June 27, 1944. W. TRAUTNER 2,352,459

BLACKOUT LAMP

Filed March 30, 1942

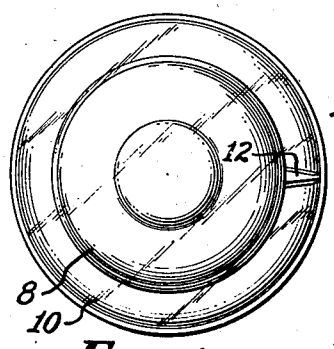


FIG. 1.

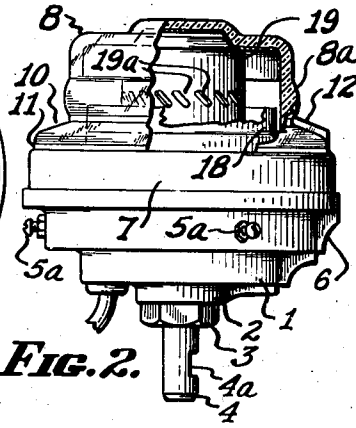


FIG. 2.

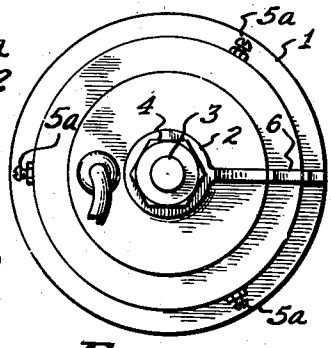


FIG. 3.

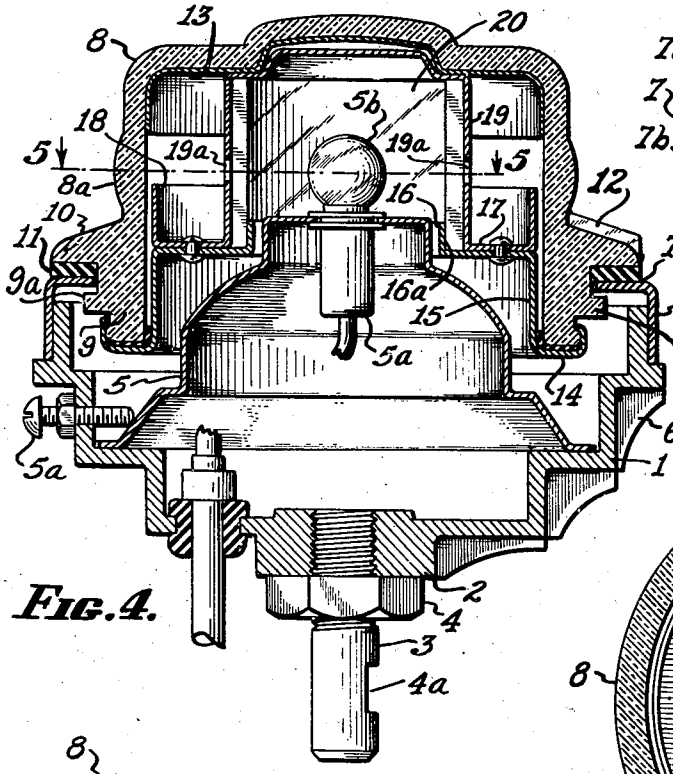


FIG. 4.

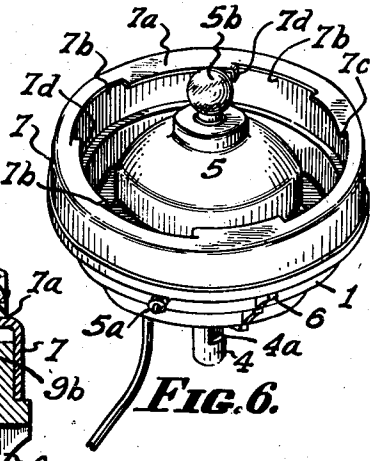


FIG. 6.

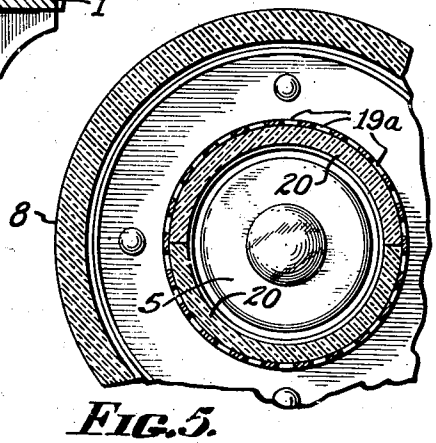


FIG. 5.

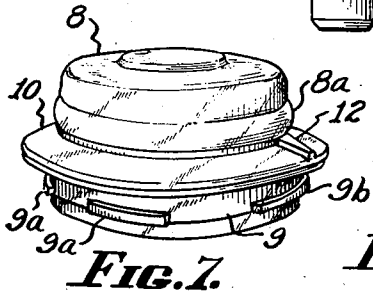


FIG. 7.

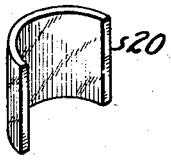


FIG. 8.

BY

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2,352,459

UNITED STATES PATENT OFFICE

2,352,459

BLACK-OUT LAMP

Wagn Trautner, Hamilton, Ohio, assignor to The K-D Lamp Co., Cincinnati, Ohio, a corporation of Ohio

Application March 30, 1942, Serial No. 436,855

6 Claims. (Cl. 240—7.5)

My invention relates to lamps which emit a carefully restricted beam visible only from a narrow zone and not for any great distance, more particularly designed for boats and which emit distinctive colored rays to indicate port or starboard, ordinarily the standard green and red.

In my application for Letters Patent Serial No. 435,365 filed Mar. 19, 1942, I have described a lamp having a zone of visibility which is restricted in degrees, but which embodies within it the fundamentals of my present lamp. As in the said application my present lamp includes a light source, shrouded above and below and exposed only through restricted slits in a mask and in which there are additional shrouds which are located far enough away from slits of the mask to confine the light rays emitted from the lamp to those which pass through a refraction lens located in the zone of the said additional shrouds.

In the present invention it is my objective to adapt the principles of the lamp of my said application to a 360 degree visibility lamp, to provide for two color zones in connection with the mask, and to assuring that in assembly of the lamp and mounting thereof, there is positive indication to require that the two colors are oriented properly, and that the lamp will be mounted properly with relation to the boat or other moving device which is served by the lamp.

In the illustrated exemplification the lamp is intended to be substituted for a searchlight in a boat, to be located at a point visible within a full 360 degrees. By suitable arrangements the lamp can be quickly oriented exactly in position on the boat in the dark and the casing is accurately arranged with reference to the interior of the lamp, so that the result of mounting the lamp will be to secure a definite orientation of the two colors with reference to the boat. There are in addition structural details incident to making the new lamp one which is visible at 360 degrees, and to provide strength, accessibility, water tightness, and ability to withstand rough treatment.

In the drawing:

Figure 1 is a top plan view of the lamp.

Fig. 2 is a side elevation thereof.

Fig. 3 is a bottom plan view thereof.

Fig. 4 is a central vertical section thereof.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a perspective of the lamp base.

Fig. 7 is a perspective of the glass top and lens unit.

Fig. 8 is one of the color sectors used in the lamp.

Referring to the specific embodiment illustrated which will serve as an example of my invention, the novelty of which will be set forth in the claims, the base consists of a casting 1 of circular shape and cup form, having a threaded boss 2 centrally thereof, into which is threaded the mounting post 3, there being a lock nut 4 for the proper position of the post. This post may have a special shape to operate with a special socket on the boat to assure precise orientation of the base of the lamp when mounted. As shown a flat 4a is formed on the post for engagement with a set screw in the socket (neither of which are shown). Mounted within the base is a dome shaped socket mount 5, which is held in place in some convenient manner such as by removable set screws 5a in the side of the base casting. The casting has a prominent external rib 6 formed thereon, which can be easily distinguished by the fingers and which serves in mounting the lamp in place in total darkness. The casing also has welded to the top annulus thereof, a sheet metal holder 7 for the glass of the lamp.

This holder has an inturned flange 7a, which is formed with notches 7b and 7c therein. In the form shown the notch 7c is different from the other notches being wider, a device which assures proper orientation of the glass member of the lamp.

The glass is a dome shaped molded piece 8, preferably of heavy glass with an intermediate band 8a thereon molded to form a refraction lens to confine light rays impinging upon it within a desired angle of deflection.

The lower annulus 9 of this glass 8 will enter the sheet metal holder, and there are ribs 9a and 9b on this annulus which project laterally therefrom. These ribs must pass through the notches 7b and 7c in the holder flange before the glass can be seated on the holder. The rib 9b is longer than the ribs 9a and can only enter the longer notch 7c, wherefore proper orientation of the glass is arranged, as has heretofore been noted. Some of the notches have a lip 7d projecting downwardly at their ends which lips serve as stops when the glass is inserted into place and twisted to lock it down. There is a flange 10 formed on the glass which is provided with a rubber gasket 11, and seats on the top of the holder 7.

Cast on the top of the flange 10 is a guide mark 12, which as will be noted, guides the assembly of the lamp since in the final assembled form this guide mark will line up with the rib 6 on the base casting. This guide mark 12 will also make it easy to find the proper orientation

of the glass for inserting it into the holder on the base, since it can be felt with the fingers in the dark.

The top of the glass, and down the sides thereof to the upper boundary of the refraction rib is coated with black light absorbent material as at 13. Press fitted into the glass from the bottom is a shroud and mask structure, the lower portion of which is channel shaped as at 14 to take a forced fit over the bottom annulus of the glass, with an upstanding ring portion 15 and an open top 16 which will come down over the top of the dome 5 which contains the lamp socket 5a and the lamp 5b. Secured to this lower portion as by rivets is a member having a plate portion 17 complementary to the top 16 of the mounting member, an outer upstanding ring 18 which is coated with black light absorbent pigment, and a cylindrical mask portion 19, also so coated, said mask portion having a series of light slits 19a therein, through which rays from the lamp can emanate. The plate portion 16 has its central orifice sufficiently smaller than the orifice within the cylindrical mask that there can be inserted within this cylinder, resting on the top 16, two translucent color sectors 20.

A convenient way of inserting the sectors and holding them in place is to turn up a flange as at 16a about the orifice in the portion 16. Then apply the mask and shroud piece 17, 18, 19, and finally rivet the parts tightly together. This will hold the translucent sectors in place, and then in forcing the whole inner structure into place, the dividing line between the two color plates can be arranged with reference to the guide mark 12 on the glass.

The final result is that when the glass is mounted on the base the color sectors will find their dividing line exactly in line with the guide rib 6 and the guide mark 12. If the lamp then be mounted with the guide rib directly astern, the lamp will be correctly oriented.

Removal of the glass requires simply reversing the bayonet type interlocking structure, and withdrawing it. The dome on which the lamp socket is mounted can be released and removed by backing out the set screws 5a. Thus the lamp is readily accessible.

Since the lamp is intended as a black-out lamp visible only for a short distance, it can be used without revealing the presence of a boat to a distant enemy either on the sea or in the air. However, since both colors are used, it can be told what direction the boat is moving, and whether it is backing or coming forward.

The lens and mask are arranged, preferably, so that a narrow ribbon of light which at close range is a series of dots, or at longer range a band, is visible, and not only can the observer tell whether the boat is going at right angles to the observer or at wide angles which will miss the observer but if the band is divided being part red and part green, the observer can tell quite closely the angle being taken by the boat. This is because the beam can have any proportion of the two colors depending upon how closely it is aimed directly at the observer.

Since the lamp emits rays in 360 degrees, it is quite desirable that this last be true. Ordinarily navigation lights are so arranged that if a boat is approaching, the angle of approach cannot be told when both red and green are visible, there being usually ten degrees each way when both lights are visible and no intermediate position where one of the colors is partially visible and the other wholly visible. The color sectors are calculated as to amount of light emitted so as not to be visible at any great distance. The visible light due to the lens is a narrow band oriented horizontally so that there is an avoidance of the beam of one color mixing with a beam of the other color at a distance, thus even obscuring the weaker color. It may be advisable to make the green sector of a greater translucency than the red sector in order to avoid an undue over-balance on the red side at a distance.

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

1. In a blackout lamp having visibility at 360 degrees, a base, a glass having a bayonet type of interlock with said base, means for supporting a light source upon said base and within the glass, and a mask structure within the glass and supported thereby, and arranged to block all rays except interspaced spots of light, the glass having an annular refraction lens therein, and shrouds located to block rays from the light spots except those which pass through the lens.

2. In a blackout lamp having visibility at 360 degrees, a base, a glass having a bayonet type of interlock with said base, means for supporting a light source upon said base and within the glass, and a mask structure within the glass arranged to block all rays except interspaced spots of light, the glass having an annular refraction lens therein, and shrouds located to block rays from the light spots except those which pass through the lens, the said light source having translucent colored sectors between it and the mask.

3. In a blackout lamp having visibility at 360 degrees, a base, a glass having a bayonet type of interlock with said base, means for supporting a light source upon said base and within the glass, and a mask structure within the glass arranged to block all rays except interspaced spots of light, the glass having an annular refraction lens therein, and shrouds located to block rays from the light spots except those which pass through the lens, the glass being dome shaped and the mask and shroud construction being a unitary structure having an inner cylinder as the mask and a shorter outer cylinder as the shroud, and means for supporting said structure within the glass, said glass having a shroud formed to block the top thereof and annularly of the glass beneath the top, thus setting up a 360 degree light slit.

4. In a blackout lamp having visibility at 360 degrees, a base, a glass having a bayonet type of interlock with said base, means for supporting a light source upon said base and within the glass, and a mask structure within the glass arranged to block all rays except interspaced spots of light, the glass having an annular refraction lens therein, and shrouds located to block rays from the light spots except those which pass through the lens, the glass being dome shaped and the mask and shroud construction being a unitary structure having an inner cylinder as the mask and a shorter outer cylinder as the shroud, and means for supporting said structure within the glass, said glass having a shroud formed to block the top thereof and annularly of the glass beneath the top, thus setting up a 360 degree light slit, said refraction lens being located at the said 360 degree slit.

5. In a blackout lamp having visibility at 360 degrees, a base, a glass having a bayonet type of

interlock with said base, means for supporting a light source upon said base and within the glass, and a mask structure within the glass arranged to block all rays except interspaced spots of light, the glass having an annular refraction lens therein, and shrouds located to block rays from the light spots except those which pass through the lens, the glass being dome shaped and the mask and shroud construction being a unitary structure having an inner cylinder as the mask and a shorter outer cylinder as the shroud, and means for supporting said structure within the glass, said glass having a shroud formed to block the top thereof and annularly of the glass beneath the top, thus setting up a 360 degree light slit, the light supporting means within the base being in the form of a dome, demountably secured within the base so as to bring the light source to the focal point of the refraction lens.

6. In a blackout lamp having visibility at 360 degrees, a base, a glass having a bayonet type of interlock with said base, means for supporting a light source upon said base and within the glass, and a mask structure within the glass arranged to block all rays except interspaced spots of light, means in connection with the mask structure providing colored sectors, the glass having an annular refraction lens therein, and shrouds located to block rays from the light spots except those which pass through the lens, the glass being dome shaped and the mask and shroud construction being a unitary structure having an inner cylinder as the mask and a shorter outer cylinder as the shroud, and means for supporting said structure within the glass, said glass having a shroud formed to block the top thereof and annularly of the glass beneath the top, thus setting up a 360 degree light slit, and means for mounting the mask structure within the glass by a force fit, whereby the orientation of the colored sectors may be provided after insertion within the mask, said glass having indicia formed thereon, whereby the said orientation may be made, and the bayonet type mounting being adapted to receive the glass on the base in but one orientation.

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