 3 are substantially greater than those of the upper section 2. Each section is provided with corrugated portions 6 circumferentially disposed at any point on their surfaces but preferably adjacent the point of union between the sections. Alternatively, the sections may be fluted longitudinally on their surfaces.

In the narrow end of the lower portion 3 is fitted an internally threaded pipe coupling 7 which is suitably secured in water tight relation to the edges of the opening in said portion. A threaded pipe plug 8 is provided for the protrud-

ing end of the coupling which plug when set in litharge cement or otherwise treated will provide a watertight removable closure. A wire ball 9 and eyes 10 therefore which are secured exteriorly of the wall of the lower portion 3 provide means for carrying or storing the buoy in an inverted position. In the interior of the section 3 adjacent the lower end thereof, a flat disc 11 of metal is permanently secured to the side wall at right angles to the center line of the buoy. This disc provides a watertight partition below which a chamber 12 is formed which is adapted to receive ballast material such as sand. Disposed centrally of the disc 11 and permanently secured thereto is a receptacle 13 opening upwardly and which may be in the form of a wire basket. This receptacle is adapted to receive the lower end of the battery casing 5. Above the disc 11, spaced therefrom and from each other wire rings 14 may be secured to the inner surface of the section 3 for the purpose of providing additional reinforcement to the shell of the buoy.

At the upper end of the upper section 2 there is secured to the edge thereof by brazing, welding or in an equivalent manner, an annular plate 15, in the central opening of which a ring member 16 is secured to the edges of the opening in any manner suitable to provide a watertight joint. The outer surface of the ring member 16 is provided with a threaded portion 17 at the upper end and on the inner surface with an upwardly facing shoulder 18.

The battery casing 5 may be a standard commercial flashlight casing, cylindrical in form and in the preferred construction should be adapted to receive at least five standard size flashlight cells. For the purpose of this invention, the regular flashlight switch is not utilized, a small mercury switch 19 being secured to the upper end of the casing 5 and enclosed with a shield 20 also secured to the flashlight casing. Replacing the usual reflector and magnifying lens of the flashlight is a flat top cap 21 for the flashlight casing having an opening adapted to receive a flashlight bulb 22 of suitable size. The contact points of the mercury switch are connected to the base of the bulb 22 and to the casing 5 respectively by means of suitable lead wires the circuit being broken by inversion of the buoy and made when the buoy is in an upright position as when floating in the water. The battery casing is insertable through the opening in the ring member 16 and extends downwardly into the buoy with the lower end resting within the receptacle 13. The upper end of the casing is held in the proper position

by means of a clamp 23 secured to supporting arms 24 carried by an annular member 25 adapted to engage the shoulder 18 on the ring member 16. By this arrangement the upper end of the battery casing extends above the ring member 16 into the space within the lamp casing 4 and the position of the battery casing may be adjusted as may be required by means of the clamp 23.

The lamp casing or lantern head 4 is composed of a glass globe 26 inverted over the upper end of the battery casing with the open end resting on a soft rubber gasket 27 over the annular member 25 on the shoulder 18. An additional soft rubber gasket 28 preferably of circular cross-section encircles the lower end of the glass globe and bears against the upper end of the ring member 16. An annular coupling interiorly threaded for engagement with the ring member 16 and having an inwardly extending flange 30 at its upper end is provided to exert pressure upon the gasket 28 and thru the gasket upon the globe 26 to form a vaportight and watertight seal. A metallic washer 31 is interposed between the gasket 28 and the flange 30 to prevent damage of the gasket when the coupling is screwed down. If desired, the gasket 28 and washer 31 may be formed in one unit as is sometimes customary. In addition it is desirable to provide protection for the glass globe 26 by means of a wire guard 32 which may be secured to the upper surface of the flange 30 and encircles the globe 26.

In Fig. 2 the relationship between the section 2, the battery casing 5 and the lamp casing 4 may be more easily determined by reason of their enlargement. Like parts have been indicated by similar numbers. In addition to the portions described in connection with Fig. 1 there is shown in Fig. 2 the lead wires 33 and 34 joining the bulb 22 and the battery casing 5 respectively with the contact points of the mercury switch 19.

In Fig. 3 is shown an alternate form of construction in which the receptacle 13 is formed about the head of a machine screw 35 adapted to be threaded into a cylindrical member 36 secured to the disc 11 concentrically therewith. By this means in conjunction with the clamp 23 the height of the battery casing 5 within the globe 26 may be adjusted without loss of support.

When assembled in the manner set forth according to the description of Figs. 1, 2, and 3, the buoy is ready for use and ordinarily one or more will be hung at convenient places about a vessel. When so hung, the mercury in the switch 19 uncovers the contact ends of the wires 33 and 34 within the switch so that no current flows to the bulb 22. However, when removed from its hook and thrown overboard the ballast in the lower end of the buoy rights the buoy and causes it to float with the lamp uppermost and in this position the mercury in the switch 19 closes the circuit and lights the bulb 22, providing a safe and efficient lighted buoy for the service intended.

The structure described is particularly adapted to permit replacement of the batteries, battery casing or bulbs, as the entire battery casing and the clamp for positioning the battery casing may be removed from the buoy through the ring member 16 by removal of the lamp casing or lantern head. Extra bulbs for the light may be carried in the cap for the lower end of the battery casing in the usual manner.

Although the invention specifically contemplates an emergency light buoy it is obvious that its usefulness is not limited to such service and it is not intended to limit the invention to the foregoing description set forth for the purpose of illustration, but only by the appended claims in which it is intended to claim all novelty as broadly as the prior art permits.

I claim:

1. An emergency light buoy comprising a body portion and a lantern head, a transverse partition adjacent the lower end of said body portion and a watertight ballast chamber below said partition, opening outwardly through the lower end of the body portion, said opening having a watertight removable closure, a concentrically disposed cup shaped receptacle on the upper surface of said partition, a tubular battery casing disposed within the body portion with its lower end in said receptacle and extending upwardly into the lantern head, a bulb secured to the upper end of said casing and a mercury operated switch carried by the casing within the head adapted to interrupt the flow of current to the bulb when the buoy is inverted, means for positioning the casing within the buoy and for adjustably maintaining the height of the bulb within the lantern head, and means for maintaining the buoy in an inverted position when not in use.

2. A buoy according to claim 1 in which the receptacle for the lower end of said casing is provided for threaded engagement with a recess provided on the surface of the transverse partition.

3. A buoy according to claim 1 in which the means for positioning the battery casing comprises an annular disc member, having a clamp member secured to its inner edge by dependent arms, supported on a shoulder in an opening in the upper end of the body portion and maintained in rigid and watertight relation thereto by means of the lantern head including a light transmitting globe and interposed gaskets.

4. A buoy according to claim 1 in which said body portion consists of two oppositely disposed conic sections in watertight abutment at their bases, both sections having integrally formed stiffened portions and the lower section have a plurality of ring shaped bracing members secured to the inner surface above and adjacent to the transverse partition therein.

THOMAS O. DAY.