Oct. 29, 1935. C. A. B. HALVORSON 2,019,346

LIGHTING UNIT

Filed June 8, 1933

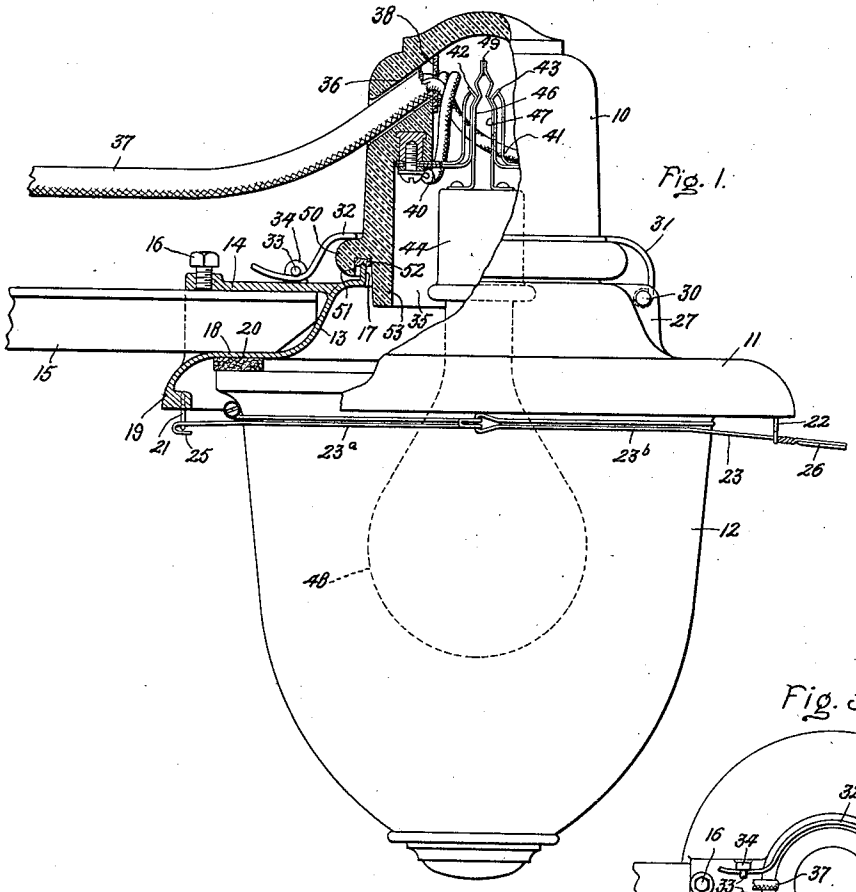


Fig. 1.

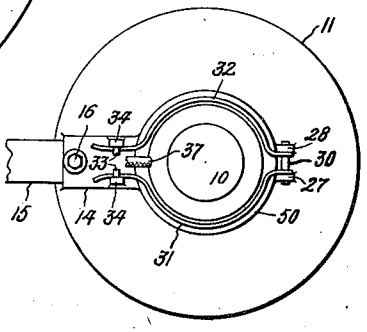


Fig. 3.

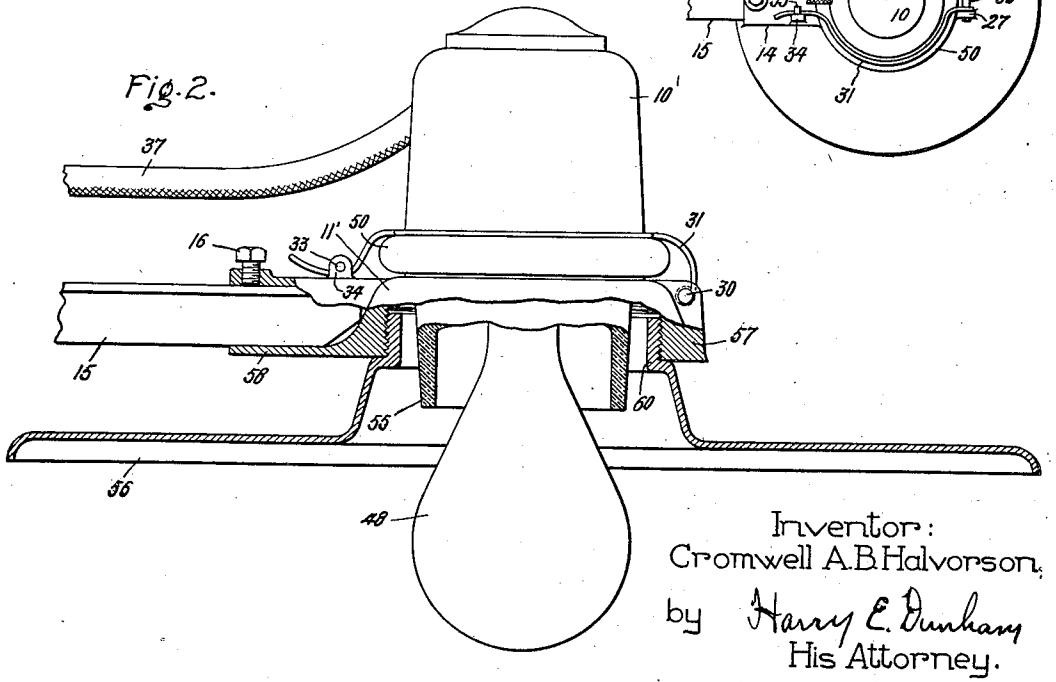


Fig. 2.

Inventor:
Cromwell A.B.Halvorson,
by Harry E. Dunham
His Attorney.

Patented Oct. 29, 1935 2,019,346

UNITED STATES PATENT OFFICE

2,019,346

LIGHTING UNIT

Cromwell A. B. Halvorson, Lynn, Mass., assignor to General Electric Company, a corporation of New York

Application June 8, 1933, Serial No. 674,870

2 Claims. (Cl. 240—25)

My invention relates to lighting units for street lighting and similar purposes, and has for its principal object the provision of an improved design and arrangement of parts for such units.

Lighting units of the above type generally consist of an insulator suspended from a suitable bracket and having attached to its lower end a lamp and a globe, reflector or other light-modifying means. The weight of these parts is, therefore, entirely supported by the insulator, which means that tensional strains are set up in the insulator material. Since insulators are made usually of ceramic material, which is relatively weak when placed under tension, the insulators have to be made relatively large to carry the weight of the lamp and the light-modifying means. Another object of my invention is, therefore, to so arrange the parts of the lighting unit that the insulator will not be subjected to tensional strains whereby the insulator used for any specific unit can be made considerably smaller than heretofore.

My invention will be better understood from the following description, when considered in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

In the accompanying drawing, Fig. 1 is a side view, partly in section, of a lighting unit built in accordance with my invention; Fig. 2 illustrates, also partly in section, a modification thereof, and Fig. 3 is a top view illustrating the means for attaching the insulator to the unit.

Fig. 1 illustrates a lighting unit including an insulator 10, a support 11 and a globe 12.

The support 11 may be manufactured of metal, or other suitable material, and comprises an annular body portion 13 provided with a sleeve 14 which may be slipped over bracket bar 15 and may be secured thereto by a set screw 16. A vertical annular flange 17 surrounds an opening at the top of the support 11 and its upper edge, or surface, provides a supporting surface for the insulator 10. Another flange 18, adjoining the lower edge of the body portion 13, is provided with an annular depending skirt 19. The flange 18 is provided with an annular felt washer 20 which provides a seat for the upper edge of the globe 12. The skirt 19 is provided with a staple 21 and a hook 22 to support the globe holder 23.

The globe holder 23 comprises two semi-annular wire members 23*a* and 23*b* interlocked with each other to form a complete ring which fits snugly the body of the globe 12. The member 23*a* is provided with a hook 25 arranged to engage the staple 21 and the member 23*b* is provided with a handle 26 which may be engaged with hook 22. The holder illustrated is of the type disclosed in my Patent 1,713,227, issued May 14, 1929.

On the upper side of the support 11, means are provided for easily attaching and detaching the insulator 10. This means consists of two lugs 27 and 28 through which a pin 30 is extended to provide a pivot for wire clips 31 and 32. These clips are semi-annularly shaped so as to snugly fit the body of the insulator 10 and are provided respectively with a loop, at one end, through which the pin 30 is arranged to extend and a U-shaped hook at the other end which is arranged to be hooked under the pins 33 oppositely arranged in the lugs 34.

The insulator 10, which is made of ceramic material, is cup-shaped having a downwardly opening recess 35. It is provided with a cable opening 36 through which a two-conductor cable 37 extends into the recess 35. The inner end of the opening 36 is covered by a plate 38 which is slightly larger than the opening. Plate 38 is made of fibre, or any other suitable insulating material, and is provided with two spaced holes through which the conductors 40 and 41 of the cable 37 extend into the insulator. The outside insulation of the cable, which is common to both conductors and is the high voltage insulation for series operated lamps, is brought into the cable opening 36 and extends up to the plate 38. The two conductors are also covered by insulation individually, but this is a low voltage insulation which needs to insulate against the voltage across one lamp only. The two conductors 40 and 41 are tied to each other, after extending through the insulating plate 38, and are then respectively connected to clips 42 and 43 which are mounted in the insulator recess 35. The plate 38 thereby forms an anchor for the cable. The clips 42 and 43 are attached to lugs located near the top of the insulator recess and are arranged with respect to each other to support a series socket 44 provided with contact prongs 46 and 47 which are clamped between the clips. Socket 44 is arranged to receive a lamp 48. The prongs 46 and 47 are separated from each other by a film cut-out 49 which may comprise an oxide film between two metal disks or any other well known type of cut-out suitable for this purpose.

Near the lower edge of the insulator 10 and surrounding its outer surface, a beading 50 is provided, having an undercut groove 51. This groove is partly filled by a felt washer 52 glued into it and is arranged to receive the upper surface of the flange 17. The insulator wall extends

below the groove and the beading 50 thereby forming an apron 53. This apron extends somewhat below the lower end of the socket 44 when the latter is held in operating position by the clips and also serves as a guiding means for assembling the insulator with the support.

To fasten or detach the insulator to or from the support it is only necessary to place the insulator, guided by its apron, into the support 11 until the upper surface of flange 17 projects into the groove 51 and rests firmly against the felt washer 52. The two clips 31 and 32 are then lowered to surround the insulator 10 above the beading 50 and their loose ends are squeezed together and lowered until they are below the pins 33, and allowed to spring apart. The insulator thereby is firmly held against the support. To release the insulator the ends of the clips 31 and 32 are again squeezed together, allowed to pass over the ends of the pins 33 and the insulator may be lifted away from the support.

This arrangement provides a convenient method for quickly attaching and detaching the insulator either during assembly of the unit or for inspection and repair purposes. The joint between the insulator and the support is tight against rain since the beading 50 deflects the water flowing down the insulator surface. The resiliency of the felt washer 52 and of the clips 31 and 32 allows for the expansion and contraction of the parts due to temperature changes, thereby maintaining the insulator firmly seated on the support and preventing vibration thereof when the unit is exposed to winds.

Fig. 2 illustrates a modification of my invention. In this modification the insulator 10 is provided with an apron 55 which is slightly longer than the apron 53, shown in Fig. 1, so as to better protect the uninsulated clips in the insulator recess. The support 11' is a modification of support 11 and supports a separate reflector 56. It comprises an annular body portion 57 provided with a sleeve 58 adapted to fit over the bar 15. The body portion 57 is threaded to accommodate the supporting sleeve 60 of the reflector 56. Otherwise this unit is the same as that shown in Fig. 1.

It is a very simple operation to assemble the unit above described, which may be done at the factory or in the field. The insulator 10 may be provided, for example, with a short length of cable 37 which may be connected to the clips 42 and 43 at the factory in the manner above explained, the other ends of the cable being connected to the line conductors in the field. The support 11 is provided with the wire clips 31 and 32 and with the globe holder 23 before being mounted on the bracket arm 15. The insulator and globe can then be attached to the support when it is mounted on the bracket. By my invention I provide a flexible lighting unit which can be manufactured and installed at low cost and which can be easily inspected and repaired thereafter.

It will be noted furthermore that the clips 42 and 43 are attached to lugs in the upper part of the insulator recess. When the unit is assembled and installed, the clips, and therefore the insulator, support only the relatively small weight of the socket 44 and the lamp 48. This comparatively light weight places the wall of the insulator, located between the lugs, to which the clips are attached, and the beading 50 under only slight compression which ceramic materials are well able to resist. With this arrangement, therefore, the entire weight of the unit is carried by the support 11 and the insulator is relieved of all tensional strains and can be made, therefore, considerably smaller than heretofore.

This improved unit has the advantage of being relatively small and is capable of being manufactured at low cost. Furthermore, it is a reliable unit since its entire weight is carried by a metal support which can be made strong without unduly increasing its size.

In accordance with the provision of the patent statute, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention may be carried out by other means.

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

1. In a lighting unit, the combination of an annular supporting member having an opening and a flange provided with an upwardly facing surface surrounding said opening, an insulator provided with a recess having a downwardly facing opening, a beading which surrounds said insulator above said recess opening and engages said flange, means for securing said insulator on said flange comprising a pair of members pivoted to said support and arranged to engage said insulator above said beading, and means for securing the opposite ends of said members to said support, a lamp socket supported within said insulator, and a lamp mounted in said socket and projecting through said support.

2. The combination with a supporting frame having an upwardly facing seat, said frame comprising means whereby it may be mounted on a support, of an insulator which rests on said seat, releasable means carried by the frame for holding the insulator on the seat, lamp socket supporting means carried by the insulator, light-modifying means, and releasable fastening means carried by the supporting frame for attaching the light-modifying means to the supporting frame.

CROMWELL A. B. HALVORSON.