Aug. 1, 1961 J. MUSSARI, JR 2,994,849

ELECTRICAL PLUG-IN CONNECTOR

Filed Dec. 26, 1957

Fig. 1.

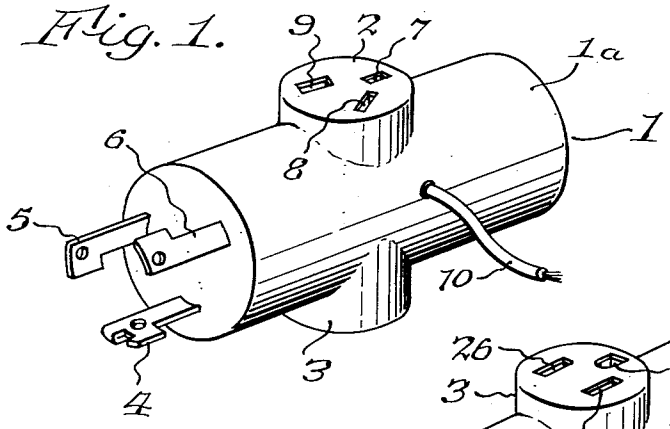


Fig. 2.

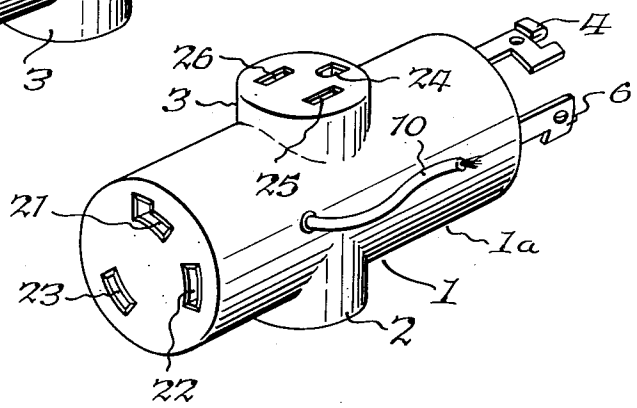
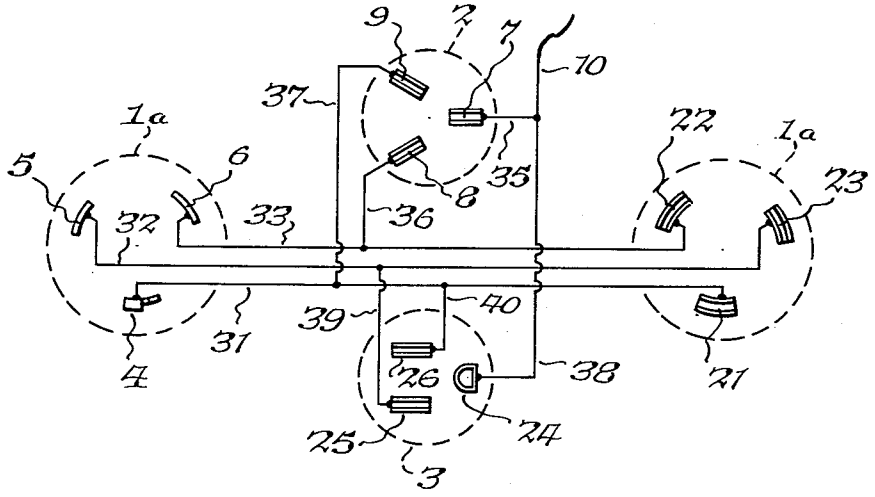


Fig. 3.



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ELECTRICAL PLUG-IN CONNECTOR

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Present day electrical energy distribution methods include a three-wire system in which the difference in potential between two of the conductors is 230 volts, for example, and the difference in potential between either of those conductors and the third conductor is 115 volts, for example. In common parlance, two of the wires or conductors are said to be "hot" and the third is referred to as "neutral." It is common practice to have the potential difference between the two hot wires twice that of the potential difference between the neutral wire and either of the hot wires.

The present invention relates to a plug-in connector suitable for use with a convenience outlet in the three-wire system described supra, and has as an object the safe provision of electrical energy at the potential difference existing between the neutral and either of the hot wires and also, if it is so desired, at the potential difference existing between the two hot wires.

The invention resides in the combination of elements and arrangement of parts as hereinafter described and illustrated.

An understanding of the invention will be obtained by reference to the drawings, in which:

FIGURE 1 is an exterior perspective view of one embodiment of the invention;

FIGURE 2 is an exterior perspective view of the same embodiment of the invention but viewed from the opposite end and with the device rotated one hundred eighty degrees (180°) about its longitudinal axis; and

FIGURE 3 is a diagrammatic sketch illustrating the electrical conductor arrangement of the embodiment of the invention illustrated in FIGURE 1 and FIGURE 2.

In FIGURE 1 there is illustrated an embodiment of the invention in which the body **1** of the plug-in connector is cruciform, with a longitudinal portion **1***a* and two oppositely positioned projections **2** and **3**; with three terminal engaging prongs **4**, **5** and **6** projecting from the longitudinal part of the body; and with three prong-engaging terminals **7**, **8** and **9** within the face of the one projection **2**. There is also shown in this FIGURE 1 a pigtail conductor **10** projecting from the longitudinal portion **1***a* of the body **1**.

In FIGURE 2 the near face of the longitudinal part **1***a* of the body **1** is shown as having therein three prong-receiving terminals **21**, **22** and **23**. At the opposite end of the longitudinal portion **1***a* of the body **1** are shown two of the projecting prongs **4** and **6** illustrated in FIGURE 1; the third prong **5** shown in FIGURE 1 being hidden in this FIGURE 2. Also illustrated in this FIGURE 2 are the three prong-engaging terminals **24**, **25** and **26** within the face of the other projection **3**, and the pigtail conductor **10** projecting from the body **1**.

In FIGURE 3 the longitudinal portion **1***a* of the body **1** and the projections **2** and **3** from the longitudinal portion **1***a* of the body **1** are illustrated as broken line circles. The three projecting prongs **4**, **5** and **6** of the main or longitudinal part **1***a* of the body **1** are shown as being electrically connected to the three prong-receiving terminals **21**, **23** and **22**, respectively, by the three longitudinal conductors **31**, **32** and **33**, respectively. The upper projection **2** is illustrated as having two of its prong-receiving terminals **9** and **8** electrically connected to the two outer longitudinal conductors **31** and **33**, respectively, by the two transverse connectors **37** and **36**, respectively. The lower projection **3** is shown as having two of its prong-receiving terminals **25** and **26** electrically connected to longitudinal conductors **32** and **31**, respectively, by two transverse conductors **39** and **40**, respectively. The other two prong-receiving terminals **7** and **24** of the body projections **2** and **3**, respectively, are shown to be electrically connected to the pigtail conductor **10** by the conductors **35** and **38**, respectively.

As illustrated in FIGURE 3, the three prong-engaging terminals of the one projection **2** are arranged with no two of them being parallel, which is according to one standard type of plug-in connector. The other projection **3**, also with three prong-receiving terminals, has the hot terminal **25** and the neutral terminal **26** parallel to each other and that permits either a common plug-in connector with two parallel prongs or a connector with a safety ground prong as well as the usual two parallel prongs, to be plugged into it.

These two types of plug-in connectors are standard types. One is a common two parallel prong plug which can be inserted into the parallel prong-receiving terminals of the projection **3** for lighting purposes. The other is a common three-prong plug having two parallel prongs and one polarized prong for grounding purposes. This is done through the prong-receiving terminal **24** of the projection **3** which in turn is connected to grounding out pigtail **10**. The pigtail **10** is for the purpose of grounding out the metal shell or housing of all electric motors, drills and other devices requiring grounding out and is designed to comply with all safety codes.

The device of the present invention can be made of such conventional materials as are used in Underwriters' approved plug-in connectors for use in connection with electrical currents at the voltages for which the plug-in connector herein described is to be used.

The device of the present invention is particularly useful in those instances in which the permanent wiring has not been installed, yet it is necessary to have electrical service available. One such instance is in the construction of a new building. In such cases it is not unusual for temporary electrical service to be installed at the very beginning of the work or very soon thereafter, and such temporary electrical service usually is of the three-wire system having two "hot" conductors and one neutral, with the difference in potential between the two hot wires being 230 volts, for example, and the potential difference between either of the hot wires and the neutral wire being 115 volts, for example.

Some electrical driven equipment used in the construction industry requires current at 230 volts, for example, and other equipment requires current at 115 volts, for example. To satisfy such requirements it is necessary to run three wire lines to various parts of the job. The device of the present invention makes it possible to install 230 volt convenience outlets for the utilization of both 230 volt and 115 volt service from one convenience outlet. That eliminates the necessity of installing both 230 volt and 115 volt convenience outlets and, more particularly, eliminates the dangerous practice of attaching an extra socket to the prongs of a plug by connecting one wire to the hot screw of said plug and another wire to the common, neutral or ground screw of said plug.

Having thus described my invention, I claim:

An electrical plug-in connector comprising, a body formed of insulating material, three electrically conductive prongs projecting from one portion of said body, said prongs being spaced from each other and so shaped that two of the prongs may engage electrically charged contacts of a convenience outlet with the third prong being located and shaped to engage a neutral contact of said convenience outlet, a high voltage station on said body comprising three circumferentially spaced openings in a portion of said body, prong receiving terminals within said body respectively adjacent said openings, three con-

ductors encased within the body extending respectively from one of said prongs to one of said prong receiving terminals, and a low voltage station on said body having two substanially parallel laterally spaced slots therein, two prong engageable terminal contacts within the body at said low voltage station with one contact accessible through each of said slots, and conductors within said body connecting said terminal contacts to one of said chargeable conductors and to said neutral conductor.

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