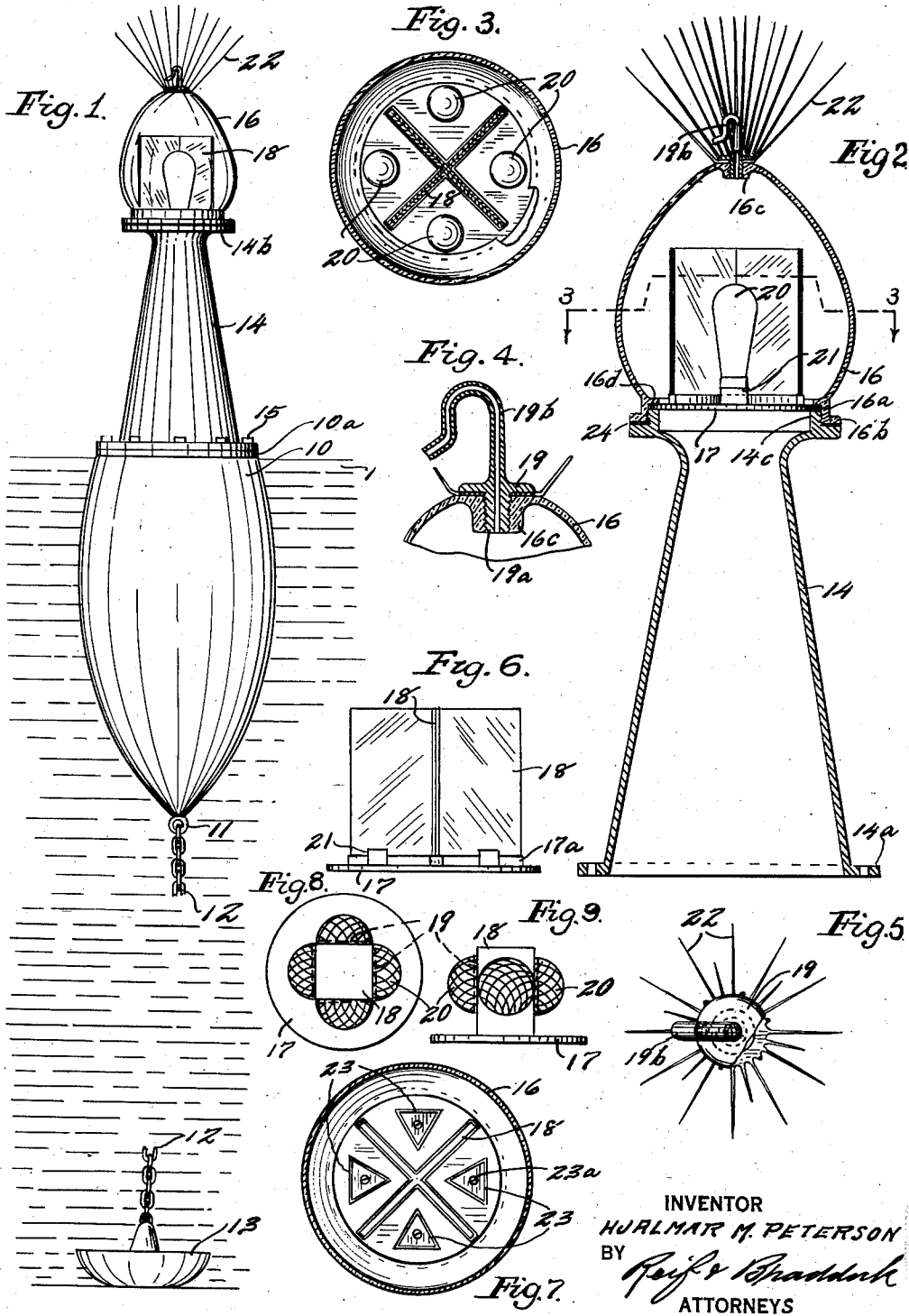


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LUMINOUS BUOY

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6 Claims. (Cl. 240—2.25)

This invention relates to a luminous buoy which may be situated in any navigable body of water, but which has been devised to be more particularly useful in the direction of navigation upon inland channels or streams, especially such as the channels adjacent the ocean in the eastern and western coasts and in Alaskan waters.

It is an object of this invention to provide a luminous buoy which will be of simple and economical construction and will have incorporated therein various features and characteristics designed to render the present buoy an improvement generally over devices heretofore known for the same purpose, capable of performing its intended service for an indefinite period of time in a greatly improved and much less expensive manner.

It is a further important object to provide a buoy using illuminating means covered with luminous paint together with which parts are arranged to be protected from the weather and are arranged relatively to each other in novel and improved fashion and with the purpose in view of obtaining a multitude of rays of light emanating from the buoy in every direction.

A further specific object is to provide a buoy including a plurality of angularly related mirrors, luminous painted elements adjacent said mirrors, and a transparent or translucent member housing said mirrors and luminous painted elements to protect these from the weather, the whole being of novel and improved construction and so constituted as to cause a multitude of rays of light to emanate from said buoy in all conceivable directions.

And a further specific object is to provide a buoy including mirrors, luminous elements, and a member housing said mirrors and said luminous elements, as stated, and desirably additionally including means for preventing birds from lighting upon said housing member to thus very likely foul said buoy, as well as including means for venting the housing member to prevent the possibility of variations in temperature of the air within and surrounding said housing member, which temperature variations would, if allowed, cause condensation of moisture upon the housing member with a resultant befogging of the buoy.

With the above objects in view as well as others which will appear as the specification proceeds, the invention comprises the construction, arrangement and combination of parts as now to be fully described and as hereinafter to be specifically claimed, it being understood that the

disclosure herein is merely illustrative and meant no way in a limiting sense, changes in details of construction and arrangement of parts being permissible so long as within the spirit of the invention and the scope of the claims which follow.

In the accompanying drawing forming a part of the specification,

Fig. 1 is an elevational view of a buoy made according to the invention, disclosing said buoy as when applied to use;

Fig. 2 is an enlarged vertical sectional view of the buoy, the hollow floatable body, the cable and the anchor being omitted;

Fig. 3 is a horizontal sectional view taken as on line 3—3 in Fig. 2;

Fig. 4 is a sectional view detailing the vent pipe and the manner of attaching said vent pipe and the prongs to the buoy;

Fig. 5 is a plan view further detailing said vent pipe and prongs;

Fig. 6 is an elevational view of the unit which includes the mirrors and supports the luminous elements removed from the buoy;

Fig. 7 is a horizontal sectional view corresponding generally with the disclosure of Fig. 3, but showing a buoy having luminous elements of modified construction.

Fig. 8 is a plan view showing a modification; and

Fig. 9 is a side view of the device shown in Fig. 8.

With respect to the drawing and the numerals of reference thereon, 10 represents a floatable hollow body which is adapted to be anchored by means of a cable 12 attached to an eye 11 upon said hollow body and carrying an anchoring weight 13.

The upper portion of the hollow body 10 includes a horizontal flange 10a which is attached to a similar flange 14a upon the lower portion of a hollow standard or pedestal 14 extending upwardly from said hollow body 10. As shown, the flanges 10a and 14a are secured to each other by means of screw bolts 15.

The hollow body 10 and the hollow standard or pedestal 14 together constitute the float of the buoy, which, in practice, stands substantially upright and is anchored by the weight 13 as shown in Fig. 1.

The hollow standard or pedestal 14 supports, in the manner to be fully described, mirrors and luminous elements which are protected from the weather and constitute the signal member of the buoy.

A globe 16, of glass or other suitable transpar-

ent or translucent material, which may be white, or may have any shade of color, includes an internally threaded, vertical flange 16a which engages an externally threaded vertical flange 14c upon the upper portion of the standard or pedestal 14. A horizontal flange 16b, upon the bottom of the globe 16, engages a gasket 24 arranged upon a horizontal flange 14b, upon the upper portion of the standard or pedestal 14, when said globe is screwed home upon said standard or pedestal, to thus provide a fluid tight joint between the globe and pedestal.

The transparent or translucent globe 16 houses the mirrors and the luminous elements of the buoy, which mirrors and luminous elements are constituted as a unit contained within said globe.

As disclosed, a desirably circular retainer plate 17, which may be made of metal or other suitable material, includes upstanding channels 17a which are arranged perpendicular to each other and extend approximately the full diameter of said circular retainer plate. Said channels 17a suitably support upstanding or vertically disposed mirrors 18, including eight mirrors, or four sets of mirrors, each set including two mirrors arranged back to back, and the different sets being arranged at right-angle relation to each other. That is to say, the channels 17a include four separate channels each extending outwardly from about the center of the retainer plate, and each separate channel supports a pair of mirrors which face in opposite directions. See Fig. 3. The mirrors 18 may be secured in the channels 17a in any preferred manner.

A vent pipe 19, which opens to the member 16, includes a lower threaded portion 19a which is threaded into a thickened portion 16c at the top of said member 16. Said vent pipe has a duct 19b which leads from the interior of the globe 16 to the outside atmosphere, and in order that fluid, from rain or waves, etc., may not enter said globe through said vent pipe, the upper portion of the vent pipe is curved downwardly as very clearly shown.

The retainer plate 17 supports luminous elements or bulbs 20, including four luminous elements or bulbs 20 extending upwardly from said retainer plate, there being an element or bulb 20 situated between each pair of adjacent mirrors 18, in equally spaced relation to each mirror. As disclosed, the retainer plate 17 includes upwardly opening sockets 21 into which the luminous element or bulbs 20 are secured.

When the luminous buoy is set up for use, the marginal portion of the retainer plate 17 is retained between an inwardly extending, horizontal flange 16d upon a lower portion of the globe 16 and the vertical flange 14c upon the standard or pedestal 14, as very clearly shown in Fig. 2, to thus be held rigidly and fixedly within the buoy. In assembling the standard or pedestal 14, the unit including the retainer plate 17, and the globe 16 with each other, the retainer plate may first be placed so that its margin rests upon the flange 14c, and the globe 16 may then be screwed down upon said flange 14c until the flange 16b firmly engages gasket 24. Plate 17 is then held in position.

The buoy includes a set of prongs 22 which are held to the globe 16 by means of the vent pipe 19. As shown, said prongs 22 are part of an integral unit which includes a central apertured portion receiving the threaded lower part 19a of the vent pipe 19, and is fastened to the upper portion of the globe 16 by a horizontal flange upon said vent pipe and turned down against said unit hav-

ing said prongs. The prongs 22 extend obliquely upwardly, and are disposed in spaced relation to each other about a full circumference. See Figs. 4 and 5.

As disclosed, the globe 16 is somewhat oblong. The prongs 22 are for the purpose of preventing birds lighting upon the globe, and by making the globe oblong, the possibility of birds lighting thereon is decreased. An oblong globe also makes a better water shed and a more practical receptacle for the mirrors. But it is to be understood that the globe can be made in any desired shape.

In Fig. 7 I have disclosed a buoy which is in all respects like the buoy of Figs. 1 to 6, except that in said Fig. 7 the buoy includes prismatic luminous elements 23 instead of bulb-shape luminous elements, such as 20. Said prismatic elements 23 include luminous paint on their entire external areas, are arranged between the mirrors 18 in about the same manner as are the elements 20, and are attached to the retainer plate 17 by means of screws 23a.

It will be apparent that the mirrors 18 reflect any light which may strike the signal member, and particularly the light which emanates from the luminous elements, outwardly in all directions to increase the efficiency of the buoy by making its signal member more readily visible.

In Fig. 8 a modification is shown, in which the plate 17 is used, and has upstanding therefrom a post 18. This post can have a plurality of sides or faces, and in the embodiment of the invention illustrated it is shown as having four faces. Said post has thereon layers of luminous paint 19 which are of circular form and substantially semi-spherical members 20 of transparent material are secured over these layers. The members 20 will be made of glass, crystal or some other substance, and will be provided with facets on their surfaces which will be cut in the usual manner so that the surface comprises a plurality of flat portions. The plate 17 will be secured in the globe 16 as shown in Fig. 2, and the members 20 will be directed in different directions.

In operation, the layer of luminous paint will shine through the members 20 and the facets thereon act as reflecting means through which the luminous paint shines, and by which it is reflected. As the buoy swings about on the water, the member 18 will be oscillated and the faces thereof brought into different positions. Different reflecting effects are given by the combination of members 19 and 20 as they are moved relative to the eye of the observer. A good illuminating effect is thus secured, and the buoy is made very conspicuous.

It will be seen that the unit constituting the mirrors and the luminous elements is effectually protected from the weather by being housed within the interior of the buoy in the manner as illustrated and described. By the provision of the vent pipe 19, the temperature of the air within and surrounding the buoy is kept approximately uniform so that there are no variations in air temperature of the air within and without the buoy to cause condensation of moisture upon the globe 16 which would befog or otherwise obscure the mirrors and luminous elements of the signal member to render the buoy less likely to be visible. By the provision of the prongs 22, especially in combination with the oblong globe 16 as illustrated and described, the possibility of birds lighting upon the buoy to foul it is precluded.

It will, of course, be understood that various changes may be made in the form, details, ar-

5 rangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:—

10 1. A luminous device for a buoy having in combination, a support, an imperforate plate mounted thereon, a transparent globe secured to said plate and support in watertight relation thereto, a reflecting means upstanding from said plate enclosed by said globe, and a self-luminous object supported by said plate and disposed in front of
15 said reflector to reflect light outwardly and upwardly.

20 2. A luminous device for a buoy having in combination, an imperforate plate, a transparent globe secured thereto in watertight relation, a plurality of members supported above said plate having reflecting surfaces facing in different directions, a plurality of self-luminous objects disposed respectively adjacent said reflectors to reflect light outwardly and upwardly.

25 3. A luminous device for a buoy having in combination, a support, a transparent housing carried thereby, a luminous object within said housing, and a vent tube secured to the upper portion of said housing and communicating with the interior thereof, said tube projecting upwardly
30 vertically above said housing and then being bent reversely to extend downwardly and having its end directed outwardly, whereby water will not be transferred to the interior of said housing if
35 it is thrown against said tube.

4. A luminous device for a buoy having in combination, an imperforate plate, a transparent housing secured to and upstanding from said plate and having a water-tight relation thereto, members supported by said plate having reflecting surfaces directed outwardly in substantially all directions, and self-luminous members disposed between said reflectors so that light is reflected outwardly therefrom upwardly and in substantially all circumferential directions. 80 85

5. A luminous device for a buoy having in combination, an imperforate support, a transparent housing member carried thereby, angularly disposed reflectors carried by said support, a plurality of self-luminous elements, each of said self-luminous elements being arranged between a pair of said reflectors, whereby light is directed outwardly through said housing in substantially all directions. 90 95

6. A luminous device for a buoy having in combination, a transparent globelike member, a vent tube communicating with the interior thereof and projecting upwardly above said globe from the top thereof and then being bent to extend downwardly vertically so that it would form a perch for fowls and a plurality of small rods secured to said globe and surrounding said vent tube and projecting upwardly from said globe in diverging relation, said rods having their outer ends tapered substantially to a point so as to form a guard and prevent birds alighting on said tube or globe. 100 105

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