Dec. 9, 1969

R. K. SCHULER

3,483,392

PHOTOCELL PLASTIC HOUSING WITH PLUG SECTION

Filed March 23, 1967

INVENTOR.

Robert K. Schuler

BY

E. J. Bishop

ATTORNEY
ABSTRACT OF THE DISCLOSURE

A photo-cell assembly wherein a photo-cell is held within an insulated housing by retaining flanges and the wire leads are wrapped around locking ears formed on a downwardly extending plug section to positively secure the photo-cell to the housing as well as to form the terminals for a plug and socket electrical connection.

Where an electrical component, such as a photo-cell, must be accurately and securely positioned within an enclosure, the installation is often a time-consuming operation. In conventional designs, the component and associated wire leads are usually attached by bolts, screws or other similar means to a mounting surface that is in turn secured to the main assembly. After mounting, the photo-cell is electrically connected, in the main assembly area, by soldering or manually attaching the lead wires to an appropriate power supply.

The present invention overcomes the aforementioned problems by providing a photo-cell unit that may be totally assembled in a remote location and that can be easily mounted and electrically connected without additional parts or operations. The photocell is mounted on the base of an insulated housing having deflectable retaining flanges that secure the photocell body against axial and lateral movement. Retaining the cell in this manner eliminates much of the time normally spent in a mounting operation and allows the use of a smaller photocell base. The photo-cell leads are then wrapped around locking ears formed on a downwardly extending plug section. In addition to providing additional support for the photocell body, the leads and locking ears cooperate to form an electrical plug that, without additional operations, may be easily inserted into a suitably shaped electrical receptacle. Mounting shoulders are provided on the housing so that the photocell assembly may be inserted into a suitably shaped opening in the main unit and be securely held therein without additional operations or parts. The resulting product is a compact, inexpensive and rugged photocell unit that overcomes the previously mentioned problems.

Accordingly, the objects of the present invention are:

1. To provide a compact photocell assembly that is adapted to be inserted into a socket receptacle;
2. To provide a photocell unit subassembly that can be completely formed prior to installation in a main assembly; to provide an insulated housing for an electrical component wherein the latter is held securely in place on an insulated housing by retaining flanges, and the terminal leads are secured by colling around locking ears formed on a downwardly extending plug section of the housing; and to provide a photocell unit that can be easily assembled by simple operations.

The above and other objects will be apparent to one skilled in the art upon reading the following detailed description; reference being made to the accompanying drawings in which:

FIGURE 1 is a side cross-sectional view of a photocell assembly made in accordance with the present invention.
3,483,392

is limited by the groove 36 and the shoulder 38, respectively.

As shown in FIGURES 1 and 3, the assembly operation is completed by successively bending the wire leads 16 downwardly and outwardly into alignment with and traversely through the terminal notches 46, and upwardly and outwardly into alignment with and transversely across the terminal grooves 52. The length of lead necessary for the above operation may be predetermined or the wire leads can be severed to the appropriate length at the completion of the winding operation. Finally, the wire leads 16 are crimped into the recesses 54 to form terminal depressions 60. In addition to forming the contact terminals for the leads, the depressions 60 take up any slack present in the bending operation to provide a tightly secured photocell assembly.

As shown in FIGURE 3, the photocell assembly can be easily and conveniently electrically connected by inserting the plug section 30 into a suitably shaped receptacle such as an electrical connector 62 having C-shaped locking notches 64 formed in the contact fingers 66. The notches 64 cooperate with depressions 60 to make the electrical contact as well as providing a locking connection between the photocell assembly and the connector.

While but one embodiment has been shown and described, it should be apparent that one skilled in the art could make various modifications and alterations of the present invention. Accordingly, the invention should be limited only by the appended claims.

1. A one-piece plastic housing formed of an insulating material and adapted to receive and retain a generally cylindrical electrical component having elongated flexible wire leads, said housing comprising: a mounting section having upwardly extending deflectable retaining means which are adapted to partially encircle and resiliently engage said component to thereby limit vertical and lateral movement of the latter; apertures formed in said mounting section through which said wire leads are adapted to extend; and a plug section extending downwardly from said mounting section and including recessed surfaces into and around which said wire leads are adapted to be wrapped to thereby fixedly secure said component to said housing.

2. The invention as recited in claim 1 wherein said deflectable retaining means comprise a pair of vertically extending wall sections formed at the sides of said mounting section in diametrically opposing relationship, each of which has a semi-circular inwardly facing retaining flange formed thereon above said mounting section.

3. The invention as recited in claim 1 wherein said plug section includes a centrally located core and outwardly extending locking ears on which said recessed surfaces are formed.

4. The invention as recited in claim 3 wherein said recessed surfaces include grooves formed in the bottom face of said locking ears, and notches formed in the outwardly facing surfaces of said locking ears adjacent said mounting section.

5. A one-piece plastic housing formed of an insulating material and adapted to receive and retain a photocell having a cylindrical body and a circular base from which a pair of elongated flexible wire leads depend, said housing comprising: a substantially circular mounting plate having a pair of vertically extending walls formed at the side thereof in diametrically opposing relationship, said walls including inwardly facing semi-circular retaining flanges spaced above said mounting plate and adapted to partially encircle and resiliently engage said body to limit lateral and vertical movement of the photocell relative to the mounting plate; outwardly opening slots formed in said mounting plate through which said wire leads are adapted to extend; a plug section extending downwardly from said mounting plate and including a centrally located core and outwardly extending locking ears; grooves formed in the bottom face of said locking ears; and notches formed in the outwardly facing surfaces of said locking ears adjacent said mounting plate whereby said wire leads are adapted to be wrapped into and around said notches and grooves to fixedly secure said photocell to said housing with said wire leads and said plug section constituting a connector section for electrically mounting said photocell.

References Cited

UNITED STATES PATENTS

2,493,919 1/1950 Holmes 250—239 X
2,654,858 10/1953 Feller 250—239 X
3,336,482 8/1967 Mierendorf et al. 250—239 X
3,401,311 9/1968 Burch 250—239

ROBERT SEGAL, Primary Examiner

U.S. Cl. X.R.

317—101