

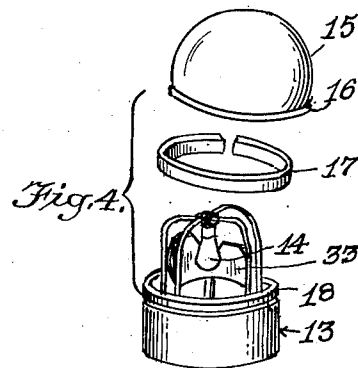
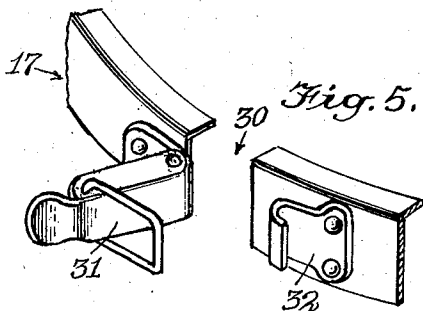
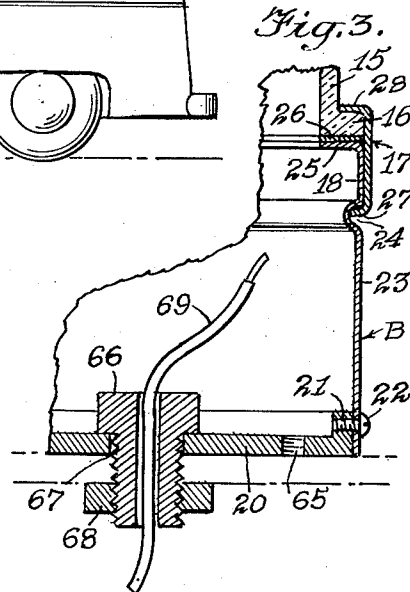
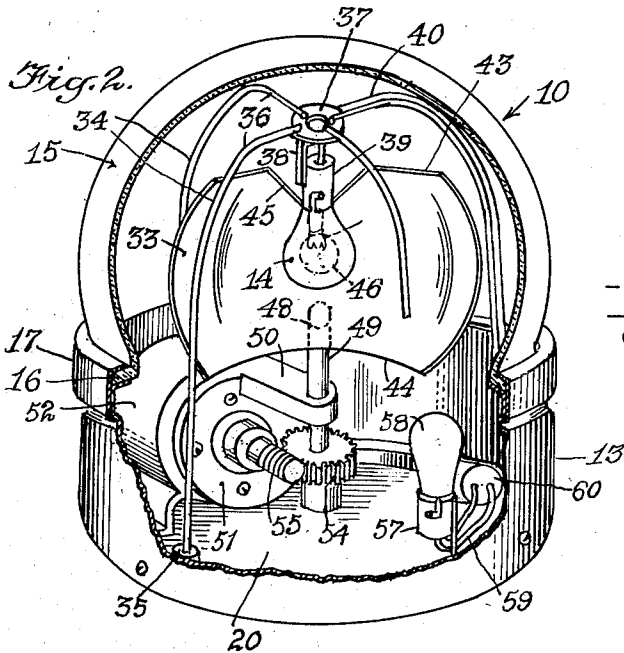
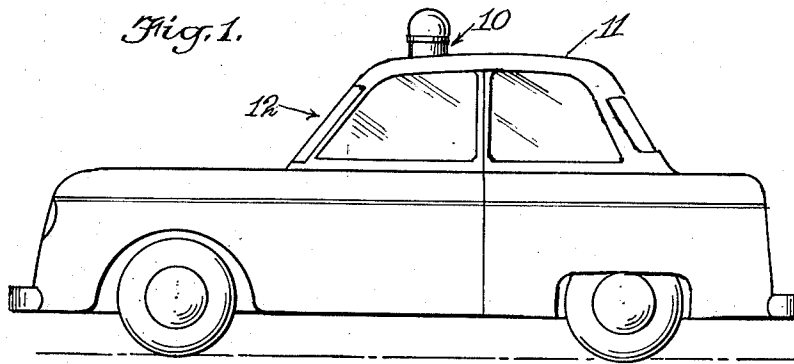
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J. S. McREA

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ROTARY BEAM WARNING LIGHT

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INVENTOR
John S. McRea
BY
Munn, Liddy, Nathanson & March
ATTORNEYS

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ROTARY BEAM-WARNING LIGHT

John S. McRea, New York, N. Y., assignor to The Sireno Co., Inc., New York, N. Y., a corporation of New York

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3 Claims. (Cl. 340—87)

This invention relates to attention-attracting, motivated-beam warning lights for use on vehicles such as fire and police cars, ambulances and the like.

An object of the invention is to provide a novel and improved, attention-attracting, revolving or motivated beam light for a vehicle, which is extremely simple in its construction and economical to produce and manufacture.

Another object of the invention is to provide an improved, motivated-beam light as above set forth, wherein there are eliminated sliding contacts, slip rings and the like which are normally utilized in revolving beam lights.

A still further object of the invention is to provide a novel, rotating-ray warning light wherein there is provided a powerful, searchlight-type beam which is projected forward of a reflector, and also from the same light source a secondary illumination at the rear of the reflector without materially detracting from the strength of the forward-projected beam.

In accomplishing the above objects I provide a novel lighting structure comprising a stationary light source, a reflector for the light source arranged for rotation in a horizontal path about the source and in operative relation thereto, to provide a concentrated substantially horizontal beam therefrom, and a motive means for continuously rotating the reflector in said path. The reflector has at its center or apex a relatively small opening disposed at the same level as the light source whereby illumination will be had at the rear of the reflector in addition to the concentrated beam of the reflector itself.

Yet another object of the invention is to provide an improved warning light as above characterized, wherein a flashing light signal is had as well as a revolving beam light or signal.

A feature of the invention resides in the provision of a novel, simplified warning light structure in accordance with the above, which is characterized by a rotatable reflector mounting disposed wholly below the light source and a stationary mounting for the light source which is disposed wholly above the latter.

Another feature of the invention resides in the provision of an improved warning light as above set forth, which is simple in construction, relatively small and compact, reliable in performance, easy to service and relamp and economical to manufacture.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Figure 1 is a side elevational view of a vehicle having mounted on it the improved, rotating-beam light of this invention.

Fig. 2 is a perspective view of the light, with a portion of the casing broken away to reveal the interior.

Fig. 3 is a fragmentary vertical section taken through a side wall of the casing and a portion of the lens, of the light shown in Fig. 2.

Fig. 4 is an exploded view of the improved rotary-beam light of this invention.

Fig. 5 is an enlarged detail showing the separable ends and the fastening means of the clamping ring by which the dome-shaped lens is attached to the casing.

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Referring to Fig. 1 the improved warning light 10 of the present invention is shown mounted on the roof 11 of a vehicle 12 which may be a fire or police car, ambulance or any other vehicle of the type usable in emergency situations. The warning light 10 is shown as disposed somewhat forward of the center of the roof 11 of the vehicle 12; however it may be mounted in various other locations on the car which are considered suitable or desirable.

Referring to Fig. 4 the warning light 10 comprises essentially an upright cylindrical casing 13 having mounted therein a light source 14 which may be an incandescent bulb or its equivalent, a dome-shaped panoramic lens 15 having an exterior circular flange 16 constituting its lower rim, and a circular clamping ring 17 adapted to secure the lens 15 to the upper or lip portion 18 of the casing 13.

Referring to Figs. 3 and 5 the casing 13 may comprise a circular disk-like cast metal base 20 having an upstanding peripheral flange 21 adapted to receive screws 22, and a cylindrical sheet metal body 23 secured to the base 20 by the screws 22. The upper portion of the cylindrical body 23 is formed to provide an external annular groove 24 adjacent the top edge, and an intumed flange 25 is provided on the top edge of the body in spaced relation to the groove 24.

The outturned flange 16 of the lens 15 is adapted to rest on the intumed flange 25 of the casing body, and if desired a flat sealing washer 26 may be provided between the flanges, to effect a tight seal.

The clamping ring 17 has an intumed flange 27 along its lower edge, adapted to be accommodated in the groove 24 of the body 23, and has a larger intumed flange 28 along its upper edge, engaging the top surface of the flange 16 of the panoramic lens 15.

As shown in Fig. 5 the ring 17 has a cut 30 in it, and the adjacent ends of the ring are provided with cooperable clamping means 31, 32 by which the ring may be easily and quickly clamped around the casing body 23 and the lens 15, thereby to securely hold the lens in mounted position on the body. With this arrangement the lens 15 may be readily quickly removed at any time by merely releasing the clasp 31, 32, thereby to enable bulb replacement or relamping of the light to be easily accomplished.

In accordance with the present invention the lamp 14 is stationary in the casing and is mounted in inverted position therein, and a rotary reflector 33 is provided, adapted to rotate about the lamp 14 in operative position, thereby to project a powerful searchlight beam horizontally from the light and to enable said beam to be continuously rotated so as to provide an attention-arresting warning signal which may be seen from remote points and from various directions. As shown in Fig. 2 the casing 13 has a supporting spider comprising a plurality of upright standards 34 in the form of rods fitted and attached to bosses 35 on the base 20 adjacent the periphery thereof. The uprights 34 extend upward alongside the inner wall of the lens 15, and have upper horizontal portions 36 secured to a circular plate 37 adjacent the upper center portion of the lens 15. Depending from the plate 37 is a hanger 38 to which a lamp socket 39 is secured, said socket accommodating the incandescent lamp 14. An electrical conductor 40 extends from the socket 39 along one upper portion 36 of an upright 34, and passes through a length of insulating tubing 41 which is carried by the upstanding portion of the said one upright 34. Together with the uprights 34, the conductor 40 provides for electrical energization of the bulb 14.

The reflector 33 is of the parabolic type but has upper and lower straight edges 43 and 44 respectively, said edges being substantially parallel with each other and the lower edge 44 being somewhat below the plane which contains the rim of the casing 13. The upper edge 43

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of the reflector is spaced below the horizontal portions 36 of the lamp supporting uprights 34, and has a cut-out 45 to provide clearance for the socket 39 of the lamp. The reflector 33 also has a circular opening 46 in its center portion or apex, at the same level as the filament 47 of the lamp 14.

The lower portion of the reflector 33 is attached to a sleeve 48 which is carried by a vertical shaft 49 rotatable in bearing arms 50 of a casting having a circular or ring-shaped base 51 which is mounted on one end of an electric motor 52 placed on and attached to the base 20 of the casing. The reflector 33 is thus mounted for rotation about the lamp 14 in a horizontal path and in operative position with respect to the lamp.

For the purpose of continuously turning the reflector 33 to cause the beam which is projected thereby to revolve in a circular path, the shaft 50 carried a worm gear 54 meshing with a worm 55 driven by the motor 52.

By the above organization, with the motor 52 continuously energized, the reflector 33 will be continually revolved about the stationary lamp 14, resulting in a powerful search light beam being projected through the lens 15 in the manner of an aircraft beacon light, the beam continuously revolving through a full 360 degree arc. It will be noted that at no time is it necessary for the lamp 14 to move, and that the energization of the lamp does not require movable contacts or slip rings, brushes and the like which would be likely to get out of order.

By providing the cut-out or notch 45 in the upper edge 43 of the reflector 33, the latter may be disposed closely adjacent the bulb, providing for an economy in material due to the smaller reflector size made possible by this positioning. Moreover, by the provision of the center opening 46 in the reflector 33 a secondary lighting effect will be obtained from the bulb 14, the lens 15 being illuminated at the rear of the reflector 33 at all times. Because of the presence of the glass envelope of the bulb 14 the apex portion of the reflector 13 is of lessened value in projecting light forwardly past the bulb, and accordingly the provision of the opening 46 does not appreciably reduce the strength of the light beam projected by the reflector.

In accordance with this invention there is also provided within the casing 13 a flashing light source, to enhance the attention-arresting value of the warning light. Referring to Fig. 2 a lamp socket 57 is provided, mounted on the base 20 and carrying an incandescent lamp 58 which is connected by a lead wire 59 to a flasher device 60 of the type well known to the art. The light 58 may be of relatively high wattage and appreciable brilliance, thereby causing an intense flashing light within the lens 15 which brightly illuminates the lens periodically and intermittently. This flashing light, which illuminates the lens 15 from a point within the casing, in conjunction with the powerful search light beam which is continuously revolving through the lens 15, provides an extremely effective and reliable attention-arresting warning light which is a necessity for personnel and equipment which may be present at the scene of an accident or other emergency.

The casing 13 is attached to the roof 11 of the car by screws (not shown) passing upward through the roof and into threaded holes 65 in the base 20. A sturdy hollow screw 66 is provided, passing through a large opening 67 in the base 20 and having a nut 68 by which the base 20 may also be secured to the car roof 11. A lead wire 69 may be brought through the screw 66, to supply the energization for the motor 52, lamps 14 and 58, and flasher 60.

The improved warning light of this invention is seen to be of extremely simple and economical construction. The casing 13 and lens 15 provide a reliable and effective

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seal against the entrance of rain, dirt, etc. I have found that my warning light as above set forth is extremely effective and reliable in its operation throughout an extended period of use, due in part to the absence of moving contacts, brushes, etc., which are obviated by the stationary light source and rotary reflector, and also due to the simplified lens and casing construction involving the single flat sealing washer or gasket 26 which makes the light weather tight. The motor 52 is rated for continuous duty, and due to the extremely light load imposed on the moving parts there is no appreciable wear involved nor lubrication problems. Even though the casing is effectively sealed against the weather it may be instantly opened for replacement of lamps by releasing the claspings means 31, 32.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. An attention-attracting, motivated-beam warning light for a vehicle, comprising a stationary light source; a cup-shaped reflector for said light source; means mounting the cup-shaped reflector for rotation in a horizontal path level with and about the light source and in operative relation thereto, to project a concentrated, substantially horizontal beam therefrom; means for rotating the reflector; and stationary means extending upwardly above the reflector past the top of the reflector, and downward past the outside of the reflector for supporting said light source, said stationary means consisting of a plurality of outwardly disposed slim rods providing a minimum of impediment to said light beam, said reflector having upper and lower edges disposed in substantially parallel, spaced planes, the upper edge of the reflector having a notch to provide clearance for the supporting means of the light source.

2. An attention-attracting, motivated-beam warning light for a vehicle, comprising a stationary light source; a cup-shaped reflector for said light source; means mounting the cup-shaped reflector for rotation in a horizontal path level with and about the light source and in operative relation thereto, to project a concentrated, substantially horizontal beam therefrom; means for rotating the reflector; and stationary means extending upwardly above the reflector past the top of the reflector, and downward past the outside of the reflector, for supporting said light source, said stationary means consisting of a plurality of outwardly disposed slim rods providing a minimum of impediment to said light beam, said reflector having an opening at its apex to enable light from the source to also travel in a direction opposite to the said beam.

3. An attention-attracting, motivated-beam warning light for a vehicle, comprising a stationary light source; a cup-shaped reflector for said light source; means mounting the cup-shaped reflector for rotation in a horizontal path level with and about the light source and in operative relation thereto to project a concentrated, substantially horizontal beam therefrom; means for rotating the reflector; and stationary means extending upwardly above the reflector past the top of the reflector, and downward past the outside of the reflector, for supporting said light source, said stationary means consisting of a plurality of outwardly disposed slim rods providing a minimum of impediment to said light beam, said reflector having upper and lower edges disposed in substantially parallel, spaced planes, the upper edge of the reflector having a notch to provide clearance for the supporting means of the light source, and having an opening at its apex to enable light from the source to also travel in a direction opposite to the said beam.

References Cited in the file of this patent

UNITED STATES PATENTS

841,845	Betts	Jan. 22, 1907
1,417,457	Cook	May 23, 1922
1,903,462	Knox	Apr. 11, 1933

5

2,248,760
2,469,581
2,538,854
2,578,239
2,642,522
2,748,371

Kirby	July 8, 1941
Slosar	May 10, 1949
Wyatt	Jan. 23, 1951
Gosswiller	Dec. 11, 1951
McDowell	June 16, 1953
Wilcox et al.	May 29, 1956