May 7, 1968 J. S. PRIFOGLE ET AL 3,382,355

ILLUMINATED ELECTRICAL CONNECTOR

Filed Sept. 26, 1966

Fig. 1

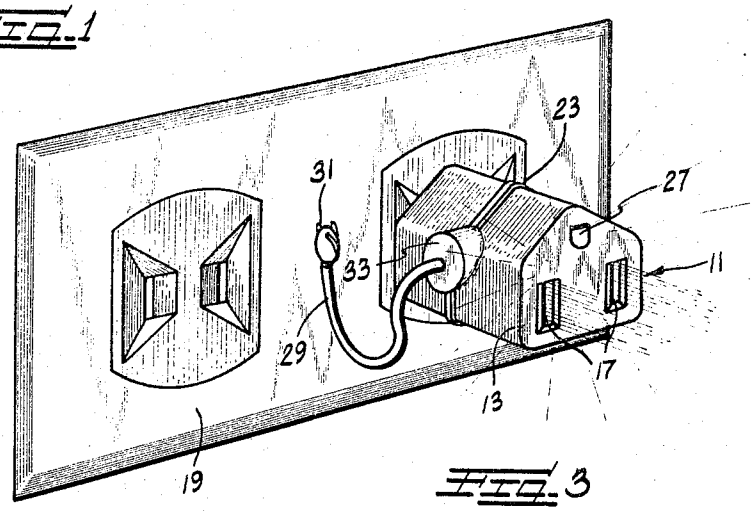


Fig. 3

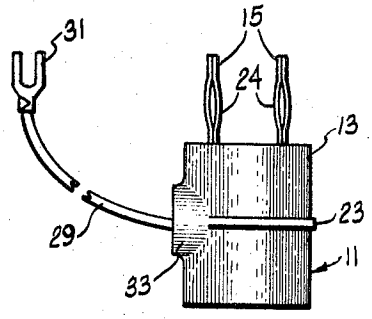


Fig. 2

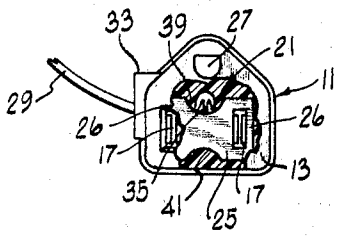


Fig. 5

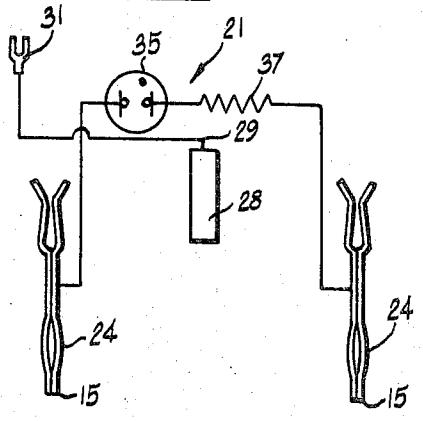
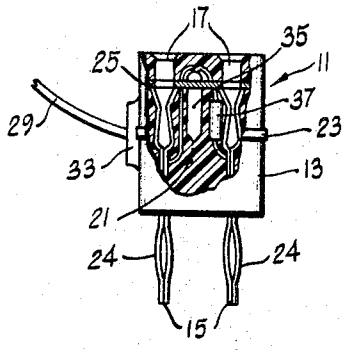


Fig. 4



Inventors
JOHN S. PRIFOGLE
RODNEY J. ROSS

By Anderson, Quedeka, Fitch, Even, & Tabin Attys.

United States Patent Office 3,382,355
Patented May 7, 1968

3,382,355

ILLUMINATED ELECTRICAL CONNECTOR

John S. Prifogle, Williamsburg, and Rodney J. Ross, Richmond, Ind., assignors to Belden Corporation, a corporation of Illinois

Filed Sept. 26, 1966, Ser. No. 582,142
3 Claims. (Cl. 240—73)

ABSTRACT OF THE DISCLOSURE

This device comprises an illuminated electrical connector with a body molded of light transmitting material. The illuminating means consisting of an elongated neon bulb to direct light through a dielectric barrier positioned within the body.

This invention generally relates to an illuminated electrical connector and more particularly relates to an electrical connector provided with a safety feature in the form of an illuminating means.

Frequently the outer case of an appliance or other device is, for safety reasons, desirably maintained at ground potential. For this purpose, such appliances conventionally are provided with a three wire cable terminated by a three prong plug, the off-center prong of which is wired for connection to a source of ground potential. Such a three pronged plug cannot be inserted into a common household electrical wall outlet which has only two sockets adapted for receiving a standard two-pronged plug. To permit such an insertion, an adaptor is normally provided between the appliance plug and the wall outlet.

One form of commercially available adaptor includes, on one end, a pair of parallel prongs which are inserted into the outlet and, on the other end, three sockets for receiving the three prong plug. A ground wire, one end of which is connected to the socket which receives the ground prong of the plug, is usually provided at its free end with a lug to facilitate connection to a cover plate screw. The outlet cover plate, in turn, is secured to the metallic outlet box, which is maintained at ground potential through the connecting conduit, armored cable or a third ground wire. Connection to the cover plate screw thus completes the circuit to ground.

As is often the case, the outlets are positioned near the floor, in a corner, or in some other relatively inaccessible, dimly lit area. In such situations, the user must often grope about with his hands to establish the location and orientation of the adapter socket before inserting the appliance plug therein. This procedure of fumbling about a poorly illuminated outlet to determine the position and orientation of the adaptor is dangerous in that the user is exposed to the possibility of electrical shock. Occasionally the parallel prongs of the appliance plug are nonpolarized. In such situations, the appliance plug may be inserted into the adaptor in an inverted position, 180° displaced from its normal position. While the appliance will receive power with such a connection, the ground prong of the plug will not be connected to the ground.

Even though the foregoing discussion is particularly directed toward a two prong, three socket adaptor, the safety feature of this invention may be useful with other electrical connectors, such as a two prong, two socket connector. Such an embodiment will provide illumination yet does not render unavailable, for other use, the cooperating wall outlet.

It is a main object of this invention to provide an improved electrical connector. A further object is to provide an electrical connector with a safety feature which includes means for illuminating the sockets thereof. A still further object is to provide an electrical connector wherein the sockets theerof are illuminated which connector is relatively inexpensive to manufacture.

Other objects and advantages of the present invention will become apparent through reference to the following description and accompanying drawings, in which:

FIGURE 1 is a perspective view of a connector in accordance with this invention in cooperative engagement with a common wall outlet;

FIGURE 2 is an end plan view of the connector illustrated in FIGURE 1, partially broken away to illustrate certain features thereof;

FIGURE 3 is a top plan view of the connector illustrated in FIGURE 2;

FIGURE 4 is a bottom plan view of the connector illustrated in FIGURE 1 with a portion of the connector broken away to more clearly illustrate various features of the invention; and

FIGURE 5 is an electrical schematic diagram of the connector illustrated in FIGURES 1 to 4.

Briefly, the connector **11** illustrated in FIGURE 1 comprises a body **13** molded of a plastic insulating material having light transmitting qualities. The body **13** includes a plurality of prongs **15** extending from one face (hereinafter referred to as the prong face) thereof and a plurality of sockets **17** extending into the opposite face (hereinafter referred to as the socket face) thereof. Molded within the body **13** is an illuminating means which is connected to the prongs **15** so as to be energized when the connector **11** is inserted into a wall outlet **19**. The illuminating means **21** is positioned so that the light therefrom is particularly directed toward the socket face thus providing a soft light for illumination of that face as illustrated in FIGURE 1. The body **13** is preferably translucent so that the light will be diffused across the socket face. When the connector **11** is used in relatively inaccessible locations or in dimly lit areas, the illuminating means **21** provides sufficient illumination of the socket face so that the user will readily be able to find the sockets and insert the appliance plug therein without having to fumble with the plug thus subjecting himself to the possibility of electrical shock.

More particularly, the illustrated connector is molded of a light transmitting plastic material preferably translucent. The body **13** is of generally pentagonal cross section having flat outer end faces at each end thereof from which the sides of the body extend in generally perpendicular relation. A single raised ridge **23** is formed about the body **13** of the connector and is positioned midway between the socket face and prong face thereof. The ridge **23** provides a gripping surface so that the connector **11** may be readily grasped during the insertion and removal of the connector from the wall outlet **19**.

Molded within and projecting from the prong face of the body **13** of the connector are the prongs **15**. In the illustrated embodiment two parallel prongs **15** are provided which are spaced to cooperate with a standard parallel-slot, two pole wall receptacle. Each of the prongs **15** is formed from a single metallic strip **24** which is folded back upon itself and bowed slightly intermediate the ends of the portion thereof which extends from the body.

The illustrated strips are also employed to form the sockets **17** which extend into the other end face, the socket face, of the body **13**. In this connection the ends of each strip **24** are extended to a position within the body **13** spaced from the socket face, and are outwardly bent to provide a pair of jaws for receiving the prong (not shown) of a plug.

To prevent the improper insertion of a polarized appliance plug into the connector a separator **25** of relatively

stiff dielectric material is provided. Rectangular openings 26 are provided in the separator 25 and in the body 13 between the socket face and the ends of the sockets 17 to permit insertion of the prongs of a plug into the sockets.

The illustrated connector also includes a socket 27 for receiving the ground prong of the plug. The ground socket 27 includes a tubularly shaped metallic member 28 which extends parallel to the other sockets and is positioned equidistant from the sockets and between the sides of the body having the recesses. The inner end of the tubular member is connected to a grounding wire 29 which passes through the body and terminates with a spade lug 31 having upturned ribs to facilitate attachment to the retaining screw upon the outlet cover. The body of the connector is formed to produce a circular protrusion 33 wherethrough the ground wire is directed.

Molded within the body 13 of the connector 11 is the illuminating means 21 which comprises a small, elongated, low wattage neon bulb 35 such as the General Electric NE–2. While an incandescent bulb may be used, the long life of a neon bulb makes it particularly desirable in this application. Since the voltage drop across a neon bulb 35 is normally much lower than line voltage, a current limiting resistor 37 is connected in series therewith and the series bulb 35 and resistor 37 combination is connected between the prongs 15. The bulb 35 is positioned within the connector 11 so that a significant portion of the light therefrom is directed toward the socket face for illumination thereof. In this connection, the bulb 35 is positioned with its base end adjacent the socket face and in a semicircular recess 39 provided in the side of the separator 25 adjacent the ground socket 27. The bulb 35 is positioned alongside the member 28 towards the prong face of the connector. The separator 25 is also provided with an elongated semicircular recess 41. If desired, the connector 11, with the exception of the socket face, may be covered with a reflective coating so as to direct a greater portion of the light toward the socket face of the connector.

As can be seen from the above, a connector is provided which may be readily connected to a common wall outlet. Upon insertion into a wall outlet, the neon bulb 35 within the connector lights, thereby illuminating the socket face of the connector. The illumination greatly facilitates the insertion of an appliance plug into the sockets of the connector.

Although but one specific embodiment of the present invention has been herein shown and described, it will be understood that details of the construction shown may be altered without departing from the spirit and scope of the invention as defined by the following claims.

We claim:

1. An electrical connector comprising a body, a plurality of parallel prongs projecting from a first face of said body and positioned for cooperative engagement with a conventional wall outlet, said body member including a plurality of sockets extending from a second face of said body and positioned for receiving an appliance plug therein, said sockets and said prongs being electrically connected to provide a current path through said connector, said body being molded of a light transmitting material, an illuminating means within said body, said illuminating means including an elongated neon bulb and a resistor which are connected in series across said prongs for receiving power therefrom, and a dielectric barrier disposed within said body between said second face and said sockets, said barrier being provided with an opening which receives a portion of said bulb whereby a portion of light from said bulb passes through said second face and illuminates said second face.

2. A connector in accordance with claim 1 wherein the bulb is elongated and the base end of said bulb is positioned in said opening and the other end of the bulb is positioned toward said first face.

3. An electrical connector comprising a body molded of a light transmitting material and having a pair of opposite faces, a pair of parallel prongs projecting from a first of said faces of said body and positioned for cooperative engagement with a conventional wall outlet, a pair of sockets extending into said body from a second of said faces and positioned for receiving an appliance plug therein, one of said sockets being associated with one of said prongs, each of said associated sockets and prongs being formed of a single strip of material which is folded back upon itself, the folded back portion forming the prong and the ends of the strip being outwardly bent to form the associated socket, an illuminating means within said body, said illuminating means including a neon bulb and a resistor which are connected in series across said prongs for receiving power therefrom, and a dielectric barrier disposed within said body between said second face and said sockets, said barrier being provided with an opening intermediate said sockets, a portion of said bulb being positioned in said body so as to direct light through said opening, whereby said second face is illuminated.

References Cited

FOREIGN PATENTS

672,195 10/1967 Canada.

OTHER REFERENCES

Safety Plug, Scientific American, October 1945, pp. 245–246.

NORTON ANSHER, *Primary Examiner.*

W. A. SIVERTSON, *Assistant Examiner.*