Sept. 19, 1967 D. M. HUBER 3,342,985

DIFFUSER FOR HIGHWAY LUMINAIRE

Filed Oct. 1, 1965

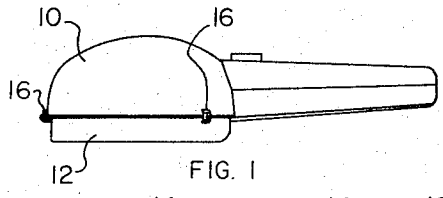


FIG. 1

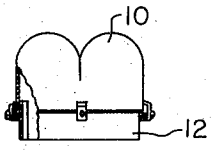


FIG. 2

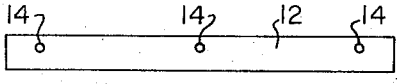


FIG. 4

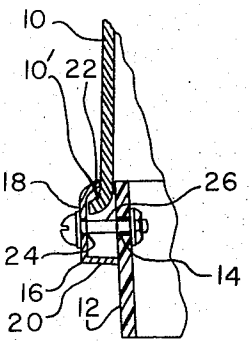


FIG. 3

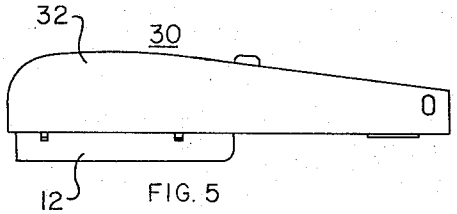


FIG. 5

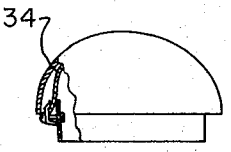


FIG. 6

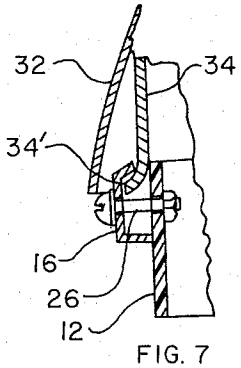


FIG. 7

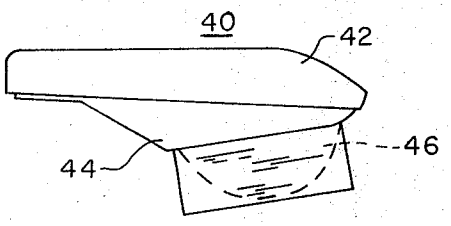


FIG. 8

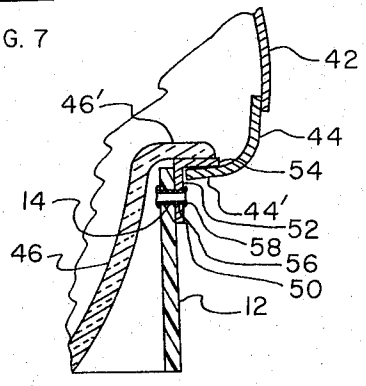


FIG. 9

Inventor

Dorothy M. Huber

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DIFFUSER FOR HIGHWAY LUMINAIRE

Dorothy M. Huber, 1523 Grove Ave.,
Jenkintown, Pa. 19046

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ABSTRACT OF THE DISCLOSURE

This invention comprises a highway luminaire with a housing having a generally horizontal bottom opening and a dependently associated light diffuser. The diffuser is formed from a strip of pliable resilient translucent plastic material bent to conform generally to a portion of the lower periphery of the opening, with part of it extending below the housing. The diffuser is attached by spaced clips secured to the diffuser and engageable with the luminaire.

This invention relates to luminaires employed in highway lighting and more particularly to a diffuser for attachment to such luminaires.

Diffusers in the form of a translucent plastic skirt depending from a highway luminaire have the disadvantage that they must be molded into desired final shape to fit a particular existing luminaire. They are therefore relatively quite expensive and a large stock of different shapes are required to fit the several forms and sizes of luminaires conventionally used by an electric utility.

It is a primary object of this invention to provide an extremely simple and inexpensive skirt diffuser for such luminaires in which the foregoing disadvantages are overcome.

Another object of this invention is to provide a skirt diffuser for highway luminaires bent into desired final shape from a flat strip of flexible resilient plastic.

A further object of this invention is to provide simple and inexpensive means for attaching a strip diffuser to existing highway luminaires.

With these and other objects in view, which will become apparent as the description proceeds, my invention will be best understood from consideration of the following description of specific embodiments when taken in connection with the accompanying drawings, in which:

FIG. 1 is a side elevational view of an open bottom highway luminaire without a separate reflector, to which the diffuser of the invention is attached.

FIG. 2 is a front elevation, partly in section, of the device of FIG. 1.

FIG. 3 is a fragmentary enlarged portion of the front elevation of FIG. 2 showing details of the diffuser attaching means.

FIG. 4 is a developed form of the strip diffuser.

FIG. 5 is a view similar to FIG. 1 of the diffuser attached to a luminaire with separate reflector.

FIG. 6 is a front elevation, partly in section, of the device of FIG. 5.

FIG. 7 is a fragmentary enlarged portion of the front elevation of FIG. 6 showing details of the diffuser attaching means.

FIG. 8 is a side elevational of a modification showing a luminaire with enclosed optical assembly, with a modified means of attaching the diffuser.

FIG. 9 is a fragmentary enlarged front elevation of the modification of FIG. 8.

Referring now to the drawings, FIG. 1 shows a conventional highway luminaire **10** to which is dependently attached along the inner periphery of the bottom thereof a translucent plastic diffuser **12** which glows when the luminaire is lighted, for the purpose of making the luminaire more readily visible from a distance.

The diffuser **12** is bent into desired shape from a flat supple plastic strip, shown in developed form in FIG. 4. The plastic used is a pliable resilient durable material which will withstand the extremes of heat and cold encountered in the luminaire environment, such as, for example, the acrylic resins or polycarbonates. The strip **12** of FIG. 4 is provided with apertures **14** at suitable locations for securing these to the attachment clips **16**, shown in detail in FIG. 3. The clip **16** has a flat medial portion **18**, a bottom lateral extension **20** and a top lateral extension **22** extending from the portion **18** in the same general direction as the bottom extension **20**. The medial portion **18** of the clip **16** is provided with a transverse aperture **24** to receive a screw **26**. The top portion **22** of the clip **16** is disposed in over-hanging relation to the external lip **10'** of the housing **10**, with the screw **26** extending through the aperture **24** of the portion **18** and through the aperture **14** of the skirt **12** which has the outward lateral face of its top portion disposed in abutting relation to the lower internal generally vertical periphery of the housing **10**. The screw **26** which is inserted from the exterior, is suitably provided with a nut on the inside and may have suitable lock washers under the head and under the nut as illustrated.

The luminaire **30** of FIG. 5 has a housing **32** and an internal separate reflector **34**. In this luminaire, the clip **16** overhangs the outwardly projecting lip **34'** of the reflector **34** and the skirt diffuser **12**, when assembled, is disposed in abutting relation to the lower internal periphery of the reflector **34**. The assembly is made in similar fashion to the assembly of the skirt to the housing **10** of FIG. 3. In the luminaire **30**, the skirt **12** is attached to the reflector **34** and is removable with it from the housing **32**.

The luminaire **40** of FIG. 8, having an enclosed optical assembly, is similar to the luminaire described in United States Patent No. 3,065,338 for a luminaire, issued to D. E. Husby et al., dated Nov. 20, 1962. A housing **42** has suspended therefrom a pivoted refractor ring **44** which may be swung down to insert the bowl-like refractor **46**. In this modification, as shown in FIG. 9, the clip **50** has a main vertical portion **52** and a laterally outward extending portion **54**, the portion **52** being provided with an aperture **56** to receive a grommet **58** which also may extend through one of the apertures **14** in the skirt **12**. In the luminaire **40** a suitable plurality of clips **50** are grommeted to the flat strip **12** of FIG. 4 and the strip is then bent into the desired shape and then inserted in the ring **44**, with the extension **54** overhanging the internal lip **44'** of the ring **44**. The natural resilience of the skirt **12** exerts outward pressure to hold it in place in the ring **44**. The refractor **46** is then lowered into the ring **44** with the outwardly projecting lip **46'** thereof resting on the extensions **54**.

In the modification of FIG. 8, the skirt **12** serves to cut out objectionable glare without materially affecting the adjacent light pattern.

It is to be understood that the screw **26** and the grommet **58** may be used interchangeably in the several modifications illustrated. The translucent skirt **12** may be of any desired length, depth and color.

Although the invention has been described in considerable detail, it is to be understood that the description is illustrative rather than limiting and that the invention may take other forms and be applied in other ways, limited only by the scope of the appended claims.

I claim as my invention:

1. In combination with a highway luminaire comprising a housing in which the interior surface thereof functions as a reflector, said housing having a generally horizontal bottom opening and an outwardly extending lower

lip, a light diffuser formed from a strip of pliable resilient translucent plastic material bent to conform generally to a portion of the lower periphery of said opening, dependently associated with said luminaire and extending at least in part below said housing, the top portion of the outward lateral face of said diffuser being disposed in abutting relation to a portion of the lower periphery of said opening, and means for attaching said diffuser to said luminaire comprising a plurality of spaced clips engageable over said lip and secured to said diffuser, each of said clips having a flat medial portion and bottom and top lateral extensions extending from said medial portion in the same general direction, said medial portion being provided with a transverse aperture, said diffuser being provided with transverse apertures at the locations at which the clips are to be attached, and said clip being secured to said diffuser by means extending through respective apertures in the clips and the diffuser.

2. In combination with a highway luminaire comprising a housing having a generally horizontal bottom opening and a separate reflector detachably mounted within said housing, said reflector having a bottom opening conforming generally to the opening in said housing and an outwardly projecting lip, a light diffuser formed from a strip of pliable resilient translucent plastic material bent to conform generally to a portion of the lower periphery of said opening in said reflector, dependently associated with said luminaire and extending at least in part below said housing, the top portion of the outward lateral face of said diffuser being disposed in abutting relation to a portion of the lower internal periphery of said reflector, means for attaching said diffuser to said luminaire comprising a plurality of spaced clips engageable over said lip and secured to said diffuser, and said diffuser being detachable from said housing with said reflector.

3. A combination of claim 2 in which each of said clips has a flat medial portion and bottom and top lateral extensions extending in the same general direction from said medial portion and said medial portion is provided with a transverse aperture, said diffuser is provided with transverse apertures at the locations at which the clips are to be attached, and said clips are secured to said diffuser by means extending through respective apertures in said clips and said diffuser.

4. In combination with a highway luminaire comprising a housing having a generally horizontal bottom opening and a refractor ring pivotally suspended from said housing and a refractor inserted in said ring, said ring having an inwardly projecting lip and said refractor having an outwardly projecting lip, a light diffuser formed from a strip of pliable resilient translucent plastic material bent to conform generally to a portion of the lower periphery of said opening, dependently associated with said luminatire and extending at least in part below said housing, the top portion of the outward lateral face of said diffuser being disposed in abutting relation to a portion of the inward edge of the lip of said ring and the top edge of said diffuser being disposed proximate to the lower side of the lip of said refractor, and means for attaching said diffuser to said luminatire comprising a plurality of spaced clips engageable over the lip of said ring and secured to said diffuser.

5. A combination of claim 4 in which each of said clips has a main vertical portion and a laterally outward extending portion and said main portion is provided with a transverse aperture, said diffuser is provided with transverse apertures at the locations at which the clips are to be attached, and said clips are secured to said diffuser by means extending through respective apertures in the clips and the diffuser.

6. A combination of claim 5 in which the outward extending portions of said clips engage the lip of said ring and the lip of said refractor rests upon the laterally outward extending portions of said clips.

7. In combination with a highway luminaire comprising a housing whose interior surface functions as a reflector, said housing having a generally horizontal bottom opening and an outwardly extending bottom lip and said interior surface having a generally vertical lower portion, a light diffuser formed from a strip of pliable resilient plastic material bent to conform generally to a portion of the lower periphery of said opening, dependently associated with said luminaire and extending at least in part below said housing, the top portion of the outward lateral face of said diffuser being disposed in abutting relation to a portion of said generally vertical lower portion of said interior surface, and means for attaching said diffuser to said luminaire comprising a plurality of spaced clips engageable over said lip and secured to said diffuser.

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NORTON ANSHER, *Primary Examiner.*

W. M. FRYE, *Assistant Examiner.*