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L. A. BEAN

1,747,283

LIGHT REFLECTOR

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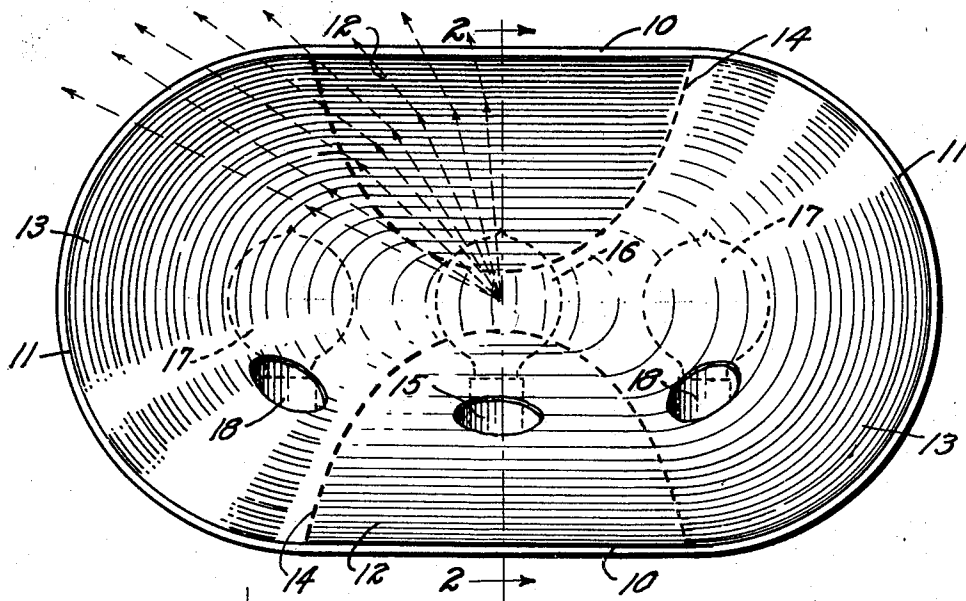


FIG 1

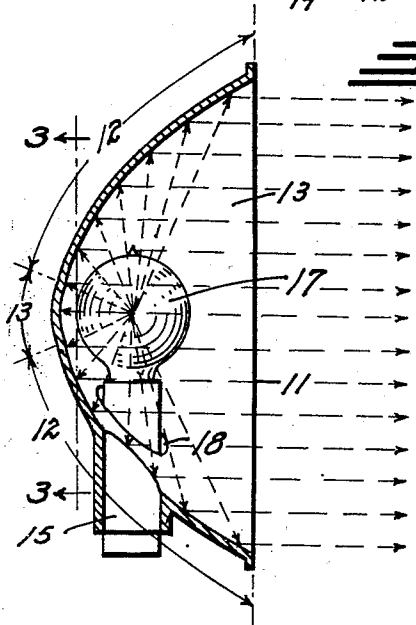


FIG 2

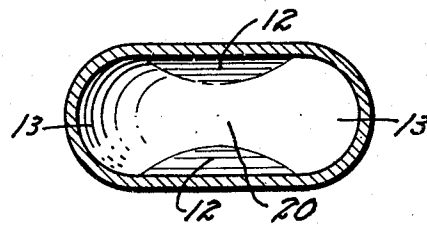


FIG 3

Inventor

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By

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UNITED STATES PATENT OFFICE

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LIGHT REFLECTOR

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This invention relates to a reflecting surface more particularly intended for flood lighting or spreading light rays over a relatively wide area. It will be found especially useful for photographic purposes for illuminating interiors where natural light is not sufficient or exteriors at night. While the invention will be found particularly useful for photographic illumination it is not, of course, limited to this use but can be employed for automobile headlights and the like, where it is desired to spread the light over a wide, horizontal, fan-shaped area.

The principal object of the invention is to provide a highly efficient reflector for the above uses.

Another object of the invention is to provide a photographic light which can be used with a series of light sources so that differing intensities and differing degrees of concentration can be obtained.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawings and throughout the description.

In the drawing:

Fig. 1 is a front elevation of my improved reflector with the light sources outlined in broken line therein.

Fig. 2 is a vertical section through the reflector taken on the line 2—2, Fig. 1, illustrating one of the light sources in place.

Fig. 3 is a vertical section taken on the line 3—3, Fig. 2.

The outline of the open face of the reflector comprises two straight edges 10, joined at their extremities by semi-circular curved edges 11. Extending rearwardly from each straight edge 10 is a parabolical surface 12.

These surfaces present a straight line when cut by a plane parallel to the open face of the reflector and substantially a parabola when cut by a vertical plane at right angles to the face of the reflector. The surfaces 12 ap-

proach the outline of an ellipsoid in front elevation.

Extending rearwardly from each of the curved edges 11 is a concave semi-ellipsoidal surface 13. The ellipsoidal surfaces 13 narrow as the center of the reflector is approached and join each other at the central back of the reflector in a narrow curved band 20. The surfaces 13 join the parabolical surfaces 12 at tangent points therewith, the joining line or line of tangency being a paraboliform curve, as illustrated in broken line at 14. The change in the curve between the two surfaces 12 and the two surfaces 13 is gradual throughout its entire extent.

The surfaces 13 approach the shape of the surface of an ellipsoid but are not necessarily confined to this exact form. They each comprise a surface curved at its outer edge in a semi-circle and extending back on a flattened curve to a curve which will be approximately tangent to or part of the apex point of the paraboloid defined by the two surfaces 12.

I therefore, have an approximate ellipsoid cut through its two longer sides by a pair of parallel, substantially parabolic surfaces. In the finished reflector the line of tangency between the parabolical surfaces and the curved surfaces is so blended as to not be distinctly defined. It is noticeable, however, by the contrasting reflections from the joining surfaces. Any vertical plane parallel to the reflector opening will cut an outline from the reflecting surface similar to the outline of the open face, such as illustrated in Fig. 3.

The reflector can be illuminated from a central light source 16, there being an opening 15 provided for the passage of the socket thereof, or it can be illuminated from two side lights 17 which may be supported through side openings 18.

If desired all of the lights 16 and 17 may be employed to give a wide spread evenly intensified beam. For a more localized concentration of the light for portraits and the like, the central light 16 only may be employed.

The light sources should be connected with suitable control devices so that they can

be dimmed or brightened or operated independently to give the desired localization or spread and intensity of illumination to the subject.

5 With the central light source illuminated, the beams striking the reflector upon a vertical central line will be thrown straight forwardly from the parabolical surfaces 12. The beams striking these surfaces at each side
10 of the center line will be deflected to an outward horizontal angle depending of course, upon their angle of incidence. The beams traveling to the outer edges and striking the curved surfaces 13 will be spread outwardly
15 at a greater angle than the beams from the surfaces 12, owing to the relatively flat ellipsoidal contour of the surface.

The vertical contour need not be an exact parabola but should approach this shape.
20 For instance, if made slightly deeper than a parabola it will concentrate at a shorter distance and is useful for indoor photography. If desired for illuminating exterior distant subjects the reflector should approximate a
25 parabola more closely to obtain the greatest area of vertically parallel rays possible.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may
30 be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what I claim and desire secured by Letters
35 Patent is:—

1. A light reflector comprising two concave surfaces rounded at their outer edges and narrowed at their inner edges, said two surfaces joining each other at said narrowed
10 portions and two other surfaces joined to said concave surfaces so as to fill in the narrowed portions thereof, said two other surfaces being curved in one plane only the line of joining forming a parabolic curve about the
15 latter two surfaces.

2. A light reflector comprising two concave surfaces rounded at their outer edges and narrowed at their inner edges, said two surfaces joining each other at said narrowed
20 portions and two other surfaces joined to said concave surfaces so as to fill in the narrowed portions thereof, said two other surfaces being curved in one plane only in combination with a pair of light sources placed opposite said two first surfaces and a third
25 light source placed opposite said narrowed portion.

In testimony whereof, I affix my signature
LOUIS A. BEAN.