April 20, 1937. C. A. B. HALVORSON 2,078,137

LIGHTING UNIT

Filed March 20, 1936

Fig.4.

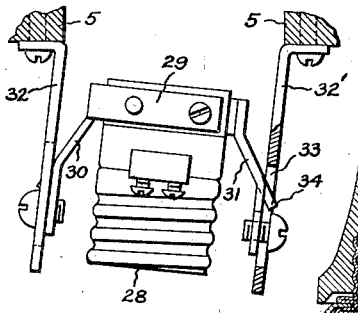
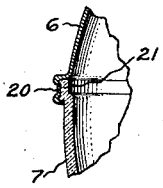


Fig.1.

Fig.3.

Fig.2.



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2,078,137

LIGHTING UNIT

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Application March 20, 1936, Serial No. 69,800

1 Claim. (Cl. 240—25)

My invention relates to lighting units and more particularly to street lighting units.

One object of my invention is to provide a lighting unit wherein an asymmetric distribution of light is obtained with a symmetric reflector and globe.

Another object of my invention is to provide a symmetrical street lighting unit, the light beam from which may be displaced relatively to the axis of the unit.

For a better understanding of my invention, together with other and further objects thereof, reference is had to the following description, taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claim.

In the accompanying drawing, Fig. 1 illustrates, partially in cross section, a lighting unit built in accordance with my invention; Fig. 2 is a partial cross section illustrating a modification; Fig. 3 illustrates graphically the light distribution obtainable with the unit illustrated in Fig. 1, and Fig. 4 is a modified support for the lamp socket.

Referring to Fig. 1 in detail, the unit comprises a hollow metal cap 5, a reflector 6 and a diffusing globe 7. Within the metal cap 5 is a socket receptacle 8 supported by a pair of brackets 9 and 10. This receptacle is supported at an angle to the axis of the reflector 6, so that when the usual series socket 11 and incandescent lamp 12 are mounted therein the light source, that is, the incandescent filament 13, will be within the reflector and to one side of the axis. The distance which the filament is to be moved from the axis depends upon the size of the reflector, the size of the lamp and the light distribution which is desired. It may be determined by test. In the unit illustrated a desired light distribution, such as graphically shown for example in Fig. 3, is obtained by displacing the lamp axis approximately 20° from the axis of the unit. In order to permit a future adjustment of this assembly, an adjustable support, such as illustrated in Fig. 4, may be used.

The reflector 6 is a surface of revolution, the curvature of which is arranged to obtain a beam having a spread of approximately 160° symmetrically about its axis of revolution when a light source is in focus therewith. It is attached to a screw collar 14 at its top which in turn is turned into the lower end of the cap 5. The socket 11 projects through this collar into the reflector. The lamp 12 supported in the socket is so mounted that the filament thereof is near the plane of the reflector focus but is displaced as above described, so that when this lamp is energized a beam is projected which is not symmetrical about the reflector axis but is to one side thereof.

At its lower edge the reflector 6 is provided with a flange 15, which is large enough to receive the globe flange 16. To fasten these two members together, a channel-shaped ring 17 engages the shoulders of the flanges 15 and 16. The ring 17 is split and is drawn together by a screw 18 and nut 19. This construction provides a substantially continuous outside surface on the lighting unit. In case of rain, therefore, the water striking the unit at the top flows down along the entire surface of the globe and thereby cleans it. The dust-tight construction also keeps the inside of the globe clean.

In Fig. 2 I have illustrated a modification of the method of uniting the reflector and globe. In this modification the reflector 6 is provided with a flange 20 which fits over the flange 21 of the globe 7 and its end is rolled under the end of the flange thereby forming a tight joint between the reflector and globe.

In Fig. 3 I have illustrated graphically the relative distribution obtainable with this lighting unit having the lamp displaced from the focal point as illustrated in Fig. 1. The curve 23 illustrates a relative distribution of light in a vertical plane, line 24 representing the vertical axis of the reflector, and curve 25 illustrates the light distribution within a 57° cone when the lamp is displaced as illustrated in Fig. 1. The lines 24 and 26 intersect at the vertical axis of the reflector, the light source being located along line 24 above the line 26. The curve 23 is extended farther toward the left of the line 24 than toward the right indicating the relatively greater distribution toward the street side than toward the sidewalk side of the unit. The curve 25 extends below the line 26 a greater distance than above it. This also indicates the additional light thrown toward the street side. It is, of course, not necessary to arrange the unit so that the major axis of the beam and light pattern is at right angles to the street. The unit may be arranged so that the major axis of the light pattern is nearly parallel to the street. Thus, for example, if two units are mounted directly opposite each other the light pattern of each may be thrown along the street in opposite directions.

In Fig. 4 I have illustrated a modified support for a lamp socket 28. The socket is attached to

a collar 29 having arms 30 and 31 in sliding engagement with the brackets 32 and 32'. The brackets are attached to the cap 5 similarly to brackets 9 and 10. Bracket 32' is shown partly in section to illustrate the slot 33 into which a guide finger 34 projects. The socket may be angularly adjusted relatively to the vertical axis of the reflector 6 and may be moved up or down so as to adjust the light source relatively to the horizontal focal plane.

What I claim as new and desire to secure by Letters Patent of the United States is:

In a street-lighting unit, the combination of a housing including a cap, a symmetrical reflector attached thereto and a globe attached to said reflector, a lamp socket mounted in said cap at an angle to the axis thereof and means for adjusting said socket so that a lamp mounted in said socket may be displaced from the vertical axis of the reflector in the horizontal focal plane whereby the beam projected from said symmetrical reflector is displaced relatively to the axis of the unit to compensate for the mounting of the unit nearer to one side of the street than to the other.

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