July 17, 1956 P. GARNICK 2,755,392

PHOTOELECTRIC LIGHTING CONTROL UNIT

Original Filed Oct. 22, 1952 2 Sheets-Sheet 1

Fig. 1.

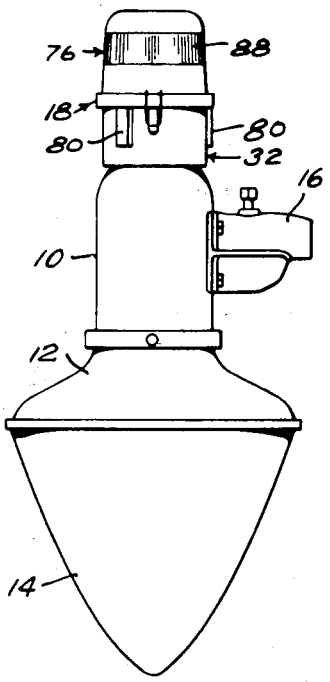


Fig. 2.

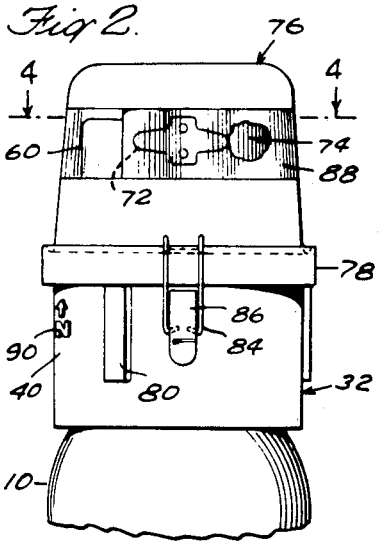


Fig. 3.

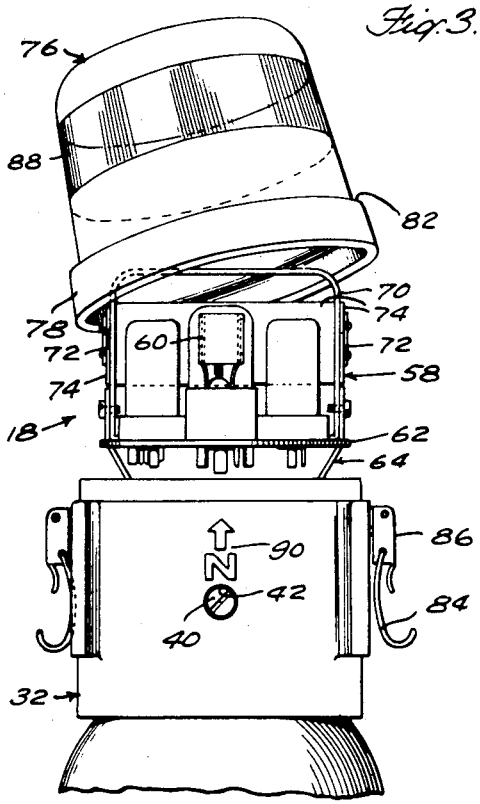
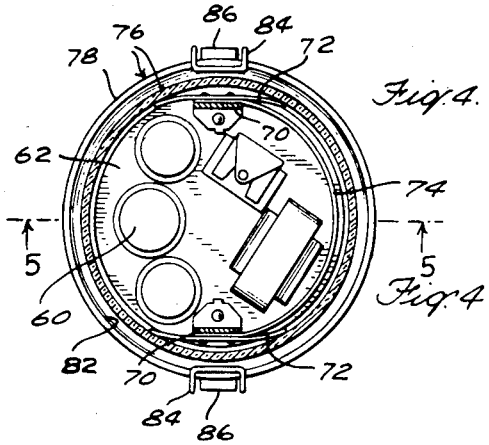


Fig. 4.



INVENTOR.
PHILIP GARNICK
BY
Morse, Holte, Crews + Berry

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Fig. 5

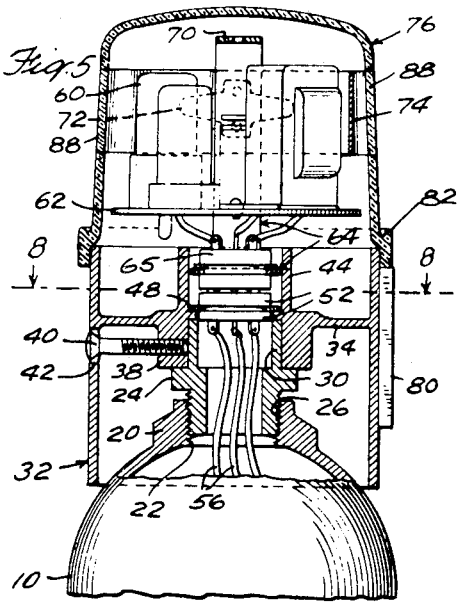


Fig. 6

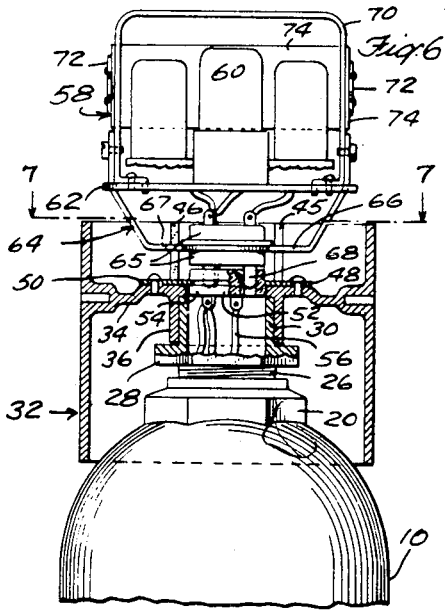
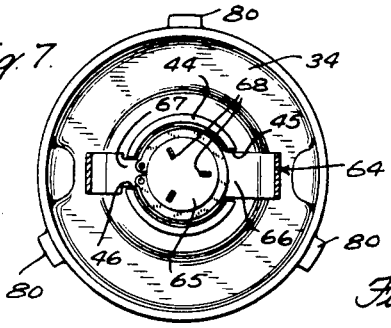


Fig. 7.



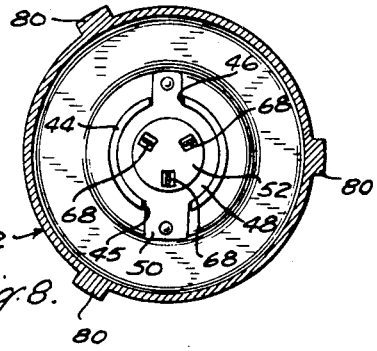
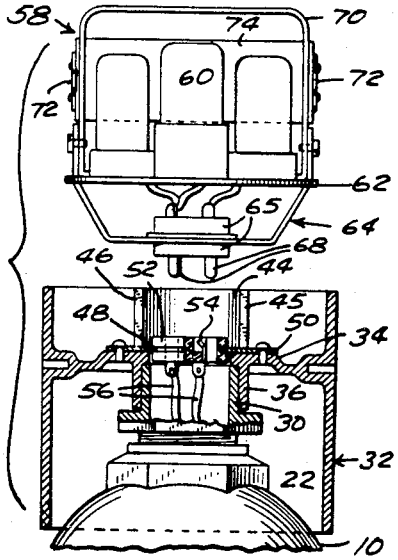


Fig. 8.

Fig. 9.



INVENTOR.
PHILIP GARNICK
BY
Moses, Holle, Cleves & Berry

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PHOTOELECTRIC LIGHTING CONTROL UNIT

Philip Garnick, Chelsea, Mass., assignor to Fisher-Pierce Company, Incorporated, a corporation of Massachusetts

Original application October 22, 1952, Serial No. 316,161, now Patent No. 2,709,224, dated May 24, 1955. Divided and this application April 26, 1955, Serial No. 503,845

7 Claims. (Cl. 250—239)

This invention relates to photo-electric lighting control units.

The use of photo-electric control units for turning lights, for example street lights, off and on, depending upon the intensity of the surrounding general illumination, is well known. It is common practice to provide photo-electric control units for this purpose, these being usually mounted upon an adjustable bracket or supporting means attached to a light pole or to a cross arm supported thereby.

This case is a division of my application for patent, Serial No. 316,161, filed October 22, 1952, U. S. Patent No. 2,709,224, dated May 24, 1955. Said patent relates to a unit of such construction that it may be adjustably mounted directly upon the top of a luminaire housing of ordinary form, whereby the use of special mounting brackets is dispensed with, and a compact and sightly installation is achieved. The subject matter of the present case relates to certain constructional features embodied in the unit shown irrespective of its manner of mounting.

In the accompanying drawings forming part of the specification:

Figure 1 is a side elevation of a typical street lighting luminaire having an illustrative embodiment of the invention mounted on top thereof;

Figure 2 is a side elevation showing the unit in position on a somewhat larger scale;

Figure 3 is a side elevation showing the unit with the cover glass and chassis lifted.

Figure 4 is a horizontal section taken on line 4—4 of Fig. 2;

Figure 5 is a vertical section through the unit and upper part of the luminaire housing, taken on line 5—5 of Fig. 4;

Figure 6 is a similar section taken at right angles to the section shown in Fig. 5, omitting the cover glass;

Figure 7 is a horizontal section on line 7—7 of Fig. 6;

Figure 8 is a horizontal section taken on line 8—8 of Fig. 5; and

Figure 9 is a view similar to Fig. 6 showing the photo-electric unit and chassis lifted above the base housing.

Referring to the drawings in detail, Fig. 1 shows a typical example of a street lighting luminaire comprising a body or hood 10 carrying a reflector 12 and a globe 14. In the example shown, the hood 10 is supported by means of a side bracket 16 which may be attached to a pole in the usual manner. Mounted on top of the hood 10 is a control unit indicated as a whole by the numeral 18.

The hood or body 10 of the luminaire is shown as provided with a boss 20 at its upper end (Figs. 5, 6 and 8) which is internally threaded as indicated at 22. This construction is common in luminaires, the threaded opening at the top being normally closed by an ordinary screw plug (not shown). In applying the unit to the luminaire, the screw plug is discarded and in its place is fitted an

adapter fitting 24 having a threaded nipple 26 at the bottom screwing into the threaded hole in the top of the luminaire hood, and having a hexagonal or other suitably shaped collar 28 by which it may be screwed in place. Above the collar is a cylindrical neck 30.

Mounted on the adapter is a base housing 32 preferably in the form of a cylinder of cast aluminum or the like having an inwardly projecting flange partition or bracket 34 formed between its ends, the flange carrying a downwardly projecting ring portion 36 having a cylindrical inner surface adapted to fit over the neck 30 of the adapter fitting. The ring portion 36 is preferably provided with one or more thickened bosses 38 (Fig. 5), at least one of which is horizontally threaded so as to receive a long set screw 40. A hole 42 is formed in the wall of the housing 32 opposite to the hole for the set screw and the set screw head is exposed in this hole 42 so that the screw may be readily tightened or loosened from outside. By means of the set screw the housing is firmly secured to the adapter fitting and may be adjusted thereon to any desired singular position.

Also carried by the flange or partition 34 in the housing is an upwardly projecting ring 44 having slotted openings 45 and 46 in opposite sides thereof, one of said slots preferably being made wider than the other. Mounted on the flange 34 is a power socket assembly shown as comprising a plate 48 having ears 50 projecting through the slots 45 and 46 and secured to the flange 34 by screws or rivets, the plate 48 carrying an insulator member 52 having sockets 54 thereon which are connected by wires 56 passing through the fitting 24 to the lamp (not shown) carried by the luminaire body. A photo-electric control unit indicated generally by the numeral 58 is mounted above the flange 34, it preferably being so organized as to be removed or applied as a unit.

The photo-electric control unit may be of any suitable construction comprising the necessary tubes, transformers, and relays, not necessary to be described herein, the photosensitive element of the unit being represented in this instance by the tube 60. The members constituting this photo-electric control are shown as mounted on a chassis plate 62 having attached to its underside a bracket 64 which carries a power plug 65 wired to the elements of the control unit. This lower transverse member of bracket 64 is provided with a wide portion 66 adapted to fit in the wider slot 45 in the upwardly projecting ring 44 and with a narrower portion 67 adapted to fit in the narrower slot 46 of the ring. The construction insures that the photo-electric control unit can only be inserted in proper position, and also guides the control unit so as to bring the contact blades 68 on the power plug into engagement with the socket 54 in the member 52 without placing undue strain on the power plug and socket members. The chassis plate is also shown as carrying a handle bracket 70 attached to which are a pair of guide springs 72 and a shield plate 74.

Mounted on top of the housing 32 is a dome or cover glass 76 having an enlargement 78 at its lower end adapted to surround the upper end of the housing 32 and seat upon seating lugs 80 formed on the outside of the housing. The dome is shown as secured to the housing by means of an annular flange 82 projecting upwardly from the enlargement 78 and engaged by spring loops 84 forming part of latches 86, which may be of any well-known construction permitting tension to be applied to the loops so as to hold the dome firmly upon its seats. The dome preferably has a central zone 88 which is transparent, the glass forming the balance of the dome being coated or otherwise treated to render it opaque. The zone 88 is preferably transparent all the way around, but a part of it is shielded against entrance of light by the shield 74.

The photo sensitive tube **60** is located opposite the unshielded part of the transparent zone or window.

The housing preferably has indicia **90** on one face thereof adjacent to the set screw and opposite to the position of the exposed face of the photo sensitive tube. This facilitates the adjustment for the entire photo sensitive unit upon the luminaire to a position in which the photo sensitive element has the proper exposure, usually to the north. Once this adjustment is made the set screw **40** is tightened and the unit is permanently fixed in its proper position.

While certain preferred embodiments of the invention have been illustrated and described in detail, it is to be understood that changes may be made therein and the invention embodied in other structures. It is not, therefore, the intention to limit the patent to the specific construction illustrated, but to cover the invention broadly in whatever form its principles may be utilized.

I claim:

1. A photo-electric street lighting control unit comprising a housing, a power socket mounted in the housing, a chassis plate, photo-electric control instrumentalities mounted on the chassis plate, a bracket mounted on the under side of the chassis plate and carrying a power plug having contacts for separable connection with contacts carried by the power socket, a handle carried by the chassis plate and extending over the photo-electric control instrumentalities, a dome mounted on the housing and enclosing said photo-electric control instrumentalities, said dome having an annular transparent window therein, and a shield plate carried by said handle and extending part way around the circumference inside of said window.

2. A photo-electric street lighting control unit comprising a housing, a power socket mounted in the housing, a chassis plate, photo-electric control instrumentalities mounted on the chassis plate, a bracket mounted on the under side of the chassis plate and carrying a power plug having contacts for separable connection with contacts carried by the power socket, a handle carried by the chassis plate, a dome mounted on the housing and enclosing said photo-electric control instrumentalities and handle, said dome having a transparent window therein, and guiding springs carried by said handle engaging the inner surface of said dome.

3. A control chassis for a photo-electric street lighting control unit comprising a horizontal chassis plate carrying photo-electric control instrumentalities on the upper surface thereof, a bracket mounted on the under side of said chassis plate having downwardly projecting arms carrying a transverse member spaced a substantial distance below said chassis plate and carrying a terminal plug, a bail mounted on the chassis plate extending up over the photo-electric control elements, and spring means attached to the bail for yielding engagement with the inside of the cover glass.

4. A control chassis for a photo-electric street lighting control unit comprising a horizontal circular chassis plate carrying photo-electric control instrumentalies on the upper surface thereof, a bracket mounted on the under side of said chassis plate having downwardly projecting arms carrying a transverse member spaced a substantial distance below said chassis plate and carrying a terminal plug, said transverse member having portions of different widths located on opposite sides of the terminal plug, a bail extending from substantially the outer margin of the chassis plate up over the photo-electric control elements, a shield plate attached to the bail and leaf springs mounted on the bail for yielding engagement with the inside of a cover glass.

5. A photo-electric street lighting control unit comprising a housing, a dome-shaped cover glass removably mounted on the housing, said housing having a transverse internal partition therein, an insulated power socket carried thereby, a photo-electric control unit mounted under said cover glass, said unit comprising a horizontal chassis plate carrying the photo-electric control instrumentalities, a bracket mounted on the under side of said chassis plate and carrying a plug member for engagement with the power socket carried by the housing, a handle extending from the chassis plate up over the photo-electric control elements, and spring means attached to the handle for yielding engagement with the inside of the cover glass.

6. A photo-electric street lighting control unit comprising a cylindrical housing, a dome-shaped cover glass having a flange enclosing the upper edge of the housing, the upper edge of the flange on the cover glass having an annular channel therein, spring clips carried by the housing having hook-shaped ends engaging in said channel, said housing having a transverse partition therein having a hole through the center thereof, and having an upstanding flange surrounding said hole, said flange being notched at opposite sides thereof, one of said notches being wider than the other, means carrying an insulated power socket aligned with the hole in the partition, a photo-electric control unit including a photo sensitive element mounted under said cover glass, said unit comprising a horizontal chassis plate carrying the photo-electric control instrumentalities, a bracket mounted on the under side of said chassis plate having downwardly projecting arms carrying a transverse member, said member having portions of different widths fitting the respective notches in the upstanding flame on the housing partition and carrying a plug member for engagement with the power socket carried by the housing, a bail extending from the chassis plate and springs attached to the bail for yielding engagement with the inside of the cover glass.

7. A photo-electric street lighting control unit comprising a cylindrical housing having lugs on the side thereof terminating a short distance below the top of the housing, a dome-shaped cover glass having a flange enclosing the upper edge of the housing and seating on the tops of said lugs, the upper edge of said flange having an annular channel therein, spring clips carried by the housing having hook-shaped ends engaging in said channel, said cover glass having an annular transparent band around the same, the remainder of said housing being substantially non-transparent, said housing having a transverse internal partition between the ends thereof, said partition having a hole through the center thereof and having an upstanding flange surrounding said hole, said flange being notched at opposite sides thereof, one of said notches being wider than the other, a plate having lugs extending into said notches, said plate carrying an insulated power socket aligned with the hole in the partition, a photo-electric control unit including a photosensitive element mounted under said cover glass, and exposed through the transparent band thereof, said unit comprising a horizontal circular chassis plate carrying the photo-electric control instrumentalities, a bracket mounted on the under side of said chassis plate having downwardly projecting arms carrying a transverse member, said member having portions of different widths fitting the respective notches in the upstanding flange on the housing partition and spaced a substantial distance below said chassis plate and carrying a plug member for engagement with the power socket carried by the housing, a bail extending from substantially the outer margin of the chassis plate up over the photo-electric control elements, a shield plate attached to the bail and extending part way around the circumference of the cover glass on the side of the photo-electric control unit away from the photosensitive element of said unit, and spring means attached to the bail for yielding engagement with the inside of the cover glass.

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