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ADJUSTABLE NAVIGATIONAL LIGHTS FOR SMALL VESSELS

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3 Sheets-Sheet 2

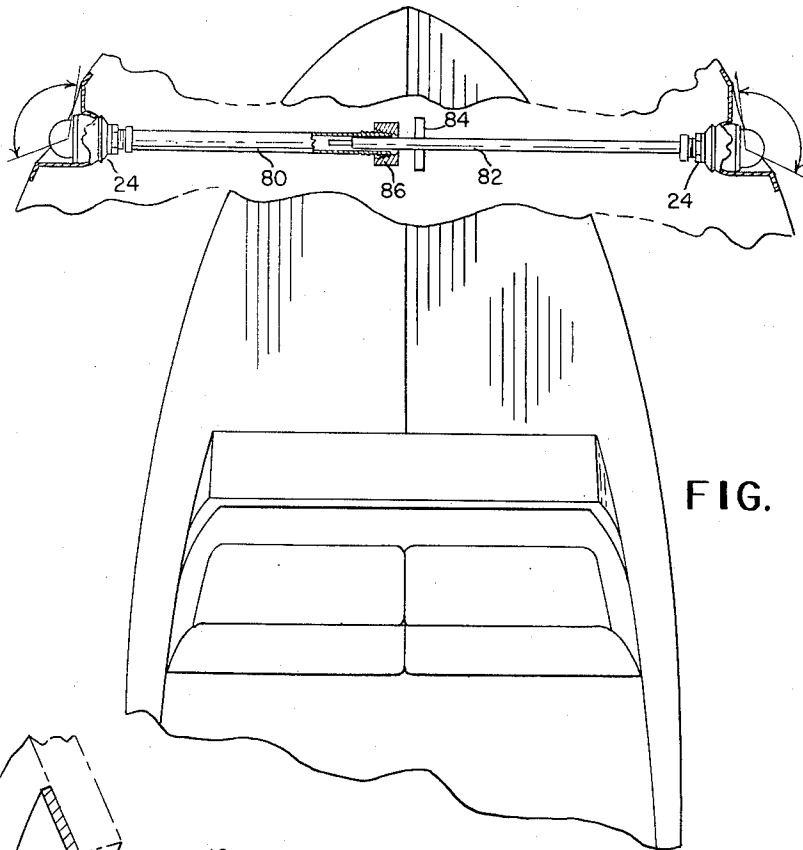


FIG. 4.

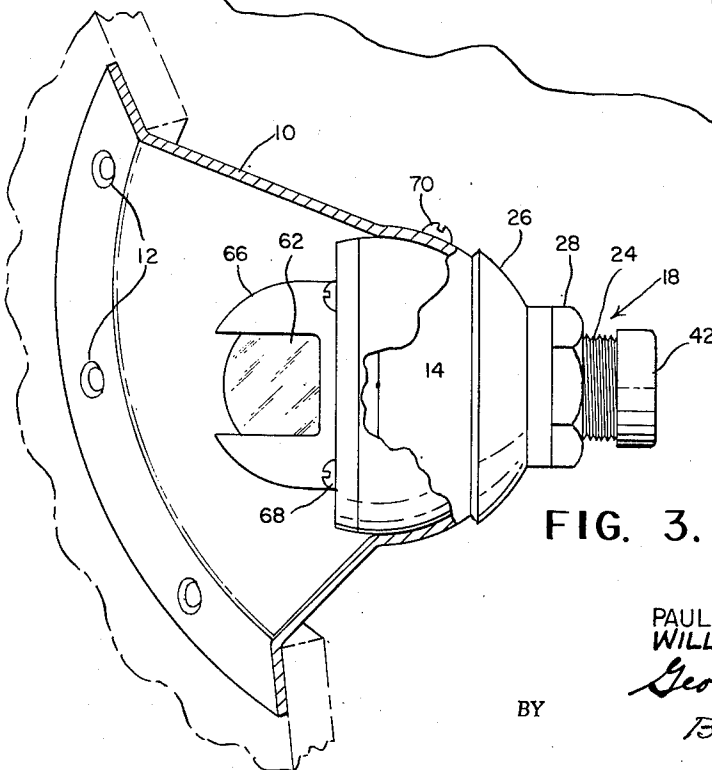


FIG. 3.

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ADJUSTABLE NAVIGATIONAL LIGHTS FOR SMALL VESSELS

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3 Sheets-Sheet 3

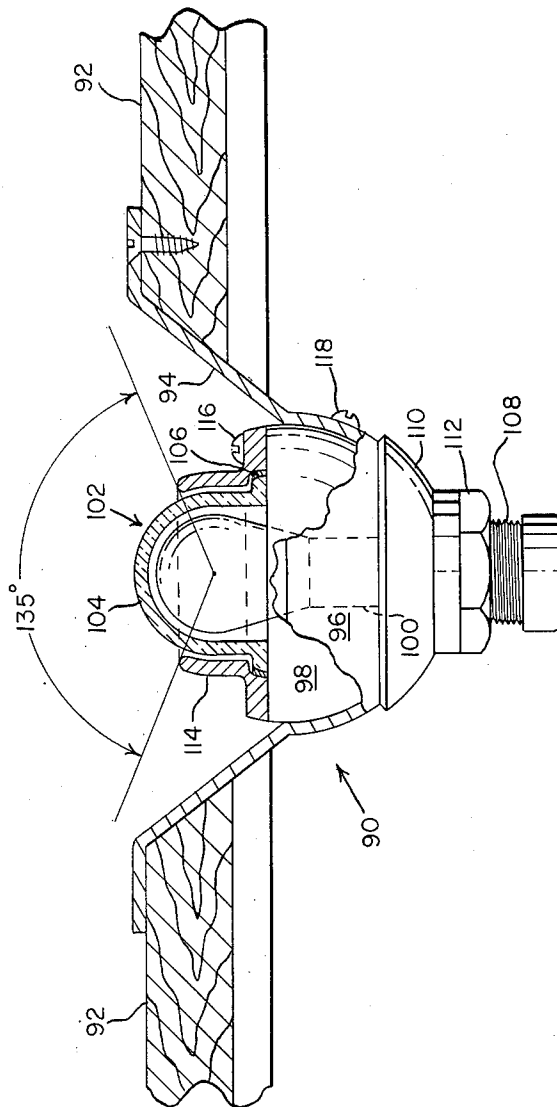


FIG. 5.

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ADJUSTABLE NAVIGATIONAL LIGHTS FOR SMALL VESSELS

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4 Claims. (Cl. 240—7.5)

(Granted under Title 35, U. S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

The present invention relates to navigational light fixtures for a small vessel in which the fixtures are adjustably mounted thereby making them suitable for attachment in any type of boat regardless of structural slope of the hull.

The prior art discloses many variations of navigational light fixtures for use on the sides of a vessel's hull or deck. Individual mounting boxes of special construction are required for adapting each fixture to the particular boat in which the installation is made. Careful and elaborate fixture aligning procedures are necessary to have them emit an arc of light necessary for the particular location of the fixture on a vessel. Such prior art fixtures are also of relatively heavy weight, are expensive, and an unreasonable amount of time is required for installation and adjustment prior to use.

The present invention eliminates the disadvantages of the prior art by providing a fixture adaptable for use with any type of small vessel regardless of hull contour. The lamp is provided with adjustable features so that after the fixture is initially mounted, the lamp may be rotated to a position necessary for emitting the proper arc of light relative to the vessel. Installation costs are reduced to a minimum by virtue of a unique lamp alignment procedure utilized in fixing the lamps in a proper position.

An object of the present invention is to provide a lamp fixture adaptable for use with any type of small craft.

Another object of the invention is the provision of a lamp assembly capable of being permanently secured in an exact position after assembly in the vessel.

A further object of the invention is to provide lamp apparatus adjustable for any flare or rake of angle after installation.

A still further object of the invention is the provision of a simple lamp alignment procedure followed in adjusting the lamp after initial attachment to the vessel.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

Fig. 1 is a front view of a side light lamp fixture showing the arrangement of parts prior to insertion in the hull of a vessel;

Fig. 2 is a cross-sectional view taken on lines 2—2 of Fig. 1;

Fig. 3 is a side view, partly in section, taken on lines 3—3 of Fig. 1;

Fig. 4 is a plan view, partly in section, of apparatus for aligning the lamp fixtures after initial installation in the vessel; and,

Fig. 5 is a view in elevation, partly in section, of a stern lamp adapted for mounting in the hull transom of a vessel.

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Referring now to the drawings, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in Figs. 1 to 3, a navigational lamp fixture adapted for installation in the side of a vessel. The apparatus comprises a hull casing 10 having a plurality of bored openings 12 in an exterior flange used for rigidly attaching the casing to the hull. The central portion of the casing is designed with a dome-like or semi-spherical configuration 14, as shown in Fig. 2, and is provided with an aperture or opening 16 in the outer end thereof for receiving the parts comprising a lamp assembly 18. Positioned within the hull casing 10 is an internally threaded housing 20 formed to the same configuration as the semi-spherical dome thereby permitting the housing to rotate in the casing in the manner of a ball and socket assembly.

The lamp assembly 18 comprises an adapter 22 which threadably engages housing 20 at one end and is provided with a hollow extension 24 which protrudes through the aperture 16 furnished in the inboard side of the hull casing. In order to properly position the adapter, a retainer 26 also formed to the curvature of the casing, threadably engages the extension and is rigidly fixed in position by means of a lock nut 28. The protruding end of the extension is closed by a grommet 40 and a cap member 42. A lamp holder or socket 44 of well-known construction is fixed within the adapter for receiving a screw or bayonet type of lamp 46. The lamp holder consists of a receptacle 48 in which is mounted a contact plate supporting contacts 50 and is suitably threaded or slotted for receiving the appropriate type of lamp. Retaining ring 52 is utilized for fixing the lamp holder in a firm position within adapter 22.

The outer end of the light fixture is made watertight by a globe assembly comprising an integral unit of an externally threaded ring 56 having an end 58 permanently turned over a flange 60 formed on the outer end of a colored lens 62. Interposed between a flat surface of the ring and housing 20 is a rubber washer 64 which completes the water-proofing unit. In order to divert the light into a definite arc externally of the lamp, a light shield 66 partially covers the light and is affixed to the housing by means of machine screws 68.

A unique advantage obtained from the type of construction shown herein is that the lamp may be replaced either from inboard or outboard of the vessel. To effect removal of the lamp from an inboard position, the lock nut 28 and retainer 26 are removed from the casing 10 and adapter 22 is then turned out of the housing thereby making the lamp available for replacement; whereupon the parts are reassembled in the reverse order of disassembly. In the event it is desirable or convenient to replace the lamp from the outboard side, machine screws 68 and light shield 66 are removed thereby making the globe assembly available for removal. Upon replacement of the lamp, the globe assembly is then threaded into the housing against the gasket 64 for reestablishing the aforementioned watertight seal.

It will be noted that the casing is provided with a large opening extending between points A and B, Fig. 2, thereby permitting the assembly within the casing to rotate in the manner of a ball and socket joint when the lock nut and retainer are in a loosened position. The principal advantage derived from the structure described above is that after the parts are assembled, the lamp assembly may be oriented and aligned in the hull casing for emitting an arc of light required by law for the particular location of the lamp fixture on the vessel.

When the light is in alignment, a hole is then bored in the housing and set screw 70 fitted into position so as to prevent movement thereafter of the lamp assembly within the casing.

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To obtain simultaneous alignment of the port and starboard running lights, in lieu of practicing the complicated procedure now known in the art, a pair of telescopically mounted tubes 80 and 82, Fig. 4, are positioned on a framework 84 extending parallel with the center line of the vessel. The tubes are then threaded onto the end of extensions 24 of adapters 22, and leveled, thereby positioning each of the light fixtures at an equal level from the water line. With the tubes thus leveled and extending perpendicular to the longitudinal axis of the vessel, a lock nut 86 having a tapered thread is drawn up on the outermost tube until such tubes are rigidly fixed relative to one another. Holes are then bored into the housing of each of the lamps and set screws 70 turned into position for permanently fixing the lamp assembly in its proper position within the hull casing. By utilizing this simplified procedure, the side lights are fixed at a definite and equal distance above the water, are in alignment with one another on opposite sides of the vessel, and an accurate arc of light is automatically emitted by the lamps because of the squaring procedure utilized in setting up the tubes.

The modification of lamp fixture shown in Fig. 5 incorporates all the features of the lamp fixture previously described but differs in the type of hull casing utilized in attaching the lamp to a vessel, and in the type of light shield employed in emitting an arc of light from the lamp. As shown in this figure, the fixture 90 is submerged in the transom 92 of the vessel and is supported by the hull casing 94. The base 96 of the casing is of dome-like configuration for receiving the housing 98 supporting the lamp assembly 100. As is evident from the drawings, the housing 98 can be rotated in the manner of a ball and socket joint for aligning the lamp in a fixed position. Outwardly of the casing, the globe assembly 102 comprising a lens 104 attached to a turned over ring 106, is fitted in the housing while the other end is provided with an extension 108 including a retainer 110 and lock nut 112 for rigidly fixing the lamp assembly in the casing. Since the type of lamp described in this species of the invention is adapted to emit a larger and different arc of light, the shield 114 providing such distribution of light is of a different design. The shield consists of a hollow cylindrical member attached to the housing by a plurality of machine screws 116. A set screw 118 extends through the side of the casing and into the housing for locking the latter in position thereby permitting maintenance work to be accomplished on the fixture without disturbing the apparatus establishing the arc of light. As in the other modifications, after the set screw fixes the parts in position, the lamp can be replaced from either inboard or outboard of the vessel without affecting the arc of light that will be emitted by the lamp after replacement is made.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A navigational light adapted for mounting on a marine vessel comprising, a framework having a centrally apertured semi-spherical dome on one end thereof, said semi-spherical dome being formed of substantially concentric interior and exterior semi-spherical surfaces, a lamp assembly extending through said central aperture and being movably mounted on said dome, said lamp assembly comprising a hollow member of a size permitting its removal through said aperture from either side thereof for relamping and being provided with a lamp holder for receiving a lamp adapted for insertion therein, lens means and shield means connected with said assembly and being respectively positioned outwardly of the latter for direct-

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ing a predetermined arc of light outwardly from said fixture, and adjusting means movably mounted on said framework and having means thereon of substantially the same curvature as the interior and exterior surfaces respectively of said semi-spherical dome and cooperating therewith for aligning said assembly whereby said arc of light is caused to cover a predetermined sector relative to said vessel.

2. A navigational lamp fixture adapted for mounting on a marine vessel comprising a frame having a centrally apertured semi-spherical dome on the inboard side of said frame, said semi-spherical dome being formed of substantially parallel exterior and interior semi-spherical surfaces, a hollow adapter partially extending through said aperture and having a pair of spaced threaded portions thereon, retaining means having a surface thereof of substantially the same curvature as the exterior semi-spherical surface of said dome coacting with the exterior surface of said dome and engaging one of said threaded portions for movably mounting said adapter on said frame, a lamp holder including a lamp in said adapter, a housing shaped to the interior surface of said dome movably mounted in said frame and being connected with the other of said threaded portions of said adapter, lens means and shield means attached to said housing and encompassing said lamp for emitting a predetermined arc of light therefrom, and means on said frame for fixing said housing in a set position thereby restricting said arc of light to a predetermined sector relative to said vessel.

3. A lamp fixture adapted for mounting on a wall member, comprising a frame for attachment to said wall member, said frame having a centrally apertured, semispherical dome extending from one side thereof, said semispherical dome having substantially parallel exterior and interior semispherical surfaces; a tubular adapter partially extending through said aperture and having a pair of spaced threaded portions thereon, said tubular adapter having its outer wall spaced from the periphery of the aperture provided in said semispherical member; retaining means having a surface thereof of substantially the same curvature as the exterior semispherical surface of said dome and threadably engaged with one of the threaded portions on said tubular adapter, a lamp holder including a lamp in said tubular member, a housing shaped to the interior surface of said dome movably mounted in said frame and threadably connected with the second of said threaded portions on said tubular adapter, said retaining means and said housing being shaped and proportioned whereby said retaining means may be rotated on said first threaded portion so as to clamp said dome portion between said retaining means and said housing, thereby holding said housing and lamp holder fixed relative to said frame; lens means and shield means attached to said housing and encompassing said lamp for emitting a predetermined arc of light therefrom.

4. A lamp fixture as set forth in claim 3, wherein there is means on said frame for holding said housing in a set position relative to said frame, thereby restricting said arc of light to a predetermined sector relative to said wall.

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