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R. G. NORDQUIST
DECORATIVE SPOTLIGHT

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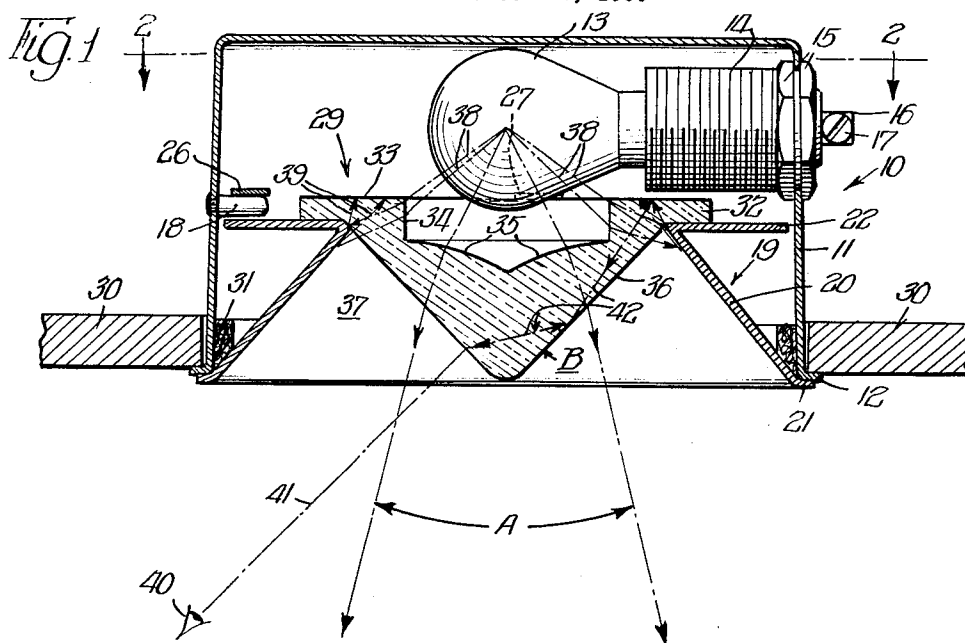
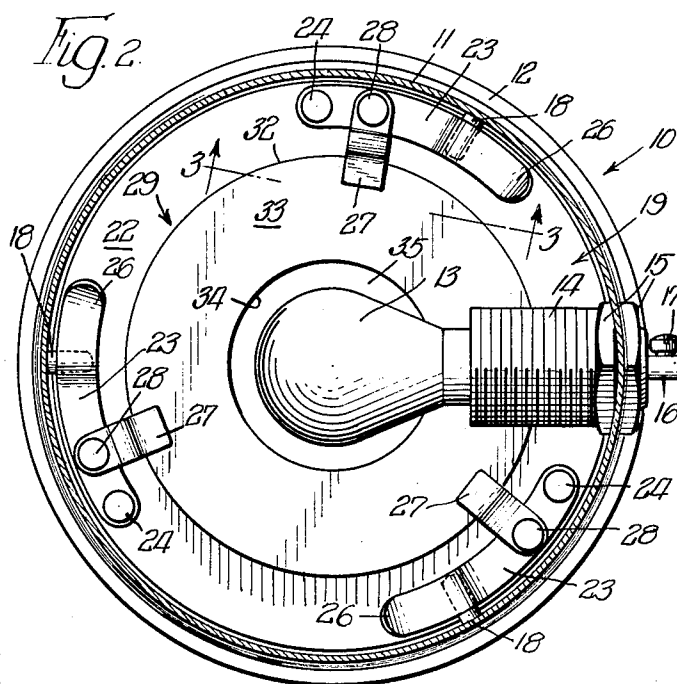
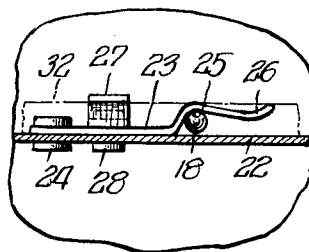


Fig. 3



INVENTOR.
Robert G. Nordquist,
BY
Cromwell, Christ & Warden
attys

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DECORATIVE SPOTLIGHT

Robert G. Nordquist, Glen Ellyn, Ill., assignor to Patent License Corporation, Chicago, Ill., a corporation of Illinois

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The present invention relates to a new and improved form of lighting fixture particularly adapted for use in passenger-carrying vehicles as a reading light, aisle light, etc., the fixture providing a controlled beam of intensified light and, further, upon being outwardly observed from specified areas of location providing a colorful decorative effect of pleasing and comfortable appearance.

It is an object of the present invention to provide a new and improved form of decorative spotlight adapted for many different uses such as passenger reading or aisle illumination in vehicles, the decorative aspects of the spotlight being in the form of observable pronounced coloration of the globe or lens member forming a part of the same, the spotlight being of uncomplicated low cost design accompanied by space-saving features for ready installation in limited areas of use.

A further object is to provide a lighting fixture utilizing a globe or lens member and mounting member thereof of new and improved arrangement which provides with the use of the fixture an observable decorative effect of colorful and pleasing appearance, the decorative effect being established by combined functioning of a single light source, globe and globe mounting member which primarily cooperatively function to provide a controlled beam of intense white light for illumination purposes while additionally cooperatively functioning to establish the observable decorative effect without interfering with the primary function provided thereby.

An additional object is to provide a new and improved form of lighting fixture for use in controlled illumination of areas of interest, the fixture being inexpensively formed from a relatively small number of combined elements which structurally and functionally cooperate to provide a decorative effect in addition to controlled illumination, the elements including a single light source lens member and lens mounting member for providing both the controlled illumination and decorative effect of the fixture, the lens member and lens mounting member being removably received within the housing of the fixture in association with the light source and held therein by uncomplicated retaining means which materially add to the ease of installation and maintenance of the improved fixture.

Other objects not specifically set forth will become apparent from the following detailed description made in conjunction with the drawings wherein:

Fig. 1 is a vertical section of the decorative spotlight of the present invention illustrating the same in mounted condition for use;

Fig. 2 is a sectional plan view of the spotlight of Fig. 1 taken generally along line 2—2 of Fig. 1; and

Fig. 3 is a fragmentary view in partial section taken generally along line 3—3 of Fig. 2.

The decorative spotlight of the present invention includes a housing which receives therein a light source below which is positioned a globe or lens member condensing light from the light source into a downwardly direct-

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ed, controlled intensified beam which is emitted from the bottom portion of the spotlight housing. The globe is provided with a colored surface portion which is illuminated by stray light of the light source and which, due to the specific shape of the lens member and cooperating functioning of a lens mounting member associated therewith, is observable from a point below the housing out of the path of the controlled beam of condensed light. Upon observance of the outer surface of the lens member, the observed portion of the same appears to be the same color as that of the coating carried internally of the housing thereby and the coloring effect provided does not interfere with or detract from the useful efficiency of the controlled beam of intense light used for spot illumination.

In Figs. 1 and 2 the lighting fixture or spotlight 10 is illustrated as including a cylindrical housing 11 completely enclosed at the top thereof while being fully open at the bottom thereof, the opening being defined by an outwardly turned, circumferentially continuous mounting flange 12. Received within the top portion of the housing 11 is a light source 13 of known type which includes a white light bulb received within a socket 14 extending through a side wall portion of the housing 11 and clamped thereto by oppositely positioned nuts 15. Outwardly of the housing 11 a contact terminal 16 carrying a lead clamping screw 17 is provided for attachment with flexible leads from a suitable source of power.

Circumferentially spaced about the interior of the housing 11 are several pins 18 which are suitably attached to the side wall of the housing 11 and are inwardly directed relative thereto. A globe-carrying or lens mounting member generally designated by the numeral 19 is received within the bottom portion of the housing 11 through the opening defined by the outturned flange 12. The member 19 is formed from a downwardly expanding, cone-shaped portion 20 being integrally provided at the lower margin thereof with an outturned circumferentially continuous flange 21. The flange 21 is tightly received against the flange 12 when the member 19 is fixed within the housing 11 in its mounted condition.

The uppermost margin of the cone-shaped portion 20 has integrally formed therewith a circumferentially continuous flange portion 22 which is radially outwardly directed and extends to a point just short of the inner surface of the housing 11. As particularly shown in Figs. 2 and 3, the top surface of the flange portion 22 carries at spaced intervals therealong a plurality of spring retainers in the form of spring leaves 23 which at one end are suitably attached to the flange portion 22 as by rivets 24. The unattached ends of each of the leaf springs 23 are bent upwardly to define a partial groove 25 receiving therein the pin 18 associated therewith. The end-most margin of each leaf spring 23 is bent downwardly toward the top surface of the flange portion 22 and further bent away from the same to define a camming portion 26 which may readily be cammed by a pin 18 when the lens mounting member 19 is rotated in either direction. Intermediate the ends of each of the leaf springs 23 is a globe retaining clip 27 held by suitable means such as a rivet 28 which is passed through both the leaf spring 23 and the flange portion 22 of the globe-carrying member 19. The clips 27 are tightly received over the edge margins of a globe or lens member generally designated by the numeral 29 to firmly clamp the same in supported relation with the flange portion 22 of the mounting member 19.

As particularly shown in Fig. 1, the housing 11 is received through an aperture in a sealing or wall member 30 and the inner surface of the flange 12 abuts the outer surface of the partition or wall member 30. Any suit-

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able means are used to fix the housing 11 relative to the ceiling or wall member 30. The combined mounting member 19 and globe 29 are readily inserted through the bottom opening of the housing 11 and moved upwardly until the flange 21 is stopped by the flange 12. Upon reaching this position the entire assembly is rotated in a clockwise direction, as viewed in Fig. 2, and the camming end portions 26 of the leaf springs 23 slide over the top surfaces of the pins 18. Once the pins 18 engage the partial grooves 25, the combined mounting member 19 and globe 29 are in their mounted position within the housing 11 and are arranged in operative association with the light source 13. To remove the elements 19 and 29 for maintenance purposes, it is necessary merely to rotate the combined elements in a counterclockwise direction, as viewed in Fig. 2, until the pins 18 have moved free of the ends of the leaf springs 23. A suitable packing ring member 31 is compressed between the engaging surfaces of the globe mounting member 19 and the housing 11 to prevent ingress of foreign material while at the same time eliminate light loss in the event of uneven surface conditions.

The globe 29, as particularly shown in Fig. 1, is substantially V-shaped in cross section and is provided with a circumferentially continuous, radially outwardly directed flange portion 32, the top surface of which carries a coating 33 of colored material such as paint. The coating 33 is preferably a light diffusing type of coating such as obtained by using an opaque enamel provided with a roughened surface. Any color may be used depending upon the desired decorative effect. The central portion of the globe 29 is centrally recessed in a downwardly direction to provide a depression 34, the lower margins of which are integrally formed with a continuous convex condensing surface 35. The convex surface 35 extends to the center axis of the globe 29 and, in effect, provides cooperating, oppositely positioned condensing lenses on the inner surface of the globe 29. The condensing lens portions are associated and axially aligned with the light source 13 to condense the light rays contacting the same into an intensified beam of downwardly directed light, the confines of which are designated by the beam A. The radial axis of the globe 29 being circular provides a cone-shape beam A which is particularly adapted for use in illuminating specified areas for reading purposes of aisle lighting. The lower surface of the flange portion 32 rests against the top surface of the flange portion 22 of the globe mounting member 19. The bottom surface 36 of the globe 29 is cone-shaped for a purpose to be described.

In the operation of the fixture 10, light from the light source 13 is condensed by the condensing lens portions 35 into the intensified cone-shaped beam A of downwardly directed light. Stray light from the light source 13 passes through the vertical side walls of the recessed portion 34 into contact with the outermost surface 37 of the globe-carrying member 19. The direction of travel of the strayed light rays is designated by the broken lines 38 and, in following these lines, it will be noted that a slight reflexing of the same occurs within the globe to bring about illumination of the upper marginal portions of the outermost surface 37 of the globe-carrying member 19. The surface 37 is preferably made non-specular as by providing the same with a black coating but, as is true of all non-specular surfaces, a limited amount of reflective properties are retained. Consequently, a slight degree of reflection occurs and such is partially designated by the broken lines 39. A certain amount of stray light is redirected upwardly to illuminate the innermost surface of the colored coating 33. Reflection of the light rays 38, of course, occurs in other directions but the non-specular aspect of the outermost surface 37 prevents diffused reflection of this nature establishing a glare which interferes with comfortable observance of

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the fixture 10 from a point outside of the intense beam A of concentrated light.

With illumination of the colored coating 33, an observance of the globe 29 from a point below the fixture 11 and outside of the confines of the beam A as indicated by the schematic eye 40 results in an appearance of the color of the coating 33 as if the outer or bottom surface 36 of the globe 29 were painted or colored. A line of sight 41 is indicated as being refracted by the globe 29 to provide reflective observance of the illuminated coating 33. The refracted line of sight 42 is illustrative of the phenomena resulting in an outward appearance of globe coloration to provide the decorative effect.

In order to obtain the outward appearance of coloration it is necessary that the bottom or outermost surface 36 of the globe 29 take the shape of substantially a cone or near-cone so as to establish an internally reflective angle of less than 45°. The angle B being less than 45° allows reflective observance of the coating 33 from a point below the fixture 11 out of the field A of intense light. Consequently, from any position where the outer surface 36 of the globe 29 may be viewed and where the filament of the light source 13 is not observable, the colored coating 33 will be reflectively observable to impart to the globe 29 a colored outward appearance of a pleasing nature. Thus, the decorative spotlight of the present invention makes use of basic elements necessary to define a controlled beam of illumination to further provide a decorative effect without the necessity of utilizing a plurality of light sources and without relying on structural details of a complicated nature. The decorative aspects of the fixture will function without separate maintenance for the life of the single source utilized primarily in providing the intense beam of light.

Obviously many modifications and variations of the invention as hereinbefore set forth may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claims.

I claim:

1. A decorative spotlight including a housing having a light source therein, a globe mounted in said housing and aligned between said light source and an opening in the bottom portion of said housing, said globe including a colored light diffusing opaque coating along surface portions thereof, the central portion of said globe defining a condensing lens portion aligned with said light source for concentrating light from said light source to define a cone-shaped beam directed through said globe and downwardly out of said housing, said coating being aligned with the reflective lines of sight through said lens portion from points below said housing and out of said beam.

2. A decorative spotlight including a housing having a light source therein, a globe mounted in said housing, and aligned between said light source and an opening in the bottom portion of said housing, said globe including a radially directed flange portion provided with a colored light diffusing opaque coating along surface portions thereof, light reflective means for directing light from said source toward said coating, the central portion of said globe defining a condensing lens portion aligned with said light source for concentrating light from said light source to define a cone-shaped beam directed through said globe and downwardly out of said housing, said coating being aligned with the reflective lines of sight through said lens portion from points below said housing out of said beam.

3. A decorative spotlight including a housing having a light source therein, a globe mounted in said housing and aligned between said light source and an opening in the bottom portion of said housing, said globe including a mounting flange portion provided with a colored light diffusing opaque coating along surface portions thereof, light reflective means for directing light from

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said source toward said coating, said light reflective means forming a part of a removable globe-carrying member of downwardly expanding cone-shape received through the bottom opening of said housing, the central portion of said globe defining a condensing lens portion aligned with said light source for concentrating light from said light source to define a cone-shaped beam directed through said globe and downwardly out of said housing, said coating being aligned with the reflective lines of sight through said lens portion from points below said housing and out of said beam, said globe-carrying member surrounding said lens portion.

4. A decorative spotlight including a housing having a light source therein, a globe mounted in said housing and aligned between said light source and an opening in the bottom portion of said housing, said globe including a radially directed flange portion provided with a colored light diffusing opaque coating along surface portions thereof, light reflective means for directing light from said source toward said coating, said light reflective means forming a part of a removable globe-carrying member of downwardly expanding cone-shape received through the bottom opening of said housing, the central portion of said globe defining a condensing lens portion aligned with said light source for concentrating light from said light source to define a cone-shaped beam directed through said globe and downwardly out of said housing, the inner surface of said globe-carrying member constituting said light reflective means and being substantially non-specular while allowing adequate reflection of light directed through said globe outside the confines of its condensing lens portion toward said coating to light the same, said coating being aligned with the reflective lines of sight through said lens portion from a point below said housing and out of said beam.

5. A decorative spotlight including a housing having a light source therein, a lens member mounted in said housing and aligned between said light source and an opening in the bottom portion of said housing, said lens member being substantially V-shaped in cross section and having a circumferentially continuous flange extending outwardly from the top side margin thereof, a lens mounting member supporting said lens member in said housing, the top surface of said flange having a colored coating applied thereto, said lens mounting member being of downwardly expanding cone-shape and being received through the bottom opening of said housing, the inner surface of said lens mounting member being substantially non-specular while allowing adequate reflection of light directed through said lens member toward said coating to light the same, the inner surface of said lens member being centrally recessed and defining cooperating convex condensing lens portions, said condensing lens portions concentrating light from said light source to define a cone-shaped beam directed through said lens member and downwardly out of said housing, the outer surface of said lens member being cone-shaped with said lens member being internally reflective to allow observance of said coating through said lens member from a point below said housing and out of said beam.

6. A decorative spotlight including a housing having a light source therein, a lens member mounted in said housing and aligned between said light source and an opening in the bottom portion of said housing, said lens member being substantially V-shaped in cross section and having a circumferentially continuous flange extending outwardly from the top side margin thereof, a lens mounting member supporting said lens member in

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said housing, the top surface of said flange having a colored coating applied thereto, the inner surface of said lens member being centrally recessed and defining cooperating convex condensing lens portions, said condensing lens portions concentrating light from said light source to define a cone-shaped beam directed through said lens member and downwardly out of said housing, said lens mounting member being of downwardly expanding cone-shape and being received through the bottom opening of said housing, a top portion of said lens mounting member including a flange support with which the bottom surface of said lens member flange is in resting engagement, the inner surface of the cone-shaped portion of said lens mounting member being substantially non-specular while allowing adequate reflection of light directed through said lens member outside the confines of its condensing lens portions toward said coating to light the same, the outer surface of said lens member being cone-shaped with said lens member being internally reflective to allow observance of said coating through said lens member from a point below said housing and out of said beam.

7. A decorative spotlight including a housing having a light source therein, a globe mounted in said housing and aligned between said light source and an opening in the bottom portion of said housing, said globe being substantially V-shaped in cross section and having a circumferentially continuous flange extending outwardly from the top side margin thereof, a globe-carrying member supporting said globe in said housing, said globe-carrying member including a central downwardly expanding cone-shaped portion positioned about the outer surface of said globe and received within the bottom opening of said housing, an integral radially directed flange portion forming a part of said globe-carrying member and in supporting engagement with the bottom surface of the flange of said globe, retaining means carried by the flange portion of said globe-carrying member holding said globe in association therewith, resilient clips carried by the flange portion of said globe-carrying member cooperating with inwardly directed circumferentially spaced pins carried by said housing for removably mounting said globe-carrying member therein, the top surface of the flange of said globe having a colored coating applied thereto, the inner surface of said globe being centrally recessed and defining cooperating convex condensing lens portions which concentrate light from said light source to define a cone-shaped beam directed through said globe and downwardly out of said housing, the inner surface of the cone-shaped portion of said globe-carrying member being substantially non-specular while allowing adequate reflection of light directed through said globe outside the confines of its condensing lens portions toward said coating to light the same, the outer surface of said globe being cone-shaped with said lens portions being internally reflective to allow observance of said coating through said lens portions from a point below said housing and out of said beam.

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