Dec. 16, 1941. L. F. GIESE 2,266,190

REFLECTOR

Filed April 19, 1939

Fig. 1

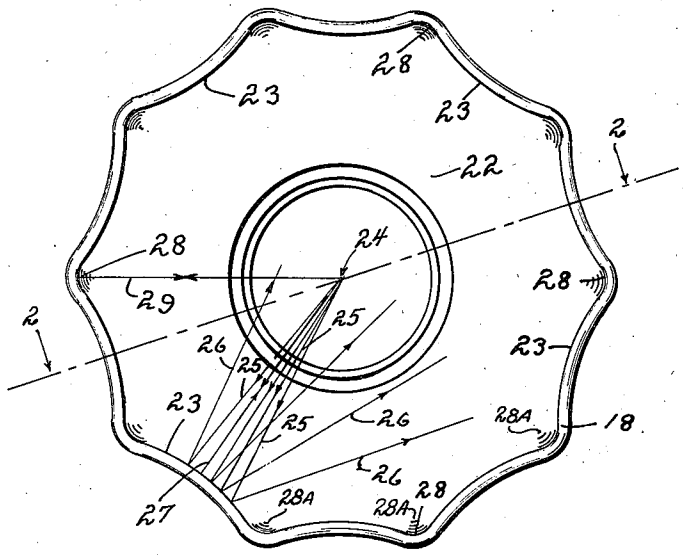
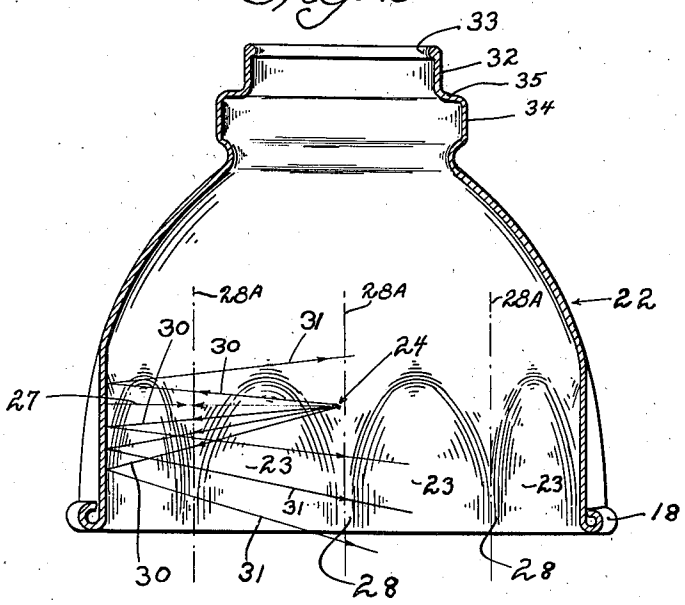


Fig. 2



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REFLECTOR

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2 Claims. (Cl. 240—103)

This invention relates to improvements in reflectors.

One object of this invention is to provide for a light source, a combination primary and secondary reflector adapted to regulate the density and distribution of light rays from the source upon a given area, such as a highway surface, and to produce a light pattern showing a maximum amount of uniform light distribution over said surface.

Another object of this invention is to provide improved means in combination with a shielding reflector for modifying the intensity and distribution of light rays in horizontal and vertical planes in order to eliminate undesirable illumination.

A further object of this invention is to provide a light-shielding reflector having reflecting surfaces adapted to divert light rays from a given source at angles relative to said surfaces in paths extending past the light center, thereby maintaining a cooler light source and increasing the life thereof.

In the drawings:

Fig. 1 is a bottom plan view of a modified reflector shown in Fig. 2 and illustrating the distribution of light in a horizontal plane.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1 illustrating the distribution of light in a vertical plane.

Like parts are designated by the same reference numerals throughout the several views.

Figs. 1 and 2 show a reflector 22 having at its upper end a collar 34 providing a horizontal shoulder portion 35 extending inwardly of the reflector and a sleeve 32 which terminates in an inwardly-turned rim 33 adapted to be received in a clamping head, as more fully disclosed in my copending divisional application Serial Number 371,749, filed December 26, 1940. The lower portion of the reflector 22 is hemispherical and extends integrally from the collar 34 to serve as a shielding section having a reflecting inner surface and terminating at its lower end in a curved rim or head 18.

The lower portion of the reflector immediately above the rim 18 is formed as a complex conoid and is provided with a plurality of undulated reflector sections 23, each of which is pressed or deformed inwardly about a vertical axis so that the vertical dimension of each section has a zero curvature and the horizontal dimension is convexly curved relative to the light source 24.

As indicated in Fig. 1, the individually curved surfaces 28 are each generated about an axis 28A which are disposed in a position radially relative to the vertical axis of the reflector and extending in substantially parallel relationship thereto.

The reflecting characteristic of each surface 23 prevents reflection of the major portion of the light emanating from the light source center 24 back through the vertical axis of the lamp, thereby permitting the light source to operate at lower temperatures than it otherwise would. As a result, the light source will have a longer period of usefulness. A diagrammatic representation of the angles of reflection of the light rays emanating at 24 is shown in Figs. 1 and 2, wherein light rays 25 and 30 emanating at 24 are reflected divergently both horizontally and vertically past the light source 24 as shown by the rays 26 and 31, respectively.

It has previously been noted that the surfaces 28 are generated about an axis 28A which are disposed in a position radially relative to the vertical axis of the reflector and extending in substantially parallel relationship thereto. As a result incident to the shape of the surfaces 28, light reflected therefrom will be directed at convergent angles toward focal points positioned between the reflector and the vertical axis of the reflector and will then diverge from the focal points in direction offset from, or past the source of the light.

It is well known that the life of a lamp is prolonged when the heat generated therein is rapidly dissipated therefrom. Since the reflector construction used in this invention diverts the major portion of the reflected rays past the vertical axis of the lamp, less heat is accumulated therein than would otherwise occur and consequently the lamp operates at a lower temperature than would be possible if all of the reflected rays passed through the vertical axis of the lamp as indicated by the rays 27 and 29.

From the foregoing disclosure, it will be apparent that desirable distribution of light from a light source upon the surface of a highway has been accomplished by properly correlated reflecting surfaces having a curvature and reflecting relationship to each other and to a light source and adapted to reflect substantially all of the light rays impinging on the reflector areas 23 and 28 at divergent angles past the light source in given directions relative to the highway, thus permitting the light source to operate at lower temperatures and avoiding reflection of light on the resident side of the luminaire.

I claim:

1. A device of the character described comprising: a hemispherical reflector having vertical sides on its lower portion; said vertical sides having areas deformed inwardly about a vertical axis so that the vertical dimension of the deformed areas has a zero curvature and the horizontal dimension is convexly curved relative to the light source; said deformed areas being relatively spaced from each other and integrally merged with the reflector to provide a series of individually curved surfaces, each generated about an axis which is radially relative to the vertical axis of the reflector and extending in substantially parallel relationship thereto, all substantially as described.

2. A reflector for a light source comprising a hemispherical reflector having vertical sides on its lower portion; said vertical sides having an area deformed inwardly about a vertical axis so that the vertical dimension of the deformed area has a zero curvature and the horizontal dimension is convexly curved relative to the light source, said deformed area being integrally merged with the reflector to provide a curved surface generated about an axis which is radially relative to the vertical axis of the reflector and extending in substantially parallel relationship thereto, all substantially as described.

LAWRENCE F. GIESE.