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3,382,357

REFLECTOR FOR STREET LIGHTING LUMINAIRE

Filed May 3, 1966

FIG. 1 (PRIOR ART)

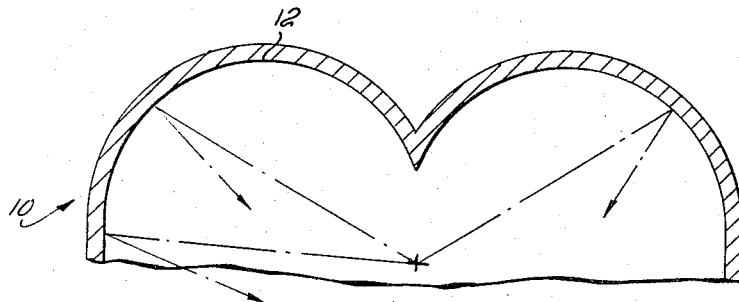
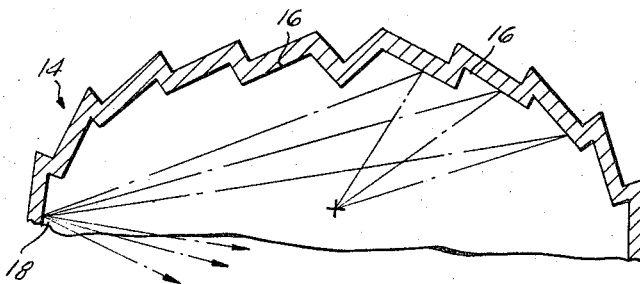


FIG. 2



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REFLECTOR FOR STREET LIGHTING LUMINAIRE
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2 Claims. (Cl. 240-103)

ABSTRACT OF THE DISCLOSURE

A reflector is provided for a street lighting luminaire which provides reflected light in beam direction on either side of the luminaire along the street below. This reflector utilizes longitudinally extended scalloped panels to reflect up light from the light source downwardly across the luminaire to the beam panels of the reflector, which in turn reflect the light again across the luminaire toward the street in beam direction. These beam panels of the reflector also perform the usual task of reflecting direct light in beam direction.

The present invention relates to luminaires.

In particular, the present invention relates to street-luminaires of the standard mercury type which are horizontal so as to be suitable for street-lighting purposes.

One of the major drawbacks of reflectors used in standard mercury street-lighting luminaires resides in the fact that an excessive amount of light is directed downwardly beneath the luminaire. This light produces much higher foot-candle levels under the luminaires as compared to areas between a series of luminaires arranged along a street, so that the result is noticeably uneven illumination.

For the sake of economy in manufacturing as well as for the sake of appearance, conventional luminaires have been made as shallow and as small as possible, considering lamp and ballast sizes and heat problems. As a result the top of the reflector has been crowded down close to the lamp, so that as much as one third of the lamp lumens may strike the top panels of the reflector and be reflected downwardly at angles substantially below the beam direction to clear the edge of the reflector. Some of the light passes through refractor beam panels where its refraction is determined by whatever prismatic action is necessary for beam control. The remainder of the light passes through the bottom of the refractor where it cannot be raised sufficiently without excessive losses.

According to the present invention the reflector has upper portions whose configuration is such that the incident light is reflected thereby toward the center of an opposed beam panel where this light is again reflected at approximately 30-50 degrees vertically to fill below beam.

The invention is illustrated by way of example in the accompanying drawings in which:

FIG. 1 shows a conventionally constructed reflector in transverse sectional view; and

FIG. 2 illustrates in a transverse vertical sectional view the reflector of the present invention.

Referring to FIG. 1, the conventional upper reflector 10 of a horizontal mercury street-lighting luminaire shown therein is composed of curved top panels 12 which direct

light in the manner indicated in FIG. 1. This operation results in the above-discussed drawbacks.

In accordance with the invention the reflector 14 shown in FIG. 2 consists of a series of "scalloped" panels which replace the curved top panels 12 of the conventional reflectors 10. The scalloped panels 16 of the reflector 14 of the invention are of orange-slice or wedge-shaped configuration about the center of the lamp and are joined together in any suitable way so as to provide the reflector construction shown in FIG. 2. The surface of each wedge 16 is curved, as indicated in FIG. 2, in such a way that the incident light, shown by the arrows in FIG. 2, is reflected toward the center of the opposite beam panel. Thus, FIG. 2 shows an opposite beam panel 18 situated opposite one of the right wedge sections 16, and the manner in which the light is reflected to the beam panel 18 is indicated by the arrows in FIG. 2. This beam panel in turn again reflects the light at approximately 30-50 degrees to fill below the beam, as also shown by the arrows in FIG. 2. The outline of the top of the reflector of the invention follows the contour of the production reflectors to allow its use in standard fixtures.

Thus, as a result of the improvements provided by the present invention there is a deliberate double reflection of light incident upon the top of the reflector in order to move this light further down the street and thus to obtain more uniform illumination.

What is claimed is:

1. A downwardly opening reflector for use in a street lighting luminaire, having a light center disposed below a top portion thereof, said reflector comprising said top portion, said top portion consisting of a series of scalloped panels having light reflecting surfaces, said scalloped panels extending on either side of a longitudinal center plane and parallel therewith and about and directly above the light center of the luminaire, said panels being joined one to the other by inactive portions disposed at angles relative to the light center to receive substantially no direct light, the reflecting surface of each said panel constituting means for reflecting light transversely across the luminaire in downward vertical angles, opposing beam panels in said reflector and extending downwardly from the lower edges of the lowermost of said scalloped panels on either side of said reflector, said opposing beam panels constituting means for receiving light from said scalloped panels and for reflecting the same downwardly for illuminating the street on either side of the luminaire, said beam panels also constituting means for receiving direct light from the source for reflecting the same downwardly in predetermined beam directions.

2. In the luminaire of claim 1, wherein the contour of the outermost surfaces of said scalloped panels is compatible for setting in standard mercury street-lighting luminaire fixtures.

References Cited

UNITED STATES PATENTS

Table with 4 columns: Patent Number, Date, Inventor, and Reference Number. Includes entries for Lang (1,625,948) and Halvorson (1,640,448).

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