Dec. 15, 1942. L. E. PERKINS 2,305,490

ELECTRIC SAFETY WATER LIGHT

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Fig. 2.

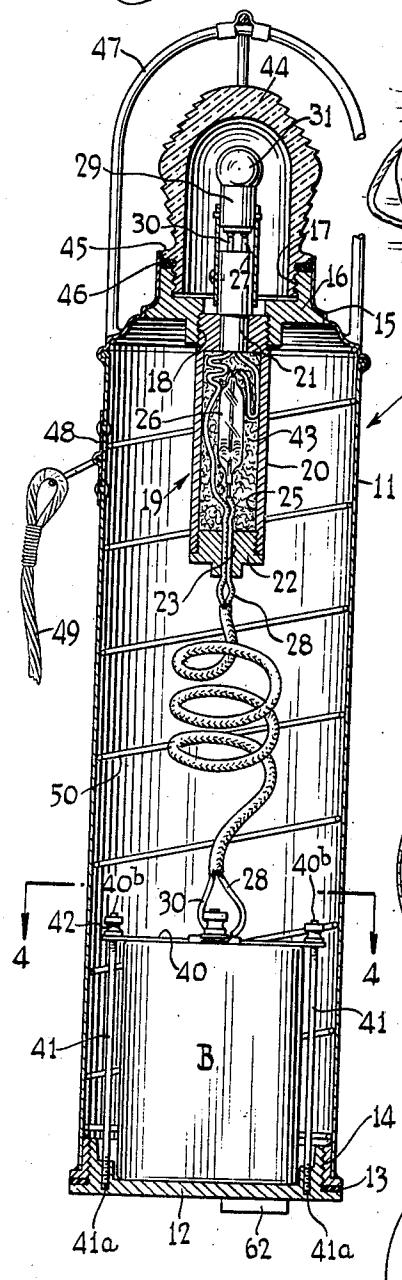


Fig. 1.

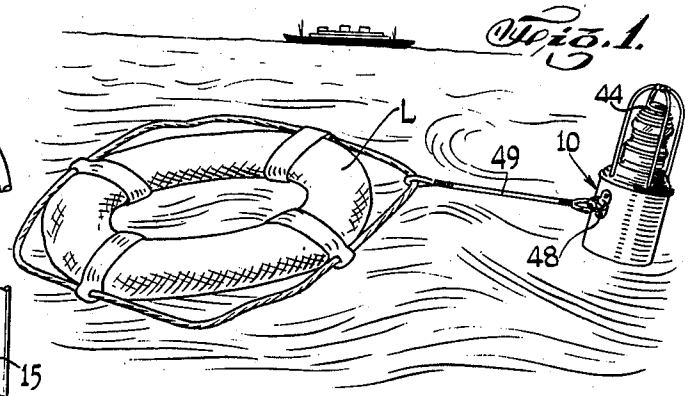


Fig. 6.

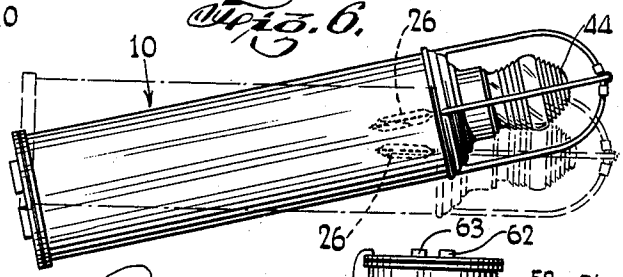


Fig. 4.

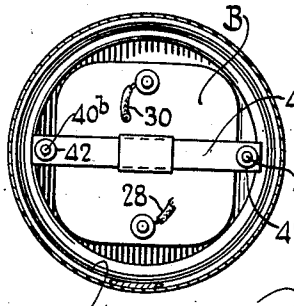


Fig. 5.

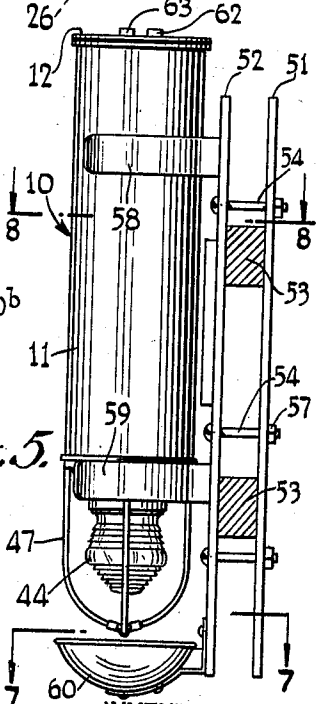
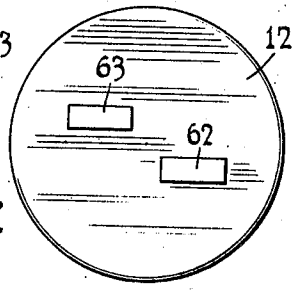


Fig. 3.



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Fig. 9.

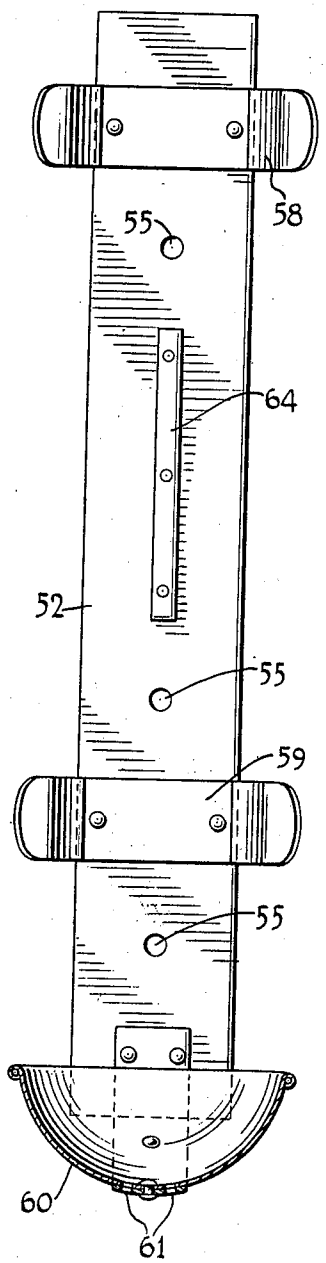


Fig. 10.

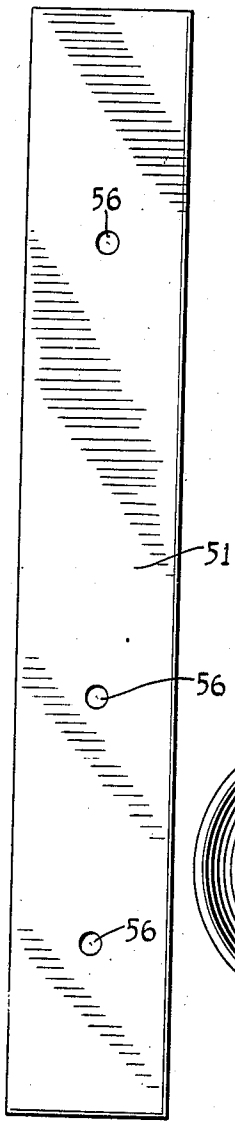


Fig. 8.

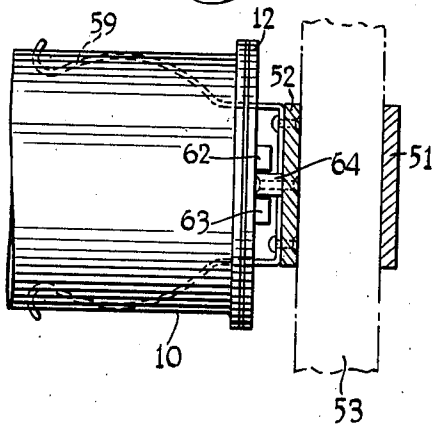
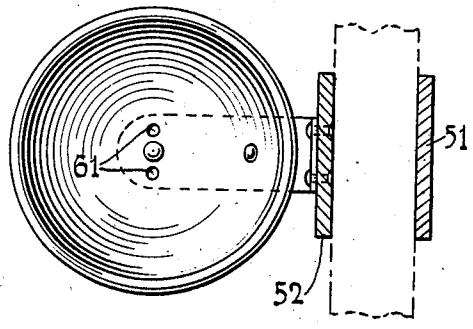


Fig. 7.



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2,305,490

ELECTRIC SAFETY WATER LIGHT

Louis E. Perkins, Brooklyn, N. Y., assignor to Perkins Marine Lamp & Hardware Corp., New York, N. Y., a corporation of New York

Application April 26, 1939, Serial No. 270,183

5 Claims. (Cl. 9—8.3)

This invention relates generally to marine equipment. More particularly, my invention relates to an improved construction for safety water lights.

One of the objects of my invention is to provide a water light of the character described which shall be so constructed that an electric light will be caused to be automatically rendered effective whenever the device is disposed in a predetermined angular position with respect to the horizontal and which will automatically be rendered ineffective when the device is disposed in an angular range which falls outside of such predetermined angular position such as, for example, when stored.

Another object of my invention is to provide a water light of the character described which shall be constructed so as to withstand the force of the impact caused when the device is thrown into the water from relatively great heights.

Still another object of my invention is to provide in combination with a water light construction of the character described novel means for supporting the same when not in active use.

A further object of my invention is to provide a water light construction of the character described which shall comprise relatively few and simple parts, which shall be easy to assemble, which shall be rugged in construction so as to withstand strenuous wear, and which at the same time shall operate with a high degree of efficiency.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the claims.

In the accompanying drawings, in which is shown one of the various possible embodiments of this invention,

Fig. 1 is a perspective view of a water light constructed in accordance with my invention and illustrating the same in effective use;

Fig. 2 is an enlarged vertical cross-sectional view of my improved water light;

Fig. 3 is a bottom plan view thereof;

Fig. 4 is a cross-sectional view taken substantially on the line 4—4 of Fig. 2;

Fig. 5 is an elevational view of the device shown in Fig. 2 but of reduced size and illustrating the same in stored inactive use;

Fig. 6 is an elevational view of my device illustrating the effective angular range thereof;

Fig. 7 is an enlarged cross-sectional view taken substantially on the line 7—7 of Fig. 5;

Fig. 8 is an enlarged cross-sectional view taken substantially on the line 8—8 of Fig. 5 and illustrating the manner of removing the bottom cover of the water light in cooperation with the support; and

Figs. 9 and 10 are enlarged elevational views of the parts of the supporting device illustrated in Fig. 5.

Referring now in detail to the drawings, there is shown a water light 10 constructed in accordance with my invention and so designed that when thrown overboard for safety purposes while attached to a life preserver, it will float in the water and will at the same time tend to assume an upright position. The mechanism of my water light 10 is further designed so that an electric light will automatically be caused to be lighted when the water light 10 assumes an upright angular position with respect to the horizontal and which light will automatically be rendered ineffective when the water light is turned upside down to be stored.

In Fig. 2 of the drawings there is disclosed an enlarged vertical sectional view of the water light 10 constructed in accordance with my invention and comprising a tubular casing or shell 11 constructed of any suitable metallic material which will not be corroded or otherwise affected by salt water, such as for example, copper. The bottom of the casing 11 is provided with a closure cap 12 which may be threadedly attached thereto as shown by means of an annular bushing 14 attached to the casing. A packing member 13 is provided between the cap 12 and the annular threaded bushing member 14 to render the interior of the said casing 11 waterproof. The top of the casing 11 is provided with a cap member 15 which is permanently attached to the casing 11 in any suitable manner such as by interlocking the adjacent edges thereof as shown. Mounted within the cap member 15 is a bushing 16 having at its upper end an internally threaded opening 17. The bushing 16 is also provided at its lower end with an internally threaded opening 18. Into this threaded opening 18 there is received a switch housing member 19 comprising an annular wall 20 externally threaded at the upper end thereof so as to mesh with the threads of the bushing opening 18 to retain the member 19 in a position substantially centrally disposed with respect to the casing wall 11. The housing member 19 is provided with an opening 21 in the top wall thereof, in axial alignment with the bushing opening 17. The bottom end of the housing member 20 is closed with a threaded plug 22 having an opening 23 therethrough, one end of said opening communicating with the interior of the casing 11 and the other end of said opening communicating with a hollow chamber 25 within the member 19. Into this chamber 25 there is placed a mercury switch 26. One end of the mercury switch is connected to a lamp

socket 29 by means of the conductor member 27 while the other end of the mercury switch is connected to a source of current supply B by means of the conductor wire 28 passing through the opening 23. The circuit from the source of supply B to the lamp socket 29 is completed by the conductor wire 30 connected at one end thereof to the current source B passing through the opening 23 in the member 19 and then passing outwardly through the housing opening 21 to be connected to the socket 29 as shown. Into the socket 29 there is adapted to be received a lamp 31 of usual construction.

The mercury switch 26 is so designed that when it is in the upright vertical position shown in Figs. 1 and 2 of the drawings, the circuit from the lamp 31 to the source of current supply B will be completed through the mercury switch 26 and the lamp will be in effective lighted condition. The mercury switch is further designed so that the lamp 31 will remain in such lighted condition even when the water light 10 assumes a substantially horizontal position such as shown in Fig. 6 of the drawings. In other words, the lamp 31 will remain lighted when the water light is rotated, while in upright position, from a horizontal position through an arc of approximately 180°. The mercury switch is so designed that when the water light 10 assumes a full horizontal position or any angular position through an arc of 180° from the horizontal when the lamp is inverted from its position shown in Fig. 2, the circuit between the source of supply B and the lamp 31 will be automatically broken by the mercury switch to render the light ineffective. It is in such ineffective position that the water light 10 is stored for inactive use as shown in Fig. 5 of the drawings.

The source of current supply may comprise a battery B which is fixedly mounted to the cap 12 by any suitable means such as a strap 40 transversely disposed across the top surface of the battery and provided with openings which receive therethrough a pair of long screws 41, the lower ends 41*a* thereof being threadedly received in the cap 12 while the upper ends 40*b* thereof are threaded to receive the nuts 42 to thus hold the battery permanently attached to the cap 12. It is thus seen that when it is desired, for any reason, to remove or replace the battery B, it is merely necessary to unscrew the cap 12 from the casing 11 and remove the battery without in any way affecting the remaining mechanism of the water light. It is noted that sufficient additional length of conductor wires 30 and 28 are provided which are formed into a loop as shown, so that when the cap 12 is withdrawn and the battery carried with it, the conductor wires will not unduly place a strain on the connections between the mercury switch 26 and the socket 29.

In order to insure that the mercury switch 26 will always remain stationary and in proper position with respect to the water light, suitable protective packing material 43 such as, for example, cotton is placed within the chamber 25 of the member 19 completely surrounding the mercury switch 26 and spacing the same from the wall 20 to protect it against shock or displacement.

The lamp 31 is protectively shielded by a glass refracting globe 44 which is threadedly received in the threaded opening 17 of the bushing 16. The refracting globe 44 is provided with an outwardly projecting flange 45 adjacent the bottom opening thereof which is designed to be received within the opening of the cap member 15. Interposed between the flange 45 and the bushing 16 is a suitable packing member 46 designed to render the device waterproof. A cage type of guard 47 of any suitable construction may be attached to the cap 15 to protect the refracting globe 44 and lamp 31.

It is well known that safety water light devices of the character described must be buoyant and light in weight. These water light devices are generally stored on the decks of ships which are often spaced sixty or more feet from the water. It is therefore seen that when the water light is thrown overboard with a life preserver, the force of impact when the water light strikes the water will be very great on the walls of the hollow casing. Heretofore when such water lights have been thrown overboard, it has been found that the walls of the casings have been crushed with resulting damage to the buoyancy of the water light and the interior mechanism thereof. To obviate this disadvantage, I have provided means for reinforcing the casing wall 11 while at the same time maintaining the necessary buoyancy of the casing so that the same will float in the water. To accomplish this, I provide a spirally wound wire 50 which is of such size that it will fit within the hollow of the casing 11 and resiliently press outwardly and in this manner reinforce the casing wall. If desired, the spiral wire member 50 may be fixedly attached to the inner surface of the casing wall 11 by any suitable means such as soldering or welding.

An eyelet member 48 is fixedly attached to the outer wall of the casing 11 for the purpose of interconnecting the water light with the life preserver L by any suitable means such as a length of cable 49 as clearly shown in Fig. 1 of the drawings.

In Figs. 5 and 7 to 10 I have shown novel means for supporting the water light 10 while in inactive use, the said means comprising a pair of flat bars 51 and 52 made of any suitable rigid material. The bars 51 and 52 are designed to be disposed in parallel relationship on opposite sides of the deck railings 53 and suitably interconnected by means of the bolts 54 passing through aligned apertures 55 and 56 in the bars 52 and 51 respectively, and maintained in position by the nuts 57. It is thus seen that the bars 51 and 52 forming the support may be attached at any point along the railing without in any way marring the said railing.

The bar 52 is provided with a pair of substantially U-shaped spring clamp members 58 and 59 which are designed to frictionally receive and hold therein the water light 10 as shown in Fig. 5. It is also noted in Fig. 5 that the water light 10 is in an inverted position, opposite to that shown in Fig. 2 and therefore, as previously described, the mercury switch 26 will cause a break in the circuit between the battery B and the lamp 31 so that the lamp 31 of the water light 10 will be ineffective. A cup member 60 may also be attached to the bar 52 by any suitable attaching means and disposed beneath the water light 10 to catch the drippings of water when the said water light is hung to dry. The cup member 60 may also be provided with apertures 61 in the bottom wall thereof to permit the accumulated water to drain out.

To facilitate the removal of the cap member 12 from the casing 11 for the purpose of renewing the battery or for any other desired reason, I have provided a pair of lugs 62 and 63 on the

outer surface of the cap member and spaced from each other as shown in Fig. 3 of the drawings. Designed to fit in the space between the lugs **62** and **63** is a projecting lug **64** fixed to the bar **52** of the support. When it is desired to unscrew the cap **12**, it is merely necessary to grasp the water light **10** and place the cap **12** in such position against the bar **52** so that the lugs **62** and **63** will straddle opposite sides of the lug **64** as clearly shown in Fig. 8 of the drawings. When in such position, if the water light is axially rotated, the cap **12** will be unthreaded from the casing **11**. It is seen from the above construction that the cap **12** may be readily removed at times when certain tools such as screw drivers and wrenches are not available.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a device of the character described, a tubular casing, a top closure member attached to said casing and provided with a tubular open portion at the upper end thereof, a bushing member mounted in said top closure, said bushing having a through aperture communicating with the interior of said tubular casing, a portion adjacent the bottom of said bushing aperture being threaded, a switch housing attached to said last named bottom threaded portion, a portion adjacent the top of said bushing aperture being threaded, a refracting globe attached to said last named top threaded portion, a waterproof packing disposed within said top closure member and interposed between said globe and said bushing, an electric lamp, a support for said lamp, said support projecting from said switch housing and freely extending upwardly through the aperture in said bushing member whereby said lamp is disposed within said globe, a source of electric energy contained in said casing below said bushing member, and a cover detachably secured to said casing below said bushing member, the opening in said casing closed by said cover being so dimensioned and disposed that said switch housing may be detached and said switch housing and source of electric energy removed therethrough.

2. In a device of the character described, a casing, a partition permanently disposed within said casing adjacent the top thereof, said partition having a through aperture, a portion adjacent the bottom of said partition aperture being threaded, a switch housing attached to said bottom threaded portion, a portion adjacent the top of said partition aperture being threaded, a refracting globe attached to said top threaded portion, an electric lamp, a support for said lamp, said support projecting from said switch housing and freely extending upwardly through said partition aperture whereby said lamp is disposed within said globe, a source of electric energy contained in said casing below said partition, and a cover detachably secured to said casing below said partition, the opening in said casing closed by said cover being so dimensioned and disposed that said switch housing may be detached and said switch housing and source of electric energy removed therethrough.

3. In a device of the character described, a casing, a partition permanently disposed within said casing adjacent the top thereof, said partition having a through aperture, a portion adjacent the bottom of said partition aperture being threaded, a switch housing attached to said bottom threaded portion, a portion adjacent the top of said partition aperture being threaded, a refracting globe attached to said top threaded portion, an electric lamp, a support for said lamp, said support projecting from said switch housing and freely extending upwardly through said partition aperture whereby said lamp is disposed within said globe, a source of electric energy contained in said casing below said partition, a cover and means to detachably secure said source of electric energy to said cover, said cover being larger than said source of electric energy whereby said source of electric energy will be removed from the device when said cover is detached, the opening in said casing closed by said cover being so dimensioned and disposed that said switch housing may be detached and removed therethrough.

4. In a device of the character described, a casing, a partition permanently disposed within said tubular casing adjacent the top thereof, said partition having a through aperture, a portion adjacent the bottom of said partition aperture being threaded, a switch housing attached to said bottom threaded portion, a portion adjacent the top of said partition aperture being threaded, a refracting globe attached to said top threaded portion, an electric lamp, a support for said lamp, said support projecting from said switch housing and freely extending upwardly through said partition aperture whereby said lamp is disposed within said globe, a source of electric energy contained in said casing below said partition, the bottom end of said casing being open and a cover detachably secured to said casing for closing said bottom end, said source of electric energy being detachably secured to said cover.

5. The combination of a safety water light adapted to be inactively maintained aboard ship for long periods of time, said water light including a buoyant casing, a battery, means to mount said battery adjacent the bottom end of said casing, said bottom end having an opening of such a size and shape as to permit withdrawal of said battery therethrough, and a removable closure member for said bottom end; and a support for said water light, said support comprising means to detachably hold said water light and means permanently connected to said holding means for removing said bottom closure, said bottom closure and said removing means being shaped for cooperation whereby upon removal of said light from said support, engagement of said bottom closure member with said closure member removing means and rotation of said casing, said bottom closure member will be disengaged from said casing to permit removal of said battery.

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