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STREET LIGHTING FIXTURE

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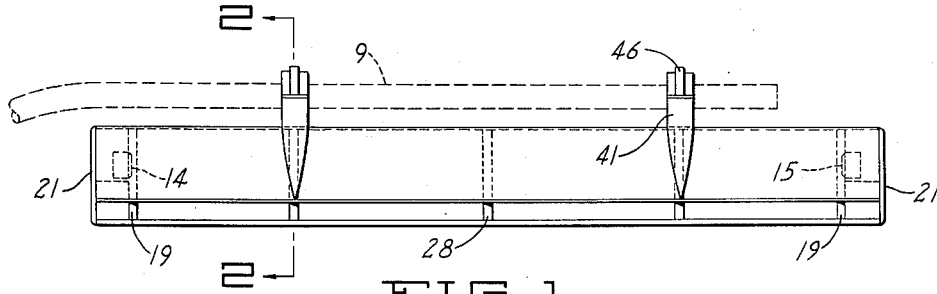


FIG. 1.

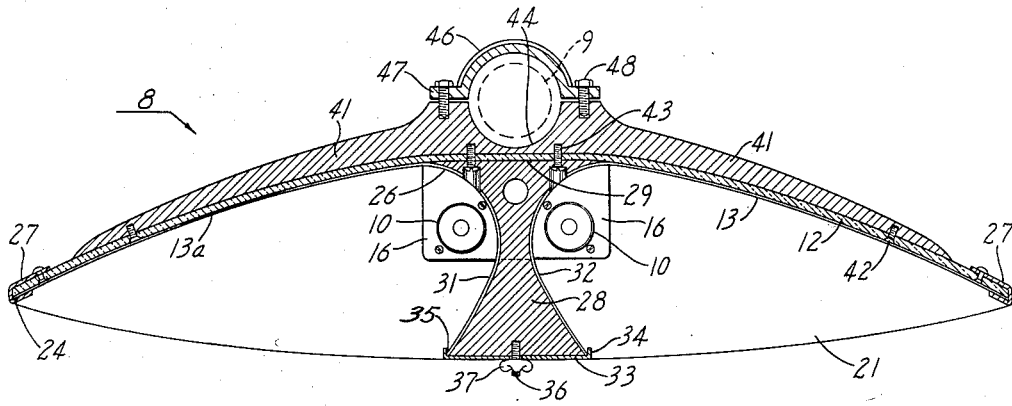


FIG. 2.

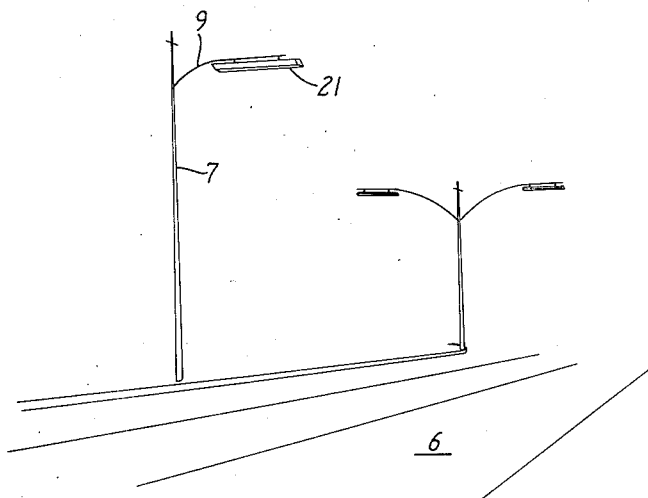


FIG. 3.

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3 Claims. (Cl. 240—25)

This invention relates to lighting fixtures, and is more particularly directed towards an elevated lighting fixture adapted to cast considerable illumination on the surrounding subjacent highway or street surface.

An object of the present invention is to provide a highway lighting fixture which is capable of producing optimum lighting distribution, not only directly below the lamp in the fixture, but likewise laterally thereof.

Another object of the invention is to provide a lighting fixture incorporating a reflector which is open at the bottom for easy maintenance, higher light output, and a lower initial capital investment for installation.

A further object of the invention is to provide a lighting fixture of the character described which incorporates a reflector made of fiberglass which is light in weight, possesses high dielectric properties, is strong, and requires no maintenance; such fiberglass being utilized in combination with a novel form of removable insert for actually reflecting the light produced by the lamps positioned within the reflector.

A still further object of the invention is to provide apparatus of the character described in which the design of the reflector unit is such that optimum illumination will be obtained without producing any direct glare to oncoming motorists.

Yet another object of this invention is to provide a lighting fixture of the character described in which novel reinforcing means and supports are incorporated therewith for maintaining the reflector unit in proper position relative to the lamps.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawing:

Figure 1 is a side elevational view of the lighting fixture of the present invention.

Figure 2 is a cross-sectional view, on an enlarged scale, the plane of the view being taken substantially at line 2—2 of Figure 1.

Figure 3 is a diagrammatic view of a portion of a highway and two light fixtures and their associated supporting standards.

In accordance with the teachings of the present invention, I have provided a lighting fixture which is adapted to be positioned adjacent a highway 6 at the upper portion of a post or standard 7 which may be located along one edge or in a central dividing strip of the highway. By means of the reflector arrangement, presently to be described, the fixture is designed to give maximum optimum lighting qualities while still not interfering with the vision of oncoming motorists travelling along the road surface.

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The lighting fixture as shown in the drawing will be seen to include a longitudinally extending reflector unit generally designated by the numeral 8 which is arranged to be supported subjacent a pipe or bracket 9 extending from the standard 7 substantially normal to the longitudinal axis of the highway. The length of the reflector is likewise disposed normal to the highway and will be seen to include a shell 12 formed of fiberglass and a reflecting liner 13 preferably formed of polished aluminum. As will be hereinafter discussed, the reflecting liner 13 is arranged for releasable attachment to the shell 12 and these two elements in combination provide the reflecting unit of the present invention.

The shell 12 is formed of fiberglass rather than metal in view of the fact that fiberglass is found to be lighter than metal, and likewise possesses high dielectric qualifications as well as being strong and requiring no maintenance. However, fiberglass itself does not provide a good reflecting surface for the lamps 10 or other light sources and accordingly a liner in the form of a polished aluminum reflector 13 is utilized in combination therewith. In the illustrated embodiment of the invention, the reflector is adapted to hold two parallel lamps which extend longitudinally of the fixture and which are adapted for support in a pair of lamp holders 14 and 15 disposed at opposite ends of the fixture. The lamp holders are mounted in turrets in the form of plates 16 which are secured to end ribs 19 of the unit. Thus, as will be seen in Figure 2, the lamps are positioned substantially centrally of the cross section of the reflector and are adapted to reflect light generally downwardly through the action of the aluminum reflector means 13.

The shell 12 which extends for the length of the unit is concave in cross sectional form to provide a substantially arcuate hood or upper enclosure for the lamp and holders. If desired, suitable end plates 21 may be utilized to enclose the ends of the shell. However, for optimum light reflecting properties, a generally parabolic shape is desired and if the shell 12 was formed of such shape, it would have to be substantially deep and other interfering factors would be present. Accordingly, the reflecting liner 13 is not continuous with the lower surface of the shell but will be seen to be formed in two parts on opposite sides of the longitudinal center line of the shell. Thus, the left hand reflecting liner which may be referred to as 13a continues from one end 24 of the shell to a point short of the midpoint thereof. Then, the reflecting liner is bent into generally parabolic form as indicated at 26 and terminates at a point 27 disposed vertically below the shell end 24. In cross section, the portion of the liner subjacent the shell 12 continues on generally tangential to the parabolic configuration of the remaining portions of the liner. The right hand liner 13 (as viewed in Figure 2) is symmetrical to the liner 13a and provides a similar configuration for reflecting the light from the right hand lamp.

Means are provided for maintaining the polished reflecting liner 13 in its desired configuration. As here shown the distal ends of the liner subjacent the ends of the shell may be readily clamped in place by generally U-shaped brackets 27 bolted or otherwise secured to the shells. The parabolic portions 26 of the liner must be maintained in this shape and may be conveniently so maintained by means of a plurality of intermediate ribs 28 which are similar in cross section form to the previously discussed ribs 19 on which the lamp holders are mounted. As seen in Figure 2, each rib is generally vertically extending and has an upper surface 29 for supporting the medial portion of the shell 12 and side walls 31 and 32 of opposing parabolic form against which the liner is positioned. A cap 33 is provided at the lower end of the rib, such cap having a peripheral flange 34 adapted to

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engage the distal ends 35 of the liners for maintaining the same in position. A screw 36 extending from the rib and passing through a central aperture in the cap in combination with a wing nut 37 can be used for maintaining the cap in position and thereby clamping the reflecting liner into its desired parabolic form.

To support the unit from the pipe 9, a plurality of brackets 41 may be utilized, such brackets being positioned immediately over a pair of ribs 28. These brackets are preferably of tapered form so as to blend with the upper surface of the shell, and the shell may be secured to the brackets by suitable screws 42. Additional screws 43 are utilized for securing the ribs to the bracket, and adjacent the midpoint of the bracket a semicircular groove 44 is provided which is adapted to seat on the lower peripheral surface of the pipe 9. A semicylindrical clamp 46 provided with a flange 47 may then be utilized in combination with cap screws 48 for securing the clamp to the bracket around the pipe support. Thus, the bracket being firmly engaged to the pipe, and the rib and shell being likewise firmly engaged to the bracket, a satisfactory generally integrated construction is provided.

It is important to note that with the lamps positioned adjacent lines containing the focal points of the longitudinally extending parabolas, optimum light reflection will be obtained, particularly in view of the polished aluminum liners 13 and 13a. Furthermore, it will be seen that the lower end 24 of the shell and liner are disposed vertically below the axis of the lamps. Hence, oncoming cars will be protected against direct line vision with the lamps and it will require an abnormal upward glance by a passing motorist to see the lamps under normal operating conditions. Furthermore, the light reflected from the lamps through the liners will not merely be reflected directly subjacent the lamp, but will likewise cast illumination for a substantial distance on the ground even laterally removed from the standard 7.

It will likewise be appreciated that as the lamps are readily accessible from subjacent the unit, there is no requirement for removing any lower plate of translucent or transparent material found in many street lighting fixtures, and the elimination of such a unit likewise increases the efficiency of the light distribution.

While the apparatus is relatively simple in construction and economical to maintain, it serves an extremely useful purpose in providing adequate lighting illumination along streets or highways.

What is claimed is:

1. A lighting fixture comprising a horizontal longitudinally extending shell having a substantially parabolic cross-sectional form directed downwardly, means adjacent the ends of said shell for supporting a pair of horizontal parallel axially extending lamp elements, a rib disposed intermediate the ends of said shell and having a curved upper surface in engagement with said shell and opposed side walls of generally parabolic form merging with the inner surface of said shell, a pair of reflecting liners each positioned against lower surface portions of said shell and extending from the distal ends thereof towards said rib and then being in engagement with the respective parabolic

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rib walls, means for releasably securing the ends of said liners to lower edge portions of said rib and the other ends of said liners to the opposed distal edge portions of said shell.

2. A lighting fixture comprising a horizontally disposed shell having a downwardly directed curved cross-sectional form, a pair of end walls secured to the ends of said shell, a pair of reinforcing ribs positioned between and adjacent said end walls, a second rib positioned against the inner surface of said shell medially of the edges thereof and having a curved upper surface conforming to the inner curvature of said shell, said second rib having opposed side walls defining parabolic surfaces the lower edge portions of which extend substantially to the lowermost distal edges of said shell and the upper edge portions of which smoothly merge with the inner curvature of said shell, lamp supporting means carried by said end walls on opposite sides of said second rib and substantially along the axes of the rib parabolic surfaces, a liner positioned against said shell on each side of said second rib and against the respective side walls of the latter, and means releasably maintaining said liners in flexed condition against said second rib and shell.

3. A lighting fixture comprising a longitudinally extending and horizontally disposed shell having a downwardly directed parabolic cross sectional form, end walls closing the ends of said shell, curved reinforcing means extending between said end walls and engaging the upper surface of said shell, a rib positioned transverse to and on the longitudinal center of said shell and having an upper curved surface positioned against and conforming to the inner surface of said shell and opposed side walls of outwardly directed parabolic form, said side walls having a sharper curvature than said shell and the upper portions thereof being substantially tangential to said shell, the axes of said side walls being positioned vertically above the lower distal edges of said shell, lamp supporting means on said end walls disposed substantially along said axes, a pair of reflecting liners with one such liner positioned against each of said rib side walls and against the inner surface of said shell to said distal edge thereof, means releasably retaining a distal edge of each liner against said shell distal edge, and means releasably retaining the other edge of each liner to said rib adjacent the lower edge thereof.

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