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LIFE SAVING DEVICE

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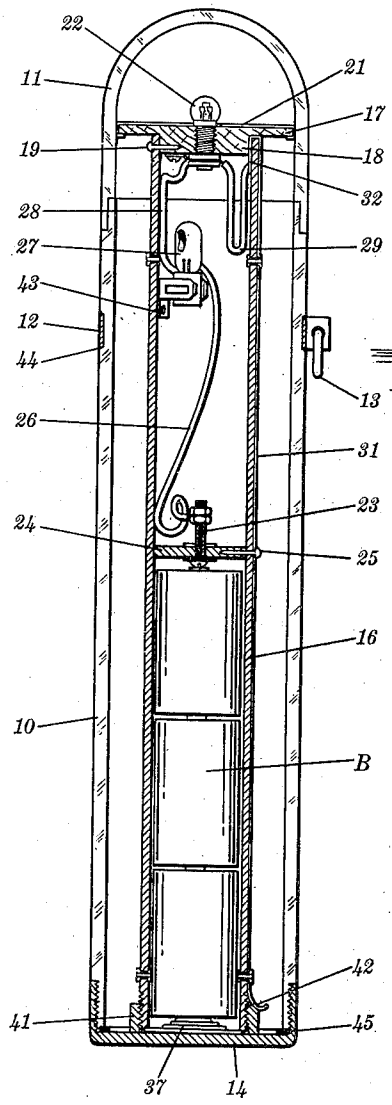



Fig. 1

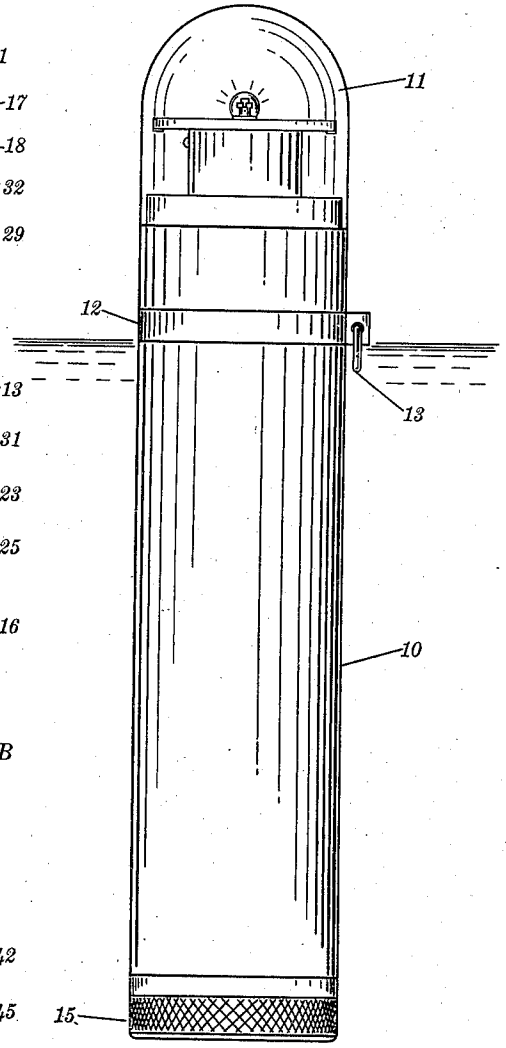



Fig. 2

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## LIFESAVING DEVICE

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5 Claims. (Cl. 9—8.3)

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This invention relates generally to life saving devices and has particular reference to devices for marking positions such as the positions of life buoys, rafts and similar things provided for use in marine accidents or disasters.

A main object of the invention is to provide a buoyant signal light which contains a lamp and a source of lighting current so constructed that it can be thrown from shipboard to light a position or which, when attached to a life buoy or similar floating device, will be visible both to men needing the help of such things to keep afloat and to rescuers looking for survivors.

Another object is to provide a buoyant light which is simple in construction and can be manufactured at a relatively low cost, thereby fostering the use of the devices in greater numbers than if the device was complicated and sold at a high price. Each life buoy on a ship can be provided with one of the signal lights and others may be kept in positions on ships where they may readily be seized and thrown overboard to mark a position which is later to be relocated.

Still another object is to provide a device of the character described which, because of the materials used, is light in weight and therefore easily handled, but which is nevertheless strong and durable; and proof against deterioration.

Another object of the invention is to provide a device of the character indicated which will automatically right itself when thrown overboard or put afloat and as an incident to righting itself will automatically close a circuit through the lamp from the source of current. The construction is such that the light will remain lit for many hours, there being nothing about the construction which can readily be broken or disarranged.

With the foregoing and other objects in view which will become apparent later, the invention consists in a novel construction and arrangement of parts and materials, the novel features of which are pointed out in claims appended hereto and a preferred embodiment of which is hereinafter described with reference to the drawing accompanying a part of this specification.

In said drawing:

Fig. 1 is a longitudinal section through one of the devices, and

Fig. 2 is a side elevation of the complete device shown in the position it occupies when floating and with the lamp lit.

The construction shown in the drawing is that of an illustrative embodiment. It has an outside tubular casing 10 which may be of any desired material, but is preferably composed of a synthetic resin such as methyl methacrylate. Any suitable unbreakable material which will serve the purpose may be used, the synthetic resins being preferred because of their comparatively low cost, their capacity to resist weathering; and their great strength and durability in service. The upper end of the outside casing has a translucent or transparent cap 11, which is shown as a separate part cemented on the tubular casing 10. In the event that the material for the outside casing is transparent, the cap 11 may be a unitary part of the casing.

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Around the casing 10 is a band 12 of corrosion resisting material which is provided with means such as ring 13, for a line by which the apparatus may be connected to a life buoy or any other desired article.

The end of the casing 10, which constitutes the lower end when the device is afloat, is threaded to cooperate with threads on a metallic cap 14. This cap is preferably of lead or lead alloy, a suitable material being lead and sufficient antimony to give the hardness which will prevent the cap from being easily damaged by accidental shocks or blows, this hardness also being desirable to facilitate threading and knurling as shown at 15. Centrally of the casing 10 is a tube 16 which is composed of Bakelite or a fibrous insulating material. Preferably the tube is rolled from a sheet and the edges fastened together after the parts hereinafter referred to have been assembled on what becomes the inside of the tube when the tube is completed.

The upper end of the tube 16 is held in position relative to the outer casing 10 by a flange 17 on a wooden member which has a portion 18 inserted in the end of the tube and fastened in position by screws or the like as at 19. The upper face of the member 17, 18 carries a reflector 21. This reflector is preferably composed of bright chromium on a suitable backing metal and is secured in position by spinning the metal over and under the flange 17.

Mounted centrally in the member 17, 18 is a lamp socket normally containing a lamp 22 which is, of course, above the reflector 21 and under the transparent or translucent portion 11 of the outside casing.

Mounted in the central or internal tube 16 are one or more dry batteries B, the construction shown employing three batteries stacked in the usual way. The central pole of the top battery is in contact with the head of a screw 23 clamped in a disk 24 fastened within the tube by screws

or beads 25. The upper end of the screw 23 is provided with binder nuts holding one end of a lead 26 which is connected to one of the terminals in a mercury switch designated generally at 27. The other terminal of the switch is connected through the lamp socket and the lamp by leads 28 and 29, the latter lead having its end soldered or otherwise secured to a strip 31 which is secured to and extends longitudinally of the inner tube 16. In the construction shown, the strip 31 is formed over the edge and into the interior of the tube 16 as illustrated at 32 to make it convenient to connect the lead 29.

The metallic cap 14 supports a spring 37 which constitutes part of the circuit and yieldingly holds the batteries B in circuit-making contact each with the others and with the screw 23. The cap 14 also is provided with means for holding the lower end of the internal tube 16 properly spaced from the casing 10. In the form shown, a central flange 41 is provided with internal threads cooperating with threads on the exterior of the tube 10. The flange 41 is preferably chamfered or beveled so that when it has been screwed into position on the tube 16 it will make good electrical contact with an out-turned portion or extension 42 on the connector strip 31.

The mercury switch, shown conventionally at 27, is held by a clamp 43 secured on the inner face of the supporting tube 16. This makes it a simple matter to assemble the switch securely in position so that it will be sure to be effective at all times when it should be brought into play.

The metal band 12 may be attached in any suitable way, but it is preferred to have it held in a flat-bottomed groove 44 around the exterior of the outside casing 10. The groove and band are preferably located on the exterior of the casing at a point where the lower edge of the band will be approximately at the water line when the device is put afloat.

The amount of material in the metallic cap 14 is regulated so as to give the necessary weight to cause the buoyant device to right itself and keep it in the position shown in Figs. 1 and 2 when afloat. This does not mean that a considerable mass of metal is needed in the cap 14 as the apparatus as a whole is of a comparatively light weight.

In installing the devices on board ships, they are put in brackets, similar to the brackets employed for fire extinguishers and similar things, which permit ready removal of the devices from the brackets. Usually such brackets have sockets in which the removable device rests and pairs of spring clamps or fasteners which will hold the device firmly in position and at the same time permit its ready removal from the bracket. When installed in its bracket, the transparent or translucent end 11 is downward, in which position the mercury in the switch 27 will be away from the contacts in the switch and there will be no current through the lamp 22. When the device is put afloat, as by throwing it overboard, either alone or connected by a line to a life buoy or similar thing, the weighted cap 14 will cause the device to right itself so that the mercury in the switch 27 will close the contacts and the lamp 22 will become lighted. The lamp will remain lighted until the device is up-ended or until the batteries are exhausted. The batteries B have sufficient capacity to keep the lamp lighted for ten hours or more.



By unscrewing the metallic cap 14, the inner tube 16 and all of the parts assembled in or upon it may readily be removed and repaired, if repairs are required, or the batteries and the lamp renewed. Further, the construction as a whole is simple and so sturdy that it will not be seriously damaged or put out of commission by anything that is likely to strike it either while in its bracket or when afloat. All of the exterior parts which are exposed to air and water are of materials which will not deteriorate so that the device is always in dependable condition.

While it is not an essential thing, it is preferred to employ a ring or gasket 45 within the metal cap 14, which is forced against the end of the exterior casing 10 to make a water-tight seal when the cap is screwed into position.

In explaining the illustrative embodiment, the construction has been set forth in detail, but it is the desire not to be limited by said explanation except to the extent indicated in the claims which follow.

What is claimed is:

1. A buoyant light supporting marker comprising an outer casing having a translucent cap sealing one end, a central tube extending longitudinally of the casing, a member closing one end of the tube having a flange spacing said end from the outer casing, a reflector on said member under the translucent cap, a lamp socket mounted in said member centrally of the reflector and containing a lamp, batteries and circuit devices including a mercury switch mounted in the central tube and forming part of the circuit from the batteries through the lamp socket and lamp, a water tight weighted cap closing the end of the outer casing opposite the translucent cap, and metallic means carried by said cap for supporting the batteries in the central tube and spacing the tube from the outer casing, the cap and said means constituting a part of the circuit through the batteries and the lamp.

2. A buoyant light supporting marker comprising an outer casing having a transparent cap at one end, a central tube extending longitudinally of the casing, a member closing one end of the tube and constructed to space said end from the outer casing, a reflector attached to said member, a lamp socket mounted in said member centrally of the reflector adjacent the transparent cap and containing a lamp, batteries and circuit devices including a mercury switch mounted in the central tube and forming part of the circuit from the batteries through the lamp socket and lamp, and a lead alloy cap closing the end of the outer casing opposite the lamp and having a central portion holding the batteries in position and the central tube in spaced relation with the outer casing, said cap constituting a part of the circuit between the batteries and the lamp.

3. An apparatus of the character described comprising a tubular outer casing large enough to give the desired buoyancy to the apparatus as a whole and having one end closed by a transparent water-tight cap, a tube within and of smaller diameter than the outside casing, spacing means consisting in part of a reflector for holding the one end of the inner tube centered with reference to the outer casing, a weighted metallic cap for closing the other end of the inner tube and the end of the outer casing, said cap having concentric portions threaded to engage threads on both the outer casing and the inner tube, batteries held in contact position by the cap within

the inner tube, a lamp mounted in the aforesaid spacing means adjacent to the reflector, a circuit between the batteries and the lamp which includes the weighted metallic cap, and a mercury switch in the circuit for opening and closing the circuit by changes in position of the assembled apparatus.

4. An apparatus of the character described comprising a tubular outer casing large enough to give the desired buoyancy to the apparatus as a whole and having a translucent closure at one end, a tube of insulating material within and of smaller diameter than the outside casing, spacing means for holding one end of the inner tube centered with reference to the outer casing, a reflector mounted on said spacing means and under the translucent closure, a lamp socket mounted centrally of the spacing member and reflector, batteries and circuit devices intermediate the lamp and batteries supported by the central tube, said circuit devices including a mercury switch operated by change of position of the device, and a lead or lead alloy cap closing the end of the outer casing opposite the translucent end and having an internal portion cooperating with the inner tube to hold said tube centered with reference to the outer casing, said internal portion



also forming a part of the circuit between the batteries and the lamp.

5. A buoyant light supporting marker comprising an outer casing permanently sealed at one end by a transparent cap, a central tube of insulating material extending longitudinally of the casing, a spacing member secured within the upper end of said tube and constructed to space said end from the outer casing, a reflector on the upper surface of said spacing member, a lamp socket mounted in said member centrally of the reflector adjacent the transparent cap and containing a lamp, batteries in the lower part of the central tube, means including an adjustable contact for holding the batteries against movement upward in the central tube, circuit devices including a mercury switch mounted within the central tube and forming part of the circuit from the batteries through the lamp socket and lamp, a removable metal cap closing the lower end of the casing and having a central portion holding the central tube in spaced relation with the outer casing, said cap and said portion constituting part of the circuit between the batteries and the lamp, and a spring compressed between the cap and the lowest battery constituting part of said circuit.

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