July 12, 1949. I. G. SELLERS 2,476,227

ELECTRIC PLUG

Filed Nov. 6, 1947

Fig. 1.

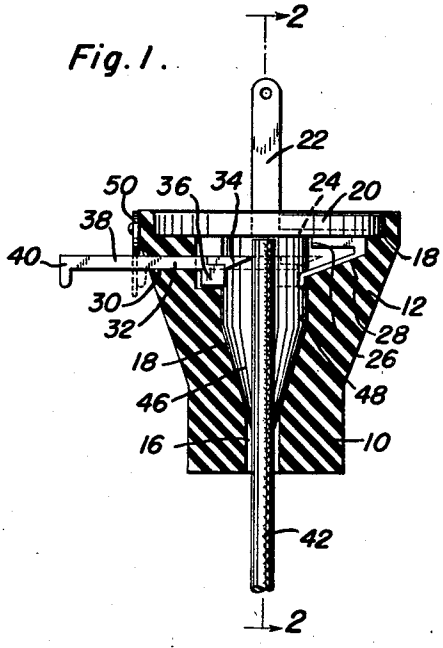


Fig. 2.

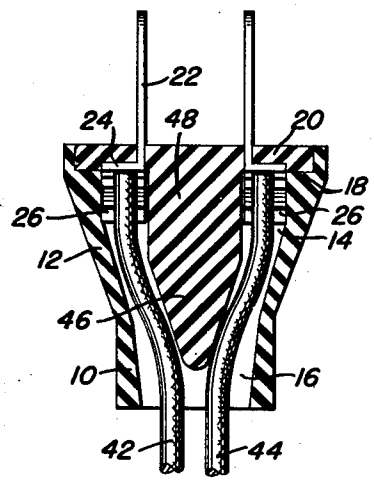


Fig. 4.

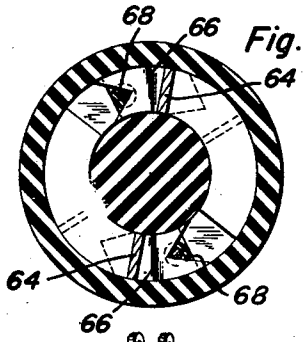


Fig. 5.

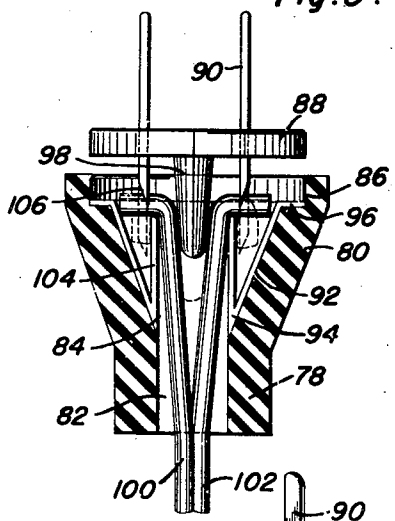


Fig. 6.

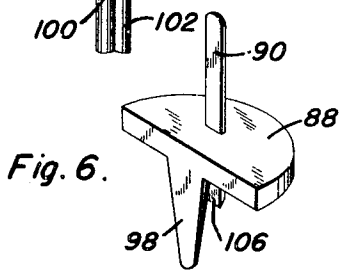
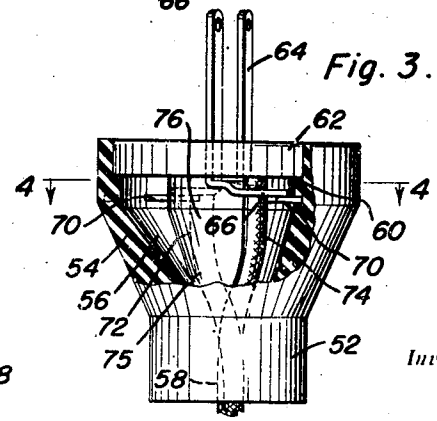


Fig. 3.



Inventor

Ira G. Sellers

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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ELECTRIC PLUG

Ira G. Sellers, San Diego, Calif.

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5 Claims. (Cl. 173—361)

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This invention relates to new and useful improvements in electric plugs, and the primary object of the present invention is to provide an electric plug so designed as to permit the same to be quickly and readily applied to conductor wires without the need of first stripping the insulation from the ends of the wires that are to be connected to the plug.

Another important object of the present invention is to provide a plug of the aforementioned character including novel and improved means for cutting or stripping the conductive wires and forcing the same into contact with the contact fingers carried by the plug.

A further object of the present invention is to provide an electric plug including novel and improved means for retaining conductive wires firmly attached to the same.

A still further aim of the present invention is to provide an electric plug that is simple and practical in construction, strong and reliable in use, neat and attractive in appearance, relatively inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the present plug showing conductive wires mounted in the same, with dotted lines showing the manner in which the conductive wires are severed or stripped and forced into contact with the conductive insert, and with parts of the plug and wires being broken away and shown in section;

Figure 2 is a longitudinal vertical sectional view taken substantially on the plane of section line 2—2 of Figure 1;

Figure 3 is a side elevational view of the present electric plug in slightly modified form, and with parts broken away and shown in section for the convenience of explanation;

Figure 4 is a transverse horizontal sectional view taken substantially on the plane of section line 4—4 of Figure 3;

Figure 5 is a side elevational view of the present invention in still further modified form, showing conductive wires mounted therein, and with dotted lines showing the manner in which the conductive wires are severed or stripped and forced in contact with the contact fingers; and

Figure 6 is a perspective view of one of the closure members used in conjunction with the embodiment of the electric plug shown in Figure 5.

Referring now to the drawings in detail, and more particularly to Figures 1 and 2, wherein, for the purpose of illustration, there is disclosed

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the preferred embodiment of the present invention, the numeral 10 represents a cylindrical body of insulating material having an enlarged, substantially frusto-conical head portion 12 which is provided with a substantially conical chamber or recess 14 that communicates with a bore or opening 16 provided in the body 10.

An annular recess 18 is provided in the outer face of the head portion 12 and frictionally engages a closure plate 20 that supports a pair of spaced parallel contact fingers 22. The inner terminals 24 of the contact fingers are turned in an opposite direction and are connected to or form an integral part of substantially V-shaped conductive inserts 26 that are frictionally retained in an arcuate, inclined sleeve 28 formed in the inner periphery of the head portion 12, communicating with bore 14.

Slidably mounted in a transverse slot 30 provided in the head 12 is a shank 32 having an arcuate portion terminating in cutting edges 34. This shank supports bearing lugs 36 on the lower face of its inner end adjacent the cutting edges 34, for a purpose which will presently be more fully described. The outer terminal 38 of the shank 32 normally projects outwardly from the head and is provided with a finger receiving flange 40.

In practical use of the device thus described, a pair of insulated conductive wires 42 and 44 are inserted through opening 16 into the chamber 18 so that the terminals of the wires 42 and 44 oppose the conductive inserts 26. The closure plate 20 is then frictionally snapped in recess 18, so that the tapered end 46 of a wedge pin 48 which is integrally formed with the inner face of the plate 20 will force the wires apart and against the walls of opening 16, to fixedly retain the wires 42 and 44 within the plug.

The shank 32 is then pushed inwardly into the chamber 14 so that the cutting edges 34 will sever or strip insulation from the ends of the wires 42 and 44 and the bearing lugs 36 will force the exposed ends of the wires into contact with the V-shaped inserts 26. In order to retain the shank 32 within the chamber 14, there is provided a pivotal latch 50 mounted on the head that will extend outwardly and bear against the flange 40, as shown by dotted lines in Figure 1.

Reference is now directed to Figures 3 and 4 wherein there is disclosed the present electric plug in slightly modified form. In this embodiment, the numeral 52 represents a sleeve-like body of insulating material terminating in an integral, preferably frusto-conical head portion 54. The head is provided with a substantially conical chamber 56 that communicates with an opening 58 provided in the body 52.

Rotatably mounted in a recess 60 in the outer end of the head 54 is an annular closure plate

62 supporting a pair of spaced parallel contact fingers 64. The inner terminals of these contact fingers 64 are turned angularly to provide cutter blades 66 having a substantially V-shaped notch 68 for a purpose which will later be more fully described.

Fixedly carried by the head 54 is a pair of bearing or contact plates 70 that extend into chamber 56.

In practical use of the device thus shown in Figures 3 and 4, wires 72 and 74 are inserted through opening 58 and into chamber 56 so that the terminals of the wires 72 and 74 extend well outwardly from the plates 70. The closure plate 62 is then inserted into recess 60 so that the tapered end 75 of the wedge member 76 carried by the inner face of the closure plate 62 will separate the wires 72 and 74 and forcefully bear against the wires so that the same will be wedged in the opening or chamber 56. By rotating the plate 62, the terminals of wires 72 and 74 will engage the notch 68 in the cutter blades 66 so that as the plate is further rotated, the terminals of the wires 72 and 74 will bear against the plates 70, whereby the blades 66 will cut into the wires and strip the insulation therefrom, causing the exposed ends of the wires to contact the blades 66, and hence the contact fingers 64.

Reference is now directed to Figures 5 and 6, wherein there is disclosed a further modified form of the present invention. In this embodiment, the numeral 78 represents a tubular insulating body having a substantially frusto-conical head 80 and which is provided with a bore 82 that communicates with the substantially conical chamber 84 provided in the head. The outer end of the head 80 is provided with an annular recess 86 that frictionally engages a pair of substantially semicircular closure plates 88 supporting spaced parallel contact fingers 90.

Fixedly mounted in seats 92 provided in chamber 84 is a pair of substantially V-shaped contact inserts 94, each of which includes a flanged portion 96 that contacts the inner face of the respective closure plates 88. Rigidly secured to the inner face of the closure plates 88 is a pair of complementary semi-conical wedge members 98 that are adapted to frictionally force a pair of insulating conductive wires 100 and 102 inserted in the chamber 84 against the opposing, spaced parallel legs 104 of the contact inserts 94.

In practical use of the device thus described in Figures 5 and 6, the inner terminal of the contact fingers 90 project inwardly of the closure plate 88 and are beveled to provide a cutting edge 106. The terminals of the wires 100 and 102 are bent to bear against the upper edge of the legs 104, as best shown in Figure 5 of the drawings. When the closure plates are inserted into recess 86, the cutting edge 106 of the contact fingers 90 will strip the insulation from wires 100 and 102 to cause the exposed ends of the wires to contact the legs 104, blades 106 and hence the contact fingers 90.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even

though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. An electric plug comprising an elongated insulated body having a longitudinal bore extending therethrough, a recess provided in one end of said body, a closure frictionally fitted into said recess and closing the bore at one end, conductive fingers carried by said closure, conductive inserts mounted within said body and connected to the fingers, a pair of conductive wires having end portions received in said bore, said wires each having an insulated covering, said inserts adapted to receive the end portions of said wires, a transversely movable substantially U-shaped cutter slidably carried by the body and having beveled end edges of a width substantially equal to the diameter of said wires and disposed normal to said wires for urging the end portions of said wires into said inserts and stripping the insulated coverings from the end portions of said wires upon sliding movement of said cutter in one direction with respect to the body, and means carried by the cutter and disposed adjacent the ends of the cutter for flattening and retaining the end portions of the wires against the inserts after the coverings have been removed from the said end portions by the beveled end edges of the cutter.

2. The combination of claim 1, wherein said means includes a pair of wedge members opposing said inserts.

3. The combination of claim 1, wherein said inserts are substantially V-shaped in cross section to provide sloping bearing surfaces for receiving the bared ends of the wires, said inserts constituting guides for the ends of said cutter and said means whereby the bared ends of said wires will be flattened against said bearing surfaces upon movement of said means and the ends of said cutter into said inserts.

4. The combination of claim 1, wherein said cutter includes an operating shank projecting laterally from said body, and means carried by the body and engaging said shank to hold said flattening and retaining means within said inserts.

5. The combination of claim 4, wherein said means engaging said shank includes a pivotal latch, said shank having an outer end portion engaging said latch when the flattening and retaining means is disposed within said inserts.

IRA G. SELLERS.

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