

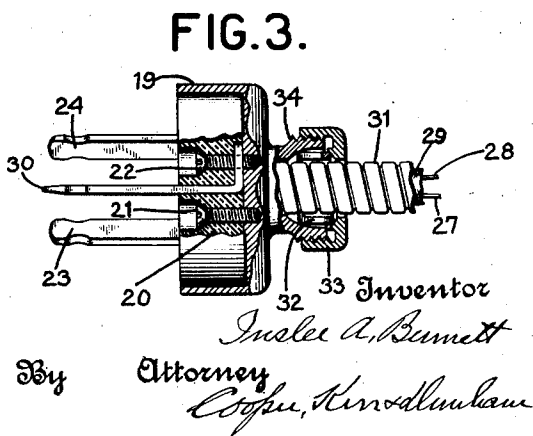
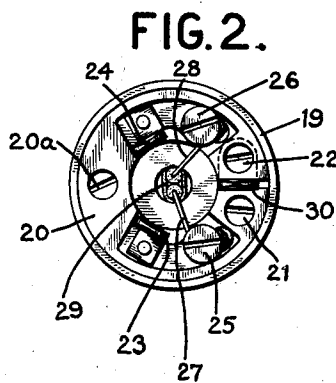
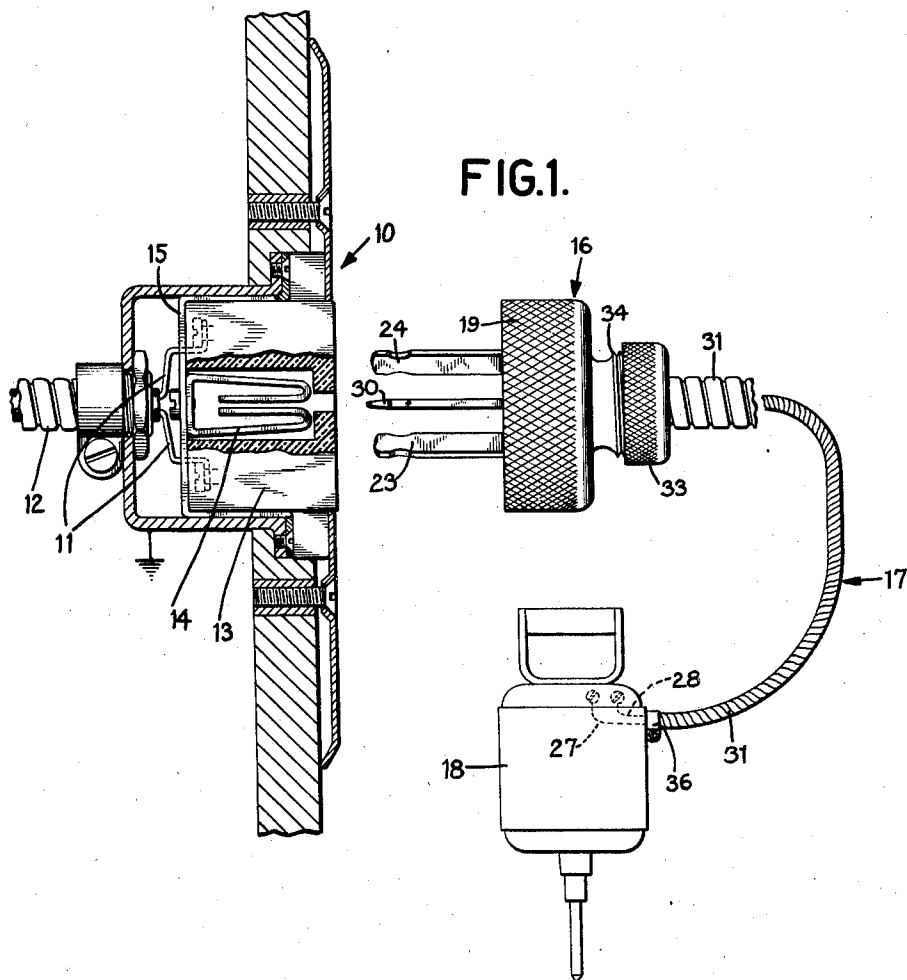
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ELECTRIC WIRING DEVICE AND ACCESSORY

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## UNITED STATES PATENT OFFICE

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## ELECTRIC WIRING DEVICE AND ACCESSORY

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This invention relates to improvements in electrical wiring devices and accessories.

At the present time with electrical wiring, fire, casualty, and shock hazards are frequently encountered on account of ungrounded devices which are frequently connected by means of portable cords to electrical outlets.

It has been proposed to somewhat minimize these difficulties and hazards by employing portable cords which have three-wire conductors and which use one conductor for a ground which is in turn connected to the frame or exposed metal parts of the distance device. Such systems, however, are open to many serious objections. The principal objection to the use of a three-wire conductor portable cord is due to the fact that these cords are often connected up or repaired by inexperienced persons and such persons through ignorance or mistake are quite likely to mistake the ground conductor for the live or circuit conductors, or the persons may even disregard the ground conductor entirely because of their greater familiarity with two conductor cords.

It will be understood that if the circuits are improperly connected the danger which is intended to be minimized by the employment of three-wire cords is not minimized but on the contrary it is increased. This danger is due to the inherent possibility that in connecting up a cord and distant device that one of the current carrying conductors will be improperly connected directly to the exposed metal parts of the distant device. In that case in lieu of establishing a safeguard ground return, a more dangerous condition will be established.

It is accordingly one of the objects of the present invention to provide an improved construction whereby such disadvantages and dangers may be obviated.

It is a further object of the present invention to provide a construction where three-wire conductor cords are unnecessary and wherein there is utilized in lieu thereof ordinary two-conductor cords enclosed in a flexible metallic sheath which serves as grounding means.

It is a further object of the present invention to provide a construction in which the mere assembling of the component parts together will automatically and properly connect the ground return without possibility of error. The live conductor circuits are connected in the usual manner and the parts are so arranged that it is impossible to improperly connect up the circuit wires.

It is a further object of the present invention to wholly dispense with the use of binding post screws or terminals associated with the ground terminal or pole so that erroneous connections cannot be made.

It is a further object of the present invention to provide an improved plug adapted for use in establishing a ground return to an electrical outlet.

Other objects and advantages will be hereinafter set forth in the accompanying specification and claims and shown in the drawings, which by way of illustration show what I now consider to be a preferred embodiment of the invention.

In the drawings:

Figure 1 shows a conventional electrical outlet with my improved wiring device adjacent thereto.

Figs. 2 and 3 show details of the plug which is to be used and the manner of securing the plug to the flexible metallic sheath.

In the drawings the parts generally designated 10 represent an electrical outlet box. Current is lead into the box by conductors 11 disposed within armored cable or conduit 12. The box proper is of metal and is grounded in the conventional manner through the armored cable or conduit or otherwise. The box carries a receptacle block 13 having the customary live sockets (not shown) and a ground socket 14. This latter socket is in electrical connection with the metallic strap 15 and therethrough to the frame of the box.

The part generally designated 16 is a connecting or attaching plug associated with the portable cord generally designated 17. 18 represents an appliance or device having exposed metal parts. The attachment plug itself comprises a shell 19 (Figs 2 and 3) preferably of metal hollowed out to receive a

block of insulating material 20. This block is preferably secured to the shell by means of counter-sunk screws 20<sup>a</sup>, 21 and 22. 23 and 24 are the current carrying plug terminals, these being suitably fastened to the insulating block and each having associated therewith a binding post screw 25 and 26 to which the respective wires 27—28 of a two-conductor cable 29 are adapted to be attached. The ground plug terminal 30 is not provided with any binding post or screw but instead in the preferred embodiment extends down under the insulating block and into contact with the metal shell 19. Preferably it is secured in position by screw 22.

While the above is my preferred arrangement, the particular disposition of these parts is immaterial so long as the ground prong 30 is so disposed as to make electrical contact directly with the clamping means which will be hereafter described or with parts which electrically connect with the clamping means upon the assembling of the flexible metal sheath to the plug. The flexible metal sheath 31 of the cord surrounds the two-conductor cable 29 and at one end is provided with a collar 32 which is adapted to be clamped into the convolutions of the sheath by tightening up a cap 33 to the threaded neck-like extension 34. To aid in binding the parts together the cap and plug shell are provided with tapered surfaces to engage member 32.

The particular and specific clamping means herein employed does not form the subject matter of the present application as it forms the subject matter of a different application and invention. The flexible metal sheath 31 at its opposite end is clamped by any suitable clamping means such as 36 to the exposed metal parts of the device or appliance 18 and the conductors 27—28 within the sheath are connected up to the terminals of the appliance in any desired manner. If desired a plug such as 16 can be utilized to connect up the appliance, in which case the appliance will be provided with the proper sockets to receive the plug prongs.

From the foregoing it will be understood that the portable cord can be connected to the plug by merely connecting up the two wires 27—28 to the respective binding screws 25 and 26 and by clamping the sheath to the plug. Disconnection may be effected by proceeding in a reverse manner. In connecting the portable cord to the plug the mere act of clamping the flexible sheath to the plug (assuming the other end of the sheath as being already clamped to the exposed metal parts of the device) will establish a ground return circuit through the sheath from the exposed metal parts of the device to the ground plug terminal 30. Then when the plug is inserted in the electrical outlet the ground return will be completed to the grounded box of the outlet. To prevent erroneous insertion of the

plug into the outlet the current carrying prongs 23—24 and the ground prong 30 and the mating sockets in the outlet are disposed irregularly (see Fig. 2), that is, the plugs are not equi-angularly spaced with respect to each other.

It will be further understood that by employing my wiring devices and accessories that improper connection of the current carrying conductors cannot be made inasmuch as no ground terminal binding screw is provided at all and it is only possible to connect such conductors to the proper terminals 25 and 26. Ordinary two-wire conductor cord only need by utilized and inexperienced persons are not put to the difficulty of properly connecting up the circuits as heretofore. Danger of shocks is wholly obviated. The flexible sheath serves as a ground return and absolutely insures that the exposed metal parts of the distant device are properly connected to the grounded outlet.

What I claim is:

1. In electric wiring systems including a portable cord and an associated plug, said plug having a shell and three prongs therein, two for carrying current and the other for establishing a ground return, said ground return prong being in electrical connection with the shell, said portable cord including a flexible sheath and a two conductor cable and means for clamping the sheath directly to the shell of the plug and for thereby compelling the proper establishment of the ground circuit between the sheath and the ground return prong of the plug.

2. An improved portable cord for carrying current to a device and serving as a ground return therefor comprising a flexible sheath adapted for clamping to the exposed metal parts of the device and having extending therethrough a two conductor cable to carry current to the device, a plug separable from the sheath and including a conducting shell and current prongs therein insulated therefrom and adapted for connection only with the current carrying conductors, and a ground return prong electrically connected to the conducting shell and adapted therethrough for invariable electrical connection with the sheath to establish the ground return therethrough to the device by the clamping of the sheath to the plug.

3. A plug for use with an electrical outlet, and with a portable cord which includes a metallic flexible sheath which serves as a ground return, said plug comprising a metallic conducting shell with a plurality of prongs therein, two of said prongs only which are insulated from the shell being provided with binding screw terminals and the other prong which serves as a ground return being permanently connected through the conducting shell part with a metallic part which is adapted for clamping to the sheath

to thereby compel the proper establishment of the ground return.

4. A plug for use with a portable cord and receptacle, said plug comprising a metallic shell and two current carrying prongs therein and insulated therefrom and a single ground return prong therein and electrically connected with the shell, and means compelling the proper connection of the current carrying conductors with the plug and the proper connection of the ground circuit with said ground return prong of the plug, said means for compelling the establishing of the proper ground circuit including a clamping means for clamping the shell of the plug directly to an associated portable cord.

5. A plug for use with a portable cord and receptacle, said plug comprising a metallic shell, an insulating body therein, a pair of prongs carried by said body for carrying current, a ground return prong in permanent electrical connection with said shell, and binding post screw terminals associated only with the pair of prongs which are carried by the body whereby erroneous connections of current carrying conductors to the ground return prongs are prevented.

6. An electric wiring apparatus for connecting a device having exposed metal parts by a portable cord to an electric outlet and for affording a ground return for said exposed metal parts, said apparatus including a flexible metallic conducting sheath adapted to be clamped to the metal parts of the device and also adapted to be clamped directly to the metallic shell of a plug which plug has two current carrying prongs therein insulated from the shell and another ground prong electrically connected to the shell which prongs are adapted for cooperation with the receptacle, a double current carrying conductor in said sheath adapted for connection with the terminals of the device and also adapted for connection only with the current carrying prongs of the plug, and means for establishing the ground return circuit from said device to the outlet through the shell and the ground prong by the clamping of the sheath to the plug.

In testimony whereof I hereto affix my signature.

INSLEE A. BENNETT.