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S. I. SLATER

2,950,457

ELECTRICAL OUTLET DEVICE

Filed May 12, 1955

Fig. 1.

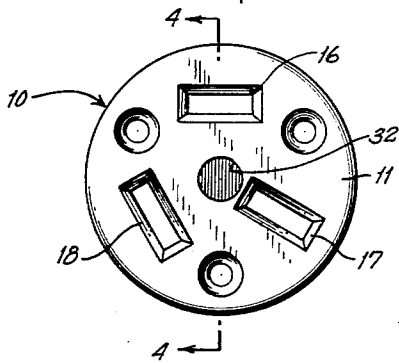


Fig. 2.

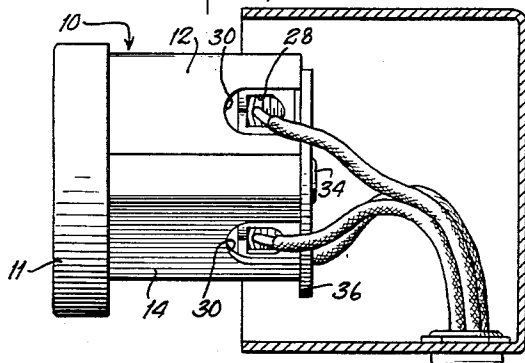


Fig. 3.

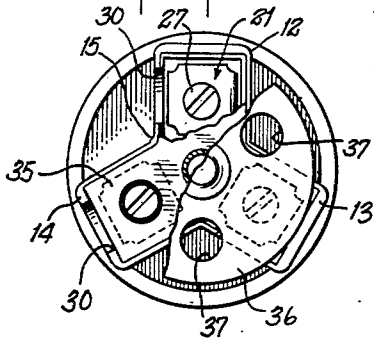


Fig. 4.

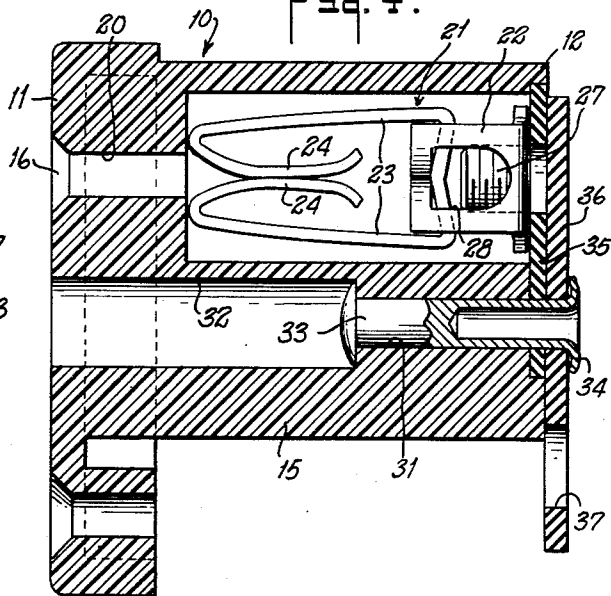


Fig. 5.

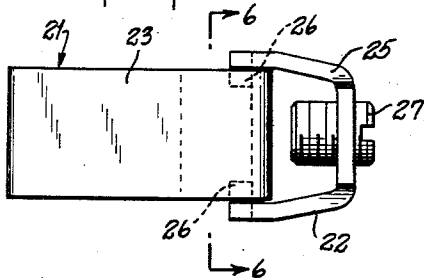
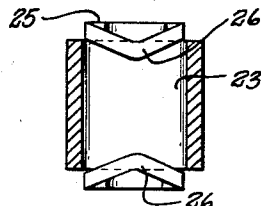


Fig. 6.



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ELECTRICAL OUTLET DEVICE

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1 Claim. (Cl. 339—41)

The present invention relates to wiring devices and particularly to a heavy duty plug receptacle such as is commonly used for connecting an electric range or the like to a power line.

More particularly still the invention relates to such a heavy duty plug receptacle having wire terminals which are readily accessible for connecting the plug receptacle to the power line and in which means are provided for assuring the complete insulation of the connections once the device has been installed. Additionally, the heavy duty plug receptacle of the present invention is provided with terminals which are so designed as to hold the wires in fixed position with respect to the terminals to which they are connected while at the same time assuring that the pressure required is not transmitted through the wiring terminals to cause the molded plastic housing to be broken or otherwise damaged.

It is an object of the invention to provide a wiring device having terminals which are readily accessible without the necessity of disassembling the device.

It is another object of the invention to provide a heavy duty three-wire plug receptacle having terminal members which are readily accessible for connecting the device into the power circuit.

It is a further object of the invention to provide such a heavy duty plug receptacle in which the parts thereof are permanently fastened together thereby preventing loss of any of the parts while at the same time assuring ease in installing the device due to the ready accessibility of the fastening means by which the circuit wires are connected to the prong or plug receiving terminals.

Other objects and features of the invention will be apparent when the following description is considered in connection with the annexed drawings, in which,

Figure 1 is a front elevational view of a heavy duty plug receptacle of the type used on a three-wire circuit employed for example in connecting an electric range to the power circuit;

Figure 2 is a side elevational view of the device of Figure 1 illustrating the position of the device with respect to an outlet box in which it is to be installed;

Figure 3 is a rear elevational view of the device of Figures 1 and 2, a portion of the rear cover member being broken away to show the internal construction;

Figure 4 is an enlarged vertical cross-sectional view of the device of the preceding figures, the view being taken on the plane of the line 4—4 of Figure 1;

Figure 5 is an enlarged side elevation of one of the combined terminal and prong receiving members; and

Figure 6 is a transverse cross-sectional view of the terminal member of Figure 5.

Referring now to the drawings, there is shown at 10 a housing which is generally formed of molded electrically insulating plastic material and which comprises a forward disk-like portion 11 and rearwardly extending portion consisting of the three generally rectangular hollow body portions or chambers 12, 13 and 14 which are arranged

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at substantially 120° angles and joined centrally to form a solid triangular portion 15.

Rectangular apertures indicated at 16, 17 and 18 are formed in the forward disk portion 11 of the housing 10, these apertures communicating with the hollow rectangular chambers 12, 13 and 14 respectively. The disk 11 is of increased thickness at points in alignment with the rectangular chambers 12, 13 and 14 thus providing a considerable bearing surface for reception of the prongs of a plug which are inserted in this outlet when it is in use, this thickening being particularly apparent in Figure 4 and providing an elongated passageway shown at 20.

Mounted in each of the rectangular chambers 12, 13 and 14 is a prong receiving clip 21 which has fixed thereto in direct electrical connection therewith a wire receiving terminal 22.

Referring now to Figs. 4 and 5, the prong receiving clip 21 is formed from a conductive metal strip and comprises a U-shaped portion 23 having the arms of the U bent upon themselves and extending rearwardly as indicated at 24. The portions 24 abut each other during a part of their length and serve to grip a prong of a plug connector in the usual manner.

The wiring terminal is likewise formed in the shape of a U as is indicated at 25 in Figure 5. The arms of the U extend in a direction at right angles to the arms of the U-shaped portion 23 of the clip 21 and after being placed over the member 21 are bent inwardly as indicated at 26 in Figures 5 and 6 to grip the clip 21 and to rigidly fasten the two members together. Member 22 is preferably made of a harder material than the clip 21 (for example member 21 may be made of brass or copper and member 22 of steel) and the terminal member 22 thus retains its position upon and remains fixed to the clip 21.

Formed in the base of the U-shaped terminal member 22 is a tapped hole into which a screw 27 is threaded, this screw being for the purpose of fixing a circuit wire in position against the base of the U of clip 21, the wire entering through one of the side apertures in the wire terminal 22 indicated at 28.

Formed in a side wall of each of the rectangular chambers 12, 13 and 14 and near the rear thereof is a slot 30 which is thus in alignment with one of the apertures 28 in the wiring terminals 22 so that a wire such as is indicated in Figure 2 may be inserted through the slot 30 and clamped in position in the terminal 22 by means of the screw 27.

The central triangular portion 15 of the housing 10 is provided with a bore 31 which is enlarged at its forward side as indicated at 32. A rivet 33 has the head thereof seated at the shoulder formed between the bore 31 and the enlarged portion 32 and extends through the bore 31 being headed over as indicated at 34 to hold the fiber members 35 and 36 in position. Member 35 is a fiber insulating member which is of generally Y-shape and which seats in depressions in the triangular portion 15 and in the rear portions of the walls of the rectangular chambers 12, 13 and 14. The member 35 has openings therein in alignment with the screws 27, these openings being clearance openings for the screws 27. The member 35 thus serves to retain the prong clip and terminal members 21, 22 in position in their corresponding rectangular chambers.

Member 36 is likewise made of electrical insulating material and overlies and bears against the rear wall portions of the rectangular chambers formed in the housing 10 as well as against the rear surface of the member 35. Whereas member 35 is constrained against rotation by seating in depressions in the housing 10 as described above, member 36 is rotatable. This member has formed therein three openings indicated at 37 which openings

may be brought into alignment with the similar openings in member 35 to give access to the screws 27.

Thus by merely rotating the disk 36 upon the rivet 33 the screws are accessible and wires inserted in terminal members 22 through slots 30, may be fastened in the terminals 22. This arrangement of the rotating apertured disk 36 makes it possible to more readily install the device in an outlet box, since it is not necessary to disassemble the device by removal of the rear cover plate such as 36, but it is only necessary to rotate the disk 36 into a position in which the apertures therein align with the apertures in member 35 and with the screws 27.

Additionally, by elimination of the use of the usual nut and bolt and the substitution of the rivet 33 therefor, the likelihood of loss of any of the parts of the device is greatly reduced and, moreover, the terminals 22 and clips 21 are permanently retained in their positions in the corresponding rectangular chambers 12, 13 and 14.

The construction of the combined terminal and clip is such that the screw 27 may be tightened to any desired degree without causing a spreading of the opposed walls of the U-shaped terminal member 25 thereby eliminating a frequent defect in structures of this type. The defect mentioned consists in the fact that in many structures of this general type, tightening of the screw, such as 27, causes a spreading of some portions of the terminal or clip member resulting in breakage of the relatively fragile molded plastic housing.

Thus the present construction provides a heavy duty plug receptacle in which the wire terminals are readily accessible without any disassembling of the device and in which the circuit wires may be tightly gripped by the terminals without danger of breaking the housing.

While I have described a preferred embodiment of the invention, it will be understood that I wish to be limited not by the foregoing description, but solely by the claim granted to me.

What is claimed is:

A heavy duty plug receptacle comprising, in combination, an insulating body providing a plurality of tubular chambers arranged in generally circular formation about a common axis with the axis of the chambers parallel to said common axis, a faceplate integral with said body at one end thereof, a plug prong receiving clip in each of said chambers, each clip having a fastening means for a lead-in conductor fixed thereto, an opening in said faceplate in alignment with each said clip, a plate at the rear of said chambers holding said clips and fastening means in position in said chambers, said holding plate having apertures therein in alignment with said fastening means, and an access plate rotatably mounted on said common axis, said access plate having apertures therein which, in one rotational position thereof, align with said apertures in said holding plate and with said fastening means, said body having apertures opening laterally into said tubular chambers adjacent said holding plate, said apertures serving to permit conductors to be inserted into said fastening means and fastened through said apertures.

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