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2,897,469

MOLDED SELF-GROUNDING ELECTRICAL PLUG CONSTRUCTION

Filed April 9, 1957

Fig. 1

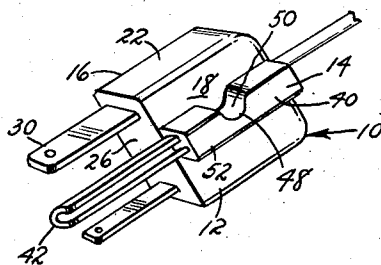


Fig. 2

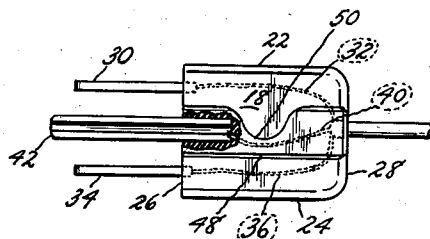


Fig. 3

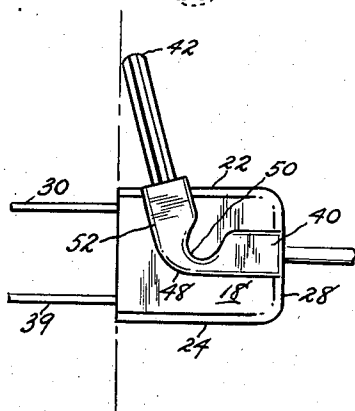


Fig. 4

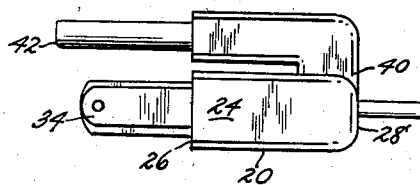
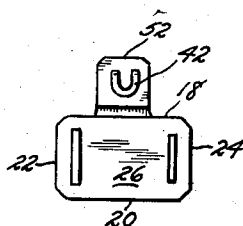


Fig. 5



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2,897,469

MOLDED SELF-GROUNDING ELECTRICAL PLUG CONSTRUCTION

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2 Claims. (Cl. 339—14)

This invention relates generally to electrical connecting plugs, and more particularly to those adapted to connect a plurality of conductors to corresponding elements of a receptacle while simultaneously effecting a grounding connection. Reference is made to my co-pending application Serial No. 598,596, filed July 18, 1956, entitled Self-Grounding Electrical Plug.

The desirability of automatically making a ground connection simultaneously with a power source connection is well recognized. Usually an additional opening is provided in the receptacle adapted to receive a correspondingly shaped and sized prong on the plug body. This presents a disadvantage in that the receptacle and the plug must be matched. Most often this is not the fact and the user attempts to solve the problem by cutting or breaking off the grounding prong. This loses the entire grounding effect so that should the user be grounded (as when working while standing on a damp floor) and the appliance which he may be holding should develop a ground e.g. a short of a live wire to the casing of the appliance; he may receive a severe shock.

One method of obtaining a ground is to have a ground wire (usually one of three) in the power cord of the appliance or tool, and to have the same terminate in a screw thread which is used to replace the cover plate holding screw in a standard receptacle. This is bothersome and inconvenient, and since the user can obtain power without the use of it, he usually ignores it. Where the wire is allowed to dangle free in such a manner that it may possibly contact one of the power prongs, the casing of the tool or appliance is then charged upon the insertion of the plug into the receptacle, with possible serious consequences as a result.

It is therefore among the principal objects of the present invention to avoid the above described disadvantages and to provide a power or electrical attachment plug which will automatically make a ground connection as long as the prongs carrying the power will enter the receptacle which may be of a standard type.

Another object therein lies in the provision of an electrical connection plug which may be used with special grounding receptacles, without affecting the automatic grounding result.

A further object of the invention lies in the provision of devices of the class described which are simple in construction, thereby providing long trouble-free operation.

A further object of the invention lies in the provision of devices of the class described in which the cost of fabrication may be of a reasonably low order, with consequent wide sale, distribution and use.

A feature of the invention lies in the fact that the present self-grounding plug may be easily substituted for older plugs lacking its operational features, and by unskilled person using only simple tools such as a screw-driver.

Another feature lies in the provision of structure

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which obtains a positive ground against any metallic receptacle box having a conventional metallic cover.

On the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

Figure 1 is a view in perspective of an embodiment of the invention.

Figure 2 is a side elevational view, partly broken away to show detail.

Figure 3 is a similar side elevational view, showing the disposition of the various parts when the device is engaged within a conventional outlet.

Figure 4 is a bottom plan view.

Figure 5 is an end view in elevation.

In accordance with the invention, the device, generally indicated by reference character 10 comprises broadly a main body element 12 and a grounding element 14.

The main body element 12 is preferably of molded rubber or synthetic resin, and includes a body 16 bounded by flat surfaces 18 and 20, side surfaces 22 and 24, an inner surface 26 and an outer surface 28. Extending outwardly from the inner surface 26 is a first connecting prong 30 which is electrically interconnected with a conductor 32 which comprises part of the cable 38. A second connecting prong 34 is provided with a similar conductor 36, the prongs 30—34 and conductors 32—36 being molded within the plug body at the time of its formation as is generally well known in the art.

The grounding element 14 is disposed outwardly of the plug body 16 includes a mounting member 40 which supports the grounding prong 42. An internal conductor 44 extends through the mounting portion 40 as well as a resilient bend portion 48 and the prong supporting portion 52. The bend portion 48 is provided with a circularly shaped cut-out 50 so positioned as to cause the bend portion 48 to curve in the direction shown on Figure 3 where the plug is employed with a receptacle not having means for accommodating the grounding prong. As the prong is deflected, the same is resiliently urged into contact with the face plate of the receptacle so as to effect a ground with the outlet box (not shown). Where the plug is used in conjunction with a receptacle having a provision for receiving the grounding prong, the natural resiliency of the bend portion 48 will cause the device to assume the condition shown on Figures 1, 2 and 4 so as to accurately mate with the receptacle.

It may thus be seen that I have invented novel and highly useful improvements in molded self-grounding electrical plug construction, in which there has been provided a plug which will effect a grounding action on both grounded type receptacles and a metal receptacle cover plate. By the use of molded construction, the cost of manufacture need be but slightly greater than that of conventional plugs, thereby permitting the use of the device in the manufacture of relatively inexpensive electrical appliances. In a similar manner, appliances not so equipped may be provided with the safety factors afforded by the device by merely replacing the power cord element thereof. Owing to the disposition of the relative parts, it is impossible for the grounding prong to touch either of the power connecting prongs when the same are inserted in a receptacle, thus eliminating a potential source of danger present in a "pig-tail" construction known in the prior art.

I wish it to be understood that I do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention relates.

I claim:

1. A self-grounding electrical attachment plug comprising: a molded plug body, at least one power prong within said plug body, a grounding element including a grounding prong and a flexible grounding prong support, said grounding prong support having a mounting member formed integrally with respect to said plug body and a prong supporting portion interconnected to said mounting member through a resilient bend portion of reduced cross section, said resilient bend portion being offset with respect to the principal axis of said grounding prong, whereby a force exerted axially upon said grounding prong will cause said bend portion to flex in a predetermined direction.

2. A grounding prong element of resilient molded material for use in conjunction with a power plug comprising: a mounting member having a principal axis, a grounding prong supporting member having a grounding prong thereon, the principal axis of which is substantially coincident with said axis of said mounting member,

and a bend portion interconnecting said grounding prong supporting member and said mounting member, said bend portion being offset with respect to the axis of said grounding prong; whereby a force exerted axially upon said grounding prong will cause said bend portion to flex in a predetermined direction.

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