May 7, 1929. J. C. STEARNS 1,711,705

REFLECTOR

Filed Aug. 22, 1927

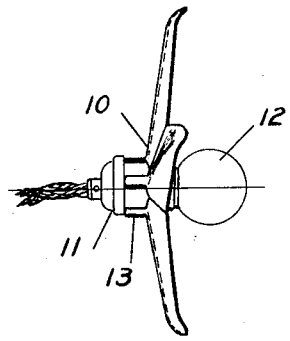


FIG. 1

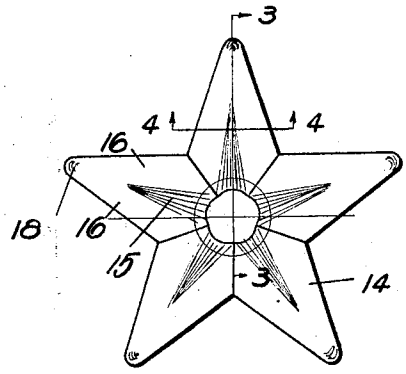


FIG. 2

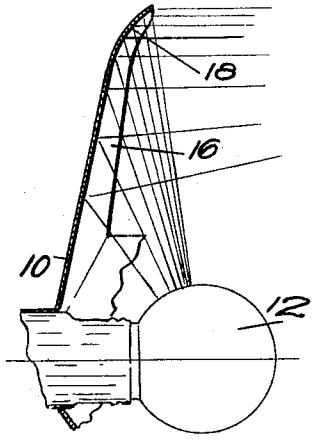


FIG. 3

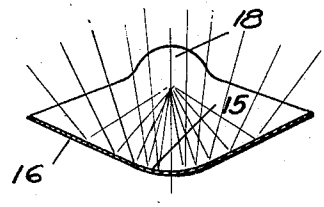


FIG. 4

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Patented May 7, 1929. 1,711,705

UNITED STATES PATENT OFFICE.

JASON C. STEARNS, OF WORCESTER, MASSACHUSETTS.

REFLECTOR.

Application filed August 22, 1927. Serial No. 214,594.

This invention relates to an ornamental reflector for use with incandescent lamps to enhance their brilliancy and the effectiveness of the light. The invention can be used for various purposes as for example, in signs, Christmas tree ornaments, and the like.

The principal objects of the invention are to provide a conformation of the arms of the reflector that extend outwardly from the center which will produce a bright and uniform reflection from the electric lamp at the center, over the surface of the several parts of the reflector and to provide for a brighter spot at the terminal of each arm, thus materially improving the effect of the reflection.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a side view of a reflector, lamp and socket, with the reflector constructed in accordance with this invention;

Fig. 2 is a front elevation of the reflector by itself;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2, radially through the center of one of the arms or points, indicating the reflection of the light rays, and

Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 2 also showing the lighting effect.

It is customary to provide reflectors for lamps, particularly colored electric lamps, for use as Christmas tree ornaments made of various shapes and reflecting a light so as to emphasize the shape of the reflector. These have been made, as far as I know, without due consideration of the direction of the rays of reflected light and without any provision for directing the reflection along certain lines. Thus they have the effect of flat reflectors, spreading the light all around, losing the efficiency of the device as a reflector and diminishing the brilliance of the light as seen by the observer.

I make a reflector 10 to be applied to an ordinary electric light socket 11 with an incandescent lamp 12 at the center. This reflector is provided with a center perforation for the socket and has flanges 13 bent back to grasp the socket and hold it on in central position. The reflector itself may be made of sheet metal with the inner or concave surface enameled or otherwise treated to get the best effect and preferably colored to increase or modify the various colors of the lamps 12. The reflector could be made of glass with the reflecting surface on the back if desired, in order to secure most efficient dispersal of the rays of light from the reflector.

I make up the reflector with a series of radiating arms 14, each one centrally disposed with respect to the axis of the lamp and each one having along the center, a widely curved surface 15 extending all the way from one end to the other. Two flat diverging surfaces 16 extend outwardlly from the ends of curved surface and forming continuations thereof. This widely curved surface 15 is important because the rays of light come into it from the center and are reflected back directly in front, particularly if it is made of parabolic cross section transversely to the length of the arm. The diverging flat surfaces 16 disperse the light sideways enough so that from all points from which the reflector can be seen it will appear as lighted up brilliantly. The best effect of course, is by observing it directly from the front but there is no point from which it can be observed to which the reflected rays will not be directed. Therefore it presents a brilliant appearance even when viewed at quite an angle.

At the end each arm is concaved at 18 to form a cup-shaped surface. This concave surface is parabolic or nearly so, longitudinnally of the arm in order to reflect the rays back in substantially parallel lines. This avoids despersing the rays at the tops of the arms and concentrates them so that the spots have a greater brilliancy than any other part of the surface.

The effect is to produce a brilliantly lighted reflector with the tips of the arms brighter than the rest of its surface, instead of the usual failure of the tips to be seen at all, except from a short distance. The broad curve along the axis is important because, usually these arms have been made with flat diverging walls and merely an angular connection along the center, which leaves the appearance of a dark line at that point.

Although I have illustrated and described only one form of the invention I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims.

Therefore, I do not wish to be limited to the details herein disclosed but what I do claim is:—

1. As an article of manufacture, a reflector

having fixed radiating arms, continuous with each other at their bases, each having a broadly concave radial surface for the purpose described, said radial surfaces making a broad acute angle with the axis of the reflector and of tapering form.

2. As an article of manufacture, a reflector having radiating arms, each having a broadly concave radial surface with its trough located in a straight line and diverging flat surfaces extending therefrom at the sides.

3. As an article of manufacture, a reflector having relatively fixed radiating arms, each having a broadly concave radial surface and diverging flat surfaces extending therefrom at the sides, each arm having at the extreme tip a concave reflecting surface of small curvature to concentrate the rays reflected therefrom.

4. As an article of manufacture, a reflector having radiating arms continuous with each other, each arm having at the tip a concave reflecting surface of materially different curvature from the rest of the arm to concentrate the rays reflected therefrom.

5. As an article of manufacture, a reflector comprising a piece of opaque material having a central opening for receiving the socket of an electric light bulb, and comprising arms extending from the center, each having a broad reflecting surface along the middle thereof of parabolic form transversely and terminating in a concave tip of parabolic form longitudinally.

6. As an article of manufacture, a reflector consisting of a single piece of metal and having a socket at the center and arms radiating therefrom, said arms each comprising a straight portion extending from the socket outwardly, transversely curved at the center in the form of a parabola and having flat portions on each side extending outwardly at an obtuse angle to each other, said straight curved portion extending from the socket along a line making a wide acute angle with the axis of the socket and the tips of said arms being curved lonigtudinally in the form of a parabola to form a cup-shaped surface to reflect the rays in substantially parallel lines at the tip.

In testimony whereof I have hereunto affixed my signature.

JASON C. STEARNS.