April 15, 1952 J. F. MORSE 2,593,171

ADJUSTABLE LIGHT FOR INSERTION IN THE HULL OF BOATS

Filed Nov. 30, 1948 2 SHEETS—SHEET 1

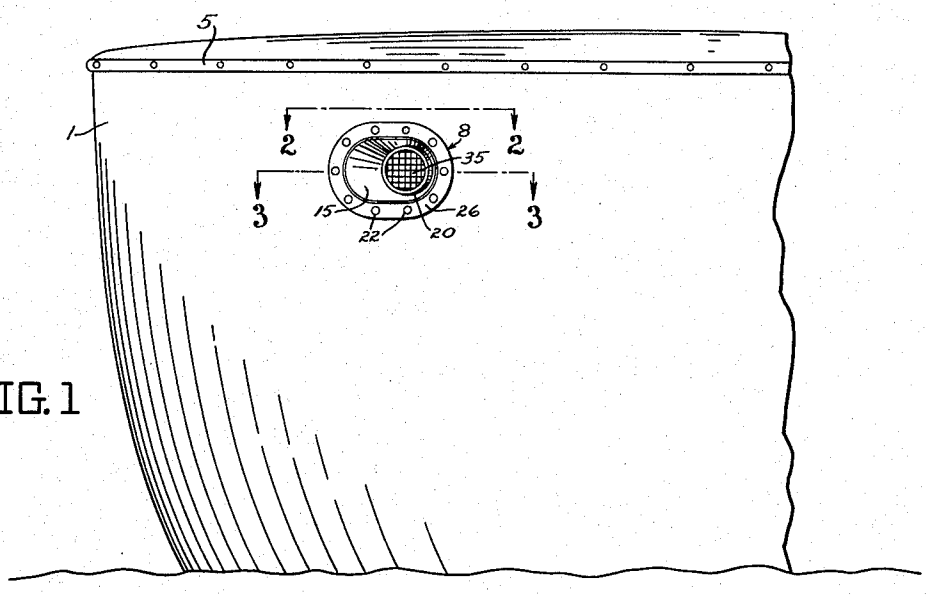


FIG. 1

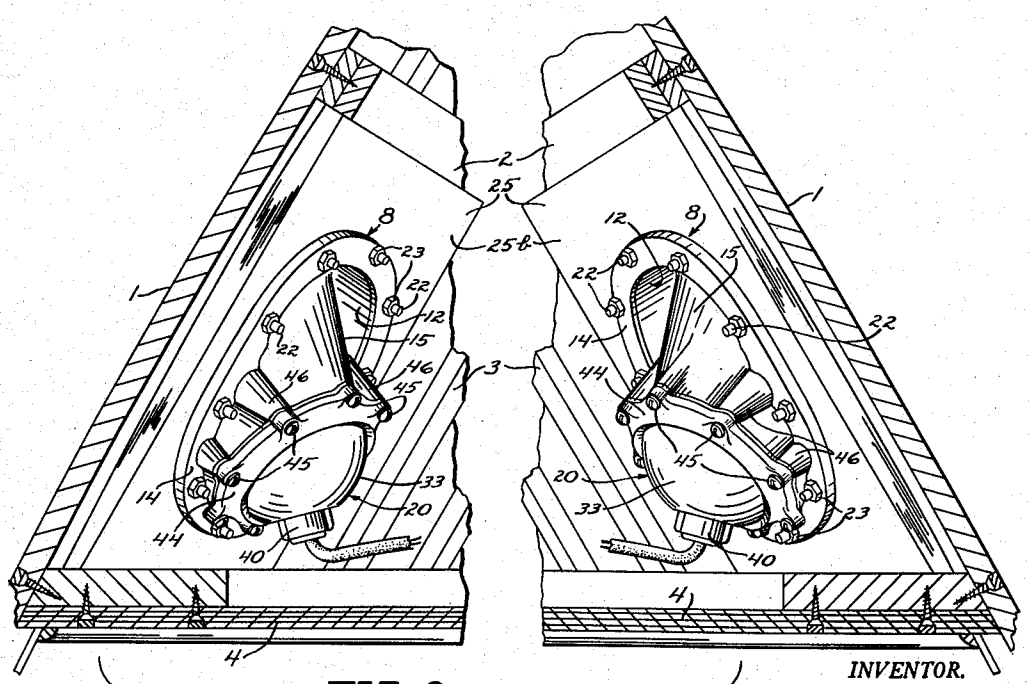


FIG. 2

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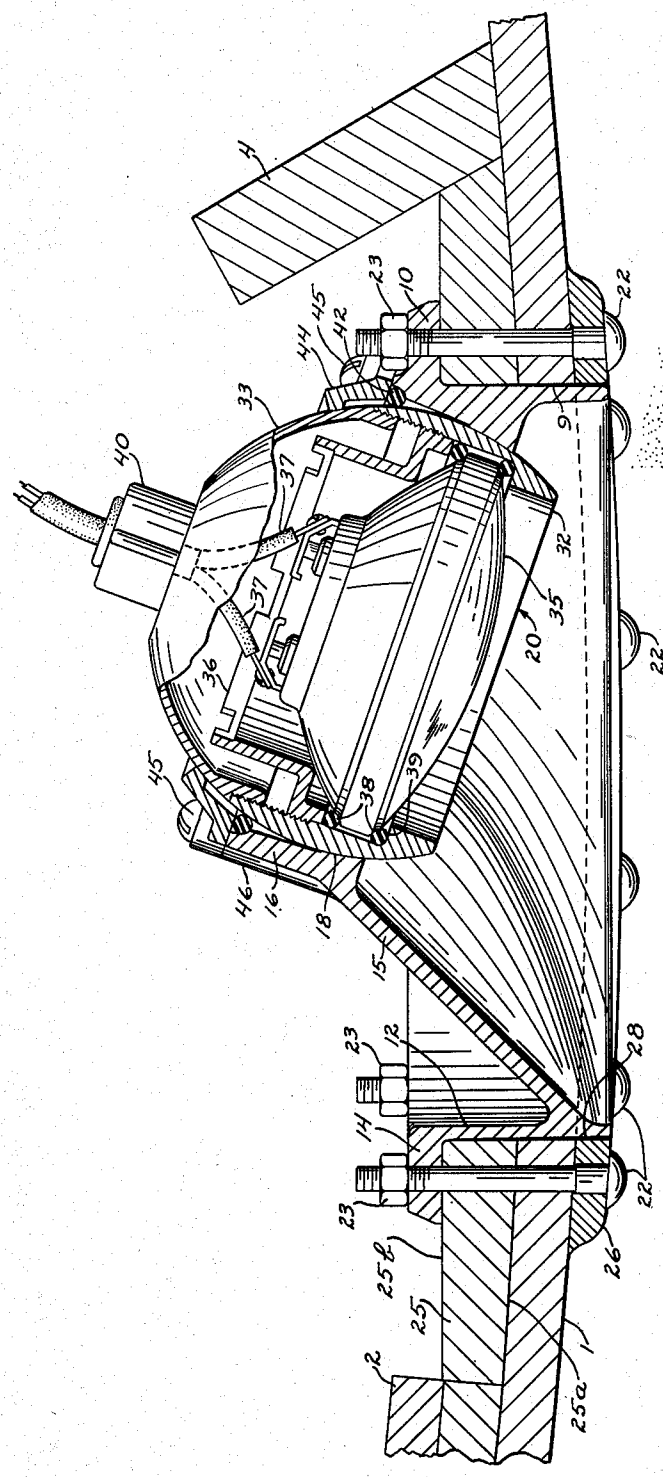


FIG. 3

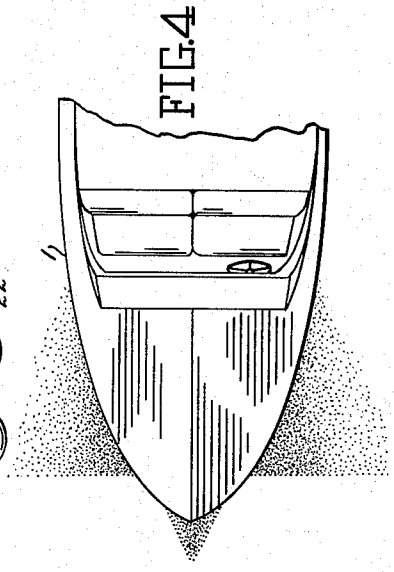


FIG. 4

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ADJUSTABLE LIGHT FOR INSERTION IN THE HULL OF BOATS

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2 Claims. (Cl. 240—26)

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The present invention relates to improvements in lighting installations for boats and particularly for craft of the power-operated type.

Boats of this type have usually been provided with searchlights located at some position above the deck of the vessel as the sole means for illuminating the channel and docking area ahead of the boat. When making a night landing the searchlight will throw areas not in the direct path of the light rays in absolute darkness and this is particularly objectionable in night navigating because the deck of the vessel casts a heavy shadow over the water immedately ahead of the boat and the reflections from the deck interfere with the clear vision ahead.

The present invention has as its object the construction of a new form of lighting installation which will reduce the hazards associated with docking craft after dark or navigating at night in narrow and dangerous channels or dark waterways. The invention therefore not only consists in the construction of the light elements per se but also in the combination of the light elements with the hull construction, particularly at the prow of the boat.

In approaching the dock at night, the pilot will turn on the lights and the area of water ahead of the boat and the piling, docks and berth for the boat will be brightly illuminated by a clear flood of light issuing from below the deck and beneath the eye level. The deck of the boat is not illuminated as is the case with the ordinary searchlight and, even in rain or haze, the objects ahead stand out in clear relief. The installation is also useful in navigating through treacherous waters or narrow channels for floating logs, buoys and other articles on the water are clearly visible. Practically no light is reflected back to the pilot even from the smoothest water and objects on the water will stand out in bold relief, being even more readily visible than in daylight. The light shown and described herein also makes an attractive and decorative addition to all types of watercraft.

The invention shown and described herein is a very substantial and effective aid to night boating, relieving much of the strain upon the pilot and reducing the risks attendant upon night navigation. The present application is in the nature of an improvement upon the invention disclosed in applicant's prior application on "Docking Light," Serial No. 668,518, filed May 9, 1946, now Patent No. 2,504,866.

In the drawings and in the description accompanying this application the best known and preferred form of the invention is disclosed but it will be understood that changes, modifications and improvements therein may be made without departing from the principles of the invention as set forth in the claims.

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In the drawings:

Fig. 1 is a side view looking at the prow of a boat showing the location of one of a pair of lights which are employed on opposite sides of the prow,

Fig. 2 is a view taken on the plane 2—2 of Fig. 1 showing the manner in which the lights are mounted in the hull on either side of the boat. In this view the center portion of the boat has been removed.

Fig. 3 is an enlarged cross-section through one of the light units, taken on the line 3—3 of Fig. 1, which, except for being right or left, is the same on either side of the boat, and

Fig. 4 is a diagrammatic view of the prow of a boat showing the manner in which the light rays are projected onto the area ahead and at the sides of the boat.

In the drawings, the numeral 1 denotes the hull of a boat equipped with the improved docking lights, the numeral 2 shows the ribs and 3 the batten strips. A bulkhead is shown at 4.

In equipping a boat with the improved lighting installation, the boat owner selects a location well toward the prow of the boat in a position so that the rays of light from the two installations will properly illuminate the area ahead of the boat as is shown in Fig. 4, and at a point somewhat below the rub rail 5 so that the light will strike the water at the most favorable angle. Fig. 1 shows the average position on a medium size cruiser.

The docking light as a whole is given the numeral 8. In the preferred form shown, it is oval in shape with the long axis of the oval extending fore-and-aft. It is provided with a deep well which is conical in form, the axis of the cone being set at an angle so that the rays of light from each lamp will project across the prow of the boat and also towards the side to the extent shown in Fig. 4, which represents an ideal arrangement. It will be seen that the light from the two lamps will cover an area 180 degrees, or somewhat less, in front of the boat.

The first step in mounting the lights in the hull is to cut oval-shaped openings 9 in the hull of the boat, care being taken to make the hole as closely to the proper size as possible to receive the frame.

Each light comprises an oval-shaped, rigid main frame indicated by the numeral 10 formed with a vertical wall 12 and a flanged rim 14

which overlaps the inside of the hull. Interiorly of the frame is the conical socket portion 15, the axis of which is slanted at about 20 degrees to a plane normal to wall 12 so that the rays of light may be projected at the desired angles as explained. The inner surface of the socket is preferably painted a dark color so as to minimize stray light reflections. At the base of the socket the frame is provided with the flange portion 16, the inner surface of which is formed with the curved seat 18 to receive the frusto spherical lamp housing indicated as a whole by the numeral 20.

Through the flanged rim 14 pass the securing bolts 22, the inner ends of which are threaded to receive the nuts 23. The stems of the bolts pass through an adapter in the form of a mounting block 25 located against the inside of the hull and through holes bored in the hull. The heads of the bolts bear against the oval-shaped clamping plate or ring 26 which fits closely around that portion of the wall 12 which projects outwardly of the hull.

It will be noted that the hull of a boat at the region where the docking lights are located is on a curve both fore-and-aft and also in a vertical plane. In order to adapt the light to the surface to which it is attached, the mounting block 25 should be curved on its outer surface 25*a* to fit the curvature of the inside of the hull and the inner surface 25*b* should be flat to fit against the surface of the flange rim 14. In the form shown herein the mounting block 25 is a wood block which extends from the bulkhead 4 to the rib 2 and is provided with a central hole to receive the vertical wall 12 of the body 10. The block 25 is channelled to accommodate the battens 3. After the surface 25*a* is properly formed, the surface 25*b* is planed to the proper angle to present a flat surface against which the underside of the flanged rim 14 will fit, and this operation may be done after the block is secured in place.

Because of the compound curvature of the hull, the clamp plate or ring 26 is made of a material which will allow it to bend sufficiently so that its inner surface will bear tightly against the side of the hull when the nuts 23 are drawn up. The clamp plate or ring is therefore preferably made of a ductile metal or it may be made of a plastic material if desired. It is important to have the ring 26 conform to the outer surface of the hull both for the appearance of the installation and also for watertightness.

After the hole 9 is cut in the hull, and the block 25 is in place, the wall 12 is passed through the opening and seated therein. The undersides and shanks of the bolts 22 and the underside of the ring 26 are thoroughly coated with a good grade of seam compound and then the ring and the bolts are put in place and the nuts 23 tightened to fasten the frame securely in position, drawing the ring 26 all around against the outer surface of the hull. The crack between the frame and the hull is now calked with the sealing compound as shown at 28.

The lamp housing 20 is spherical on its outer surface so that it may be set at the desired angle in the socket 18. It is composed of an outer section 32 and an inner section 33 threaded together as shown in Fig. 3. Located in the holder is a sealed-beam lamp 35 which is held in position by a castellated clamp ring 36 threaded into the section 32, sealing gaskets 38 being located on either side of the lamp and held between a shoulder 39 on the section 32 and the lower edge of the ring 36. The wires 37 to the lamp pass through a socket 40 on the section 33.

Before the lamp housing is placed in the frame the surface 18 is coated with a waterproof grease. The housing is then placed in position and a waterproof gasket or sealing device 42 is placed in the recess at the rear of the socket. This may either be a soft plastic ring, preferably made of neoprene which is liberally coated with the waterproof grease or it may be a special gasket shaped more or less closely to the cross-section of the space which is to receive it. The clamp ring 44 is then placed over the inwardly projecting portion of the lamp housing and the screws 45 are passed through the ring and into sockets 46 on the outside of the flange portion 16. Before the screws 45 are fully tightened, the lamp housing is carefully adjusted and then the screws 45 are driven home to hold the housing in its final position, which, if the adjustment is correct, need not be changed. The tightening of the ring will force the gasket 42 to seal the crevice around the outside of the lamp housing.

The final adjustment of the lamp housing on each side of the boat should be accurate. Each light should, for best results, be so set as to give light areas as shown in Fig. 4 with the beams from the two lamps blending directly ahead and covering wide areas on either side of the boat. The light should strike the surface of the water at a long angle.

It will be seen that with the equipment provided for herein, the boat owner is supplied with a new and highly efficient means of illuminating the areas of water ahead of and at the sides of the boat, which is set within the lines of the boat. The equipment not only serves to give the pilot much better facilities for night navigation but the device adds to the appearance of the boat. While the equipment has been described with particular emphasis upon its use at the prow of the boat, it may also be employed at the sides or on the stern. While the frame is preferably oval or elliptical so as to give the desired range to the light rays, this is not essential.

What is claimed is:

1. A docking light adapted for mounting in the hull of a vessel, said light comprising a frame having an outer cylindrical wall, means defining a frusto-conical well in the frame with its axis at an acute angle to the elements of said cylindrical wall, a seat at the base of the well and offset from the geometric center of said cylindrical wall, a lamp housing adjustably fitted in the seat, means to clamp the housing in adjusted position in the seat, a flexible ring surrounding the outer margin of said cylindrical wall, and means cooperating with the frame to draw said ring against the outer surface of a boat hull, so as to conform it to the curvature thereof and render the assembly waterproof.

2. A docking light adapted for mounting in the hull of a vessel, said light comprising a frame having an outer cylindrical wall of generally elliptical configuration, means defining a frusto-conical well in the frame with its axis at an acute angle to the elements of said cylindrical wall, a seat at the base of the well and offset from the geometric center of said cylindrical wall, a lamp housing adjustably fitted in the seat, means to clamp the housing in adjusted position in the seat, a flexible ring surrounding the outer margin of said cylindrical wall, and means cooperating with the frame to draw said ring against the outer surface of a boat hull, so as to conform

it to the curvature thereof and render the assembly waterproof.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 15,607	Vallot	May 15, 1923
243,780	Jennings	July 5, 1881
416,850	Nelson	Dec. 10, 1889
1,053,995	Huff	Feb. 25, 1913
1,125,824	Earnshaw	Jan. 19, 1915
1,388,567	Hoffman	Aug. 23, 1921
1,703,224	Challis et al.	Feb. 26, 1929
1,776,004	Luders	Sept. 16, 1930
2,128,461	Johnson	Aug. 30, 1938