July 23, 1940. C. J. BRIEFER ET AL 2,209,187

LAMP

Filed Nov. 22, 1938

Fig.1.

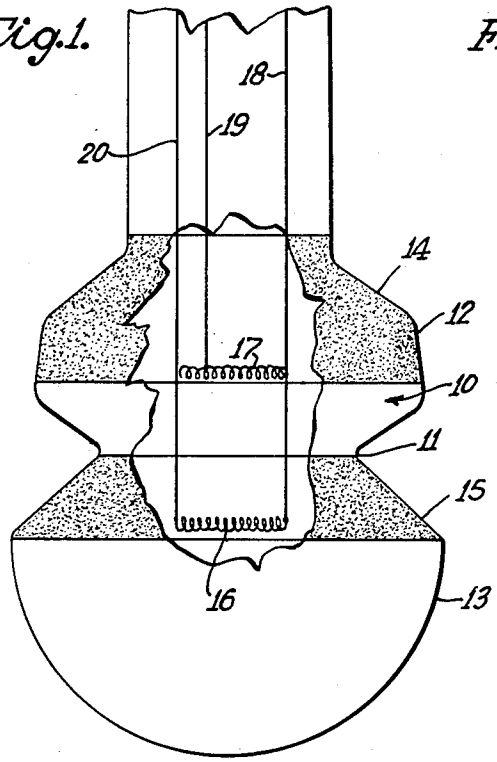


Fig.2.

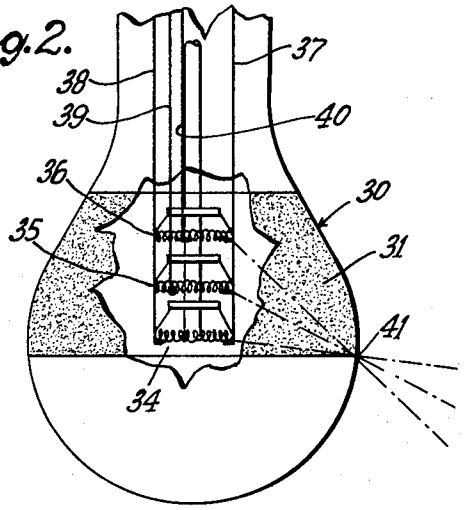


Fig.3.

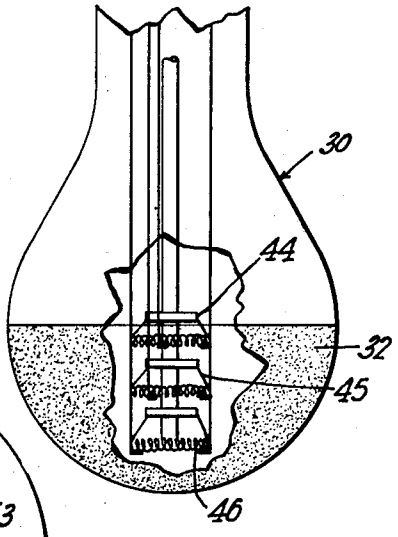


Fig.4.

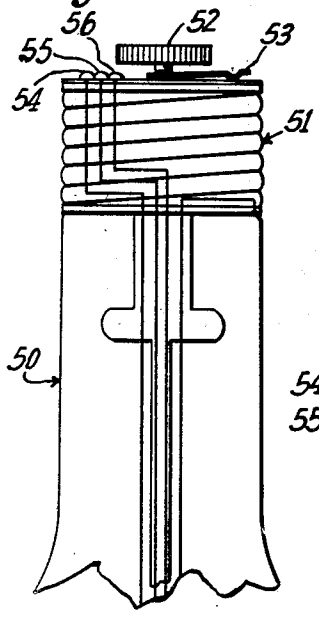
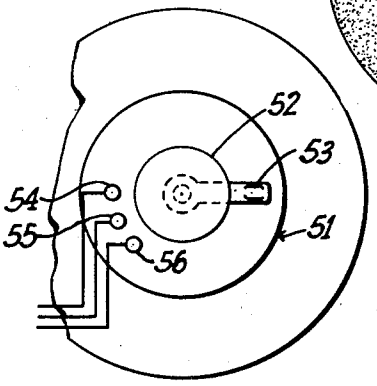


Fig.5.



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LAMP

Caesar J. Briefer, Brooklyn, and Edward Burger, Little Neck, Long Island, N. Y.

Application November 22, 1938, Serial No. 241,736

4 Claims. (Cl. 176—34)

This invention relates to an electric lamp, particularly to electric lamps designed for producing particular effects such as stage lighting or lighting of show windows or in any other place in which it is desired to vary the direction of projection of the light to produce variation in effects. The invention relates primarily to an incandescent bulb having a reflecting surface so arranged that the source of light within the bulb may be varied with respect to the reflecting surface. To accomplish this result in a practical form the bulb is arranged with two or more filaments differently placed with respect to the reflecting surface and provided with arrangements whereby either one or the other or both of the filaments may be illuminated.

It has heretofore been proposed to place a plurality of filaments within a bulb, but such construction has been arranged either to vary the intensity of illumination or to prolong the life of the bulb by using the filaments successively. It has also been proposed in headlight lamps for automobiles to provide a plurality of filaments with an external reflector, one of the filaments being disposed laterally of the other so as to throw the headlight beam reflected from the external reflector to the right and away from the eyes of drivers of oncoming cars but such lamps are all of the headlight variety not adapted for general illumination and neither of the filaments is so placed within the bulb as to give general illumination.

In accordance with this invention the filaments are arranged in specific relationship to the reflecting surface but at least one of them is spaced remote from the effective focus so as to produce a general light distribution.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in connection with the accompanying drawing, in which:

Figure 1 is a plan view of a lamp embodying this invention, the neck of the lamp being broken away.

Figure 2 is a modified construction designed for downward illumination.

Figure 3 is a further modification for upward illumination.

Figures 4 and 5 represent a device for connecting any one or more of the filaments to the terminals at will.

In the drawing the numeral 10 designates a glass bulb which, as shown in Figure 1, is provided with a central neck 11 dividing the bulb into an upper portion 12 and a lower portion 13. Each of these portions has part of its surface more or less cup shaped downwardly, as shown at 14 for the upper portion 12, and as shown at 15 for the lower portion 13. Each of these cup shaped portions is provided with a reflecting surface either upon the interior or exterior of the glass with the reflecting surface directed inwardly.

The lower portion 13 is provided with a filament 16 and the upper portion 12 is provided with a filament 17. These filaments being mounted upon a suitable standard of any well known type which need not be here illustrated, and being provided with lead in wires 18, 19 and 20, 18 being common to both filaments. Each of these filaments cooperates primarily with the reflecting surface upon the cup shaped member within which it is placed and each is arranged particularly with regard to that reflecting surface to produce the type of illumination desired. Each of these filaments is preferably either of the coiled type or of the coiled coil type or of the coiled coil with core. The shape of the cross section of the reflecting surface is designed primarily with regard to that portion of the filament which is closest to the particular section involved, thus the shape of the reflector is not designed for the mean or central position of the filament but with regard to the outer section of the coil that is in any cross section the curvature of the bulb is determined by the position of that section of the filament, that is on the same side of the vertical center line rather than by the mean position of the filament on the center line. As shown, the portion 15 is substantially straight and so disposed as to throw the light substantially directly downward along the axis but with a certain dispersion due to the fact that the surface is straight instead of parabolic. That portion of the light from the filament 16 which passes upwardly through the neck 11 is largely caught by the reflecting surface 14 and again turned downwardly but generally dispersed for general illumination. The heating of the lower filament, therefore, produces a minimum of general illumination but a maximum of directive effect. The filament 17 is so disposed within the reflecting surface 14 that the light

therefrom will be caused to diverge at a substantial angle so as to spread the illumination substantially uniformly not only downwardly but laterally.

As will be observed, the position of the filament 17 is substantially in alignment with the straight line of the surface 15 so that a minimum disturbance of the light of the upper filament is caused by the reflecting surface 15 and the maximum portion of the light passes downwardly through the neck 11 and out through the lower portion of the bulb or passes out of the clear portion of the bulb between the surfaces 14 and 15. The exact contour of the surface 15 and of the surface 14 may be altered to effect a different distribution of light but those shown in the drawing have been carefully worked out to secure a very desirable distribution. It will be noted that the filaments 16 and 17 are preferably arranged in the form of a circle disposed about a vertical axis so that all parts of each filament are at substantially the same distance from the vertical axis.

The position of the lead wires, as shown in the figure, is for illustrative purposes only, the placing of lead wires to the filaments being well known.

In the form of the invention disclosed in Figures 2 and 3, the bulb 30 is of a general substantially pear-shaped construction having a portion of the bulb silvered either upon its interior or exterior. In Figure 2 it is the upper portion of the bulb which is silvered as shown at 31 and in Figure 3 it is the lower portion as shown at 32. In both embodiments there are provided a plurality of filaments disposed at different heights, thus for example in Figure 3 there are three filaments, 34, 35 and 36, the filament 35 being higher than the filament 34 and the filament 36 being still higher. These filaments being provided with a common lead wire 37 and with individual lead wires 38, 39 and 40. One of the filaments, as for example the filament 35, may be disposed substantially in the focus of the mirrored surface and reflects a maximum part of the light directly downwardly. The filament 34 is disposed below the axis and effects a maximum dispersion of the light, whereas the filament 36 being above the focus tends to effect a dispersion within a limited range, the limited range being determined by the lower edge 41 of the reflecting surface.

In the form of the invention disclosed in Figure 3, three filaments are provided 44, 45 and 46, which bear the same relation respectively to the reflecting surface 32 that the filaments 34, 35 and 36 bear to the reflecting surface 30. None of these constructions provides a focused beam since none of the reflecting surfaces are truly parabolic with the filament concentrated at the focus but all are intended to and do give a dispersed light but the dispersion is distinctly varied in intensity in different directions depending upon the particular filament which is burned.

In the construction shown in Figures 4 and 5 there is shown a neck of a lamp 50 provided with the usual screw plug 51 having a central terminal 52 but the central terminal 52 is rotatable and is provided with a contact arm 53 which is movable to engage one or more of the buttons 54, 55 and 56 to which the lead in wires from the separate filaments are connected. It is thus possible to change from one style of illumination to another merely by removing the lamp and twisting the contact 53 to engage a different one or group of the buttons 54, 55 and 56. Thus the person who is observing the effect may alter that effect at will.

It will of course be understood that any form of switch may be employed within the scope of the invention, operable either by the slight turning of the bulb in its socket or otherwise, but for practical operation, we prefer the type of switch here illustrated.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. An electric lamp bulb comprising a glass globe having a plurality of cup shaped portions concaved in the same direction, each of said sections being covered with a reflecting surface and said sections being connected by a clear portion of the bulb, a coiled filament within each of said reflecting surfaces so disposed as to give a predetermined dispersion of light from said reflecting surface, the dispersion of light from one of said filaments by said surfaces being different than from the other of said filaments and means for selectively connecting either of said filaments to a source of power.

2. A device in accordance with claim 1 in which one of said reflecting surfaces is substantially conical and the filament which is co-ordinated with the other surface lies substantially in the projected surface of said cone.

3. A glass globe for a lamp bulb having two globular portions connected by a narrow neck and having parts of each of said globular portions coated with a reflecting surface reflecting inwardly, each of said reflecting surfaces comprising a concave mirror facing in the same direction and said mirrors facing in the same direction.

4. A device in accordance with claim 3 in which the two concave mirror sections are connected by a translucent section.

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