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[54] **ELECTRICAL SAFETY PLUG ASSEMBLY**  
**3 Claims, 3 Drawing Figs.**

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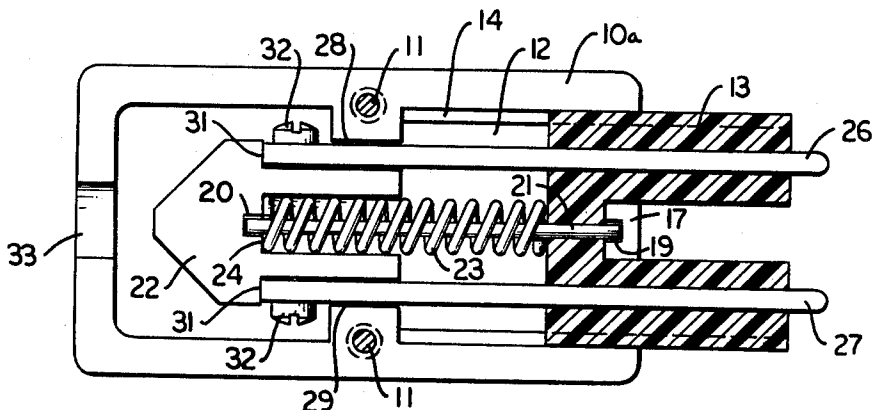
[50] Field of Search ..... 339/42, 170

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**ABSTRACT:** Disclosed is an electrical plug for use in a conventional, electrical plug-in outlet which can be attached to an electrical appliance cord, for example, or used as an adapter. Both types have an insulating sheath which is spring-biased to a position covering the current-carrying prongs of the plug and which retreats, baring the prongs, as it is inserted into an electrical outlet.



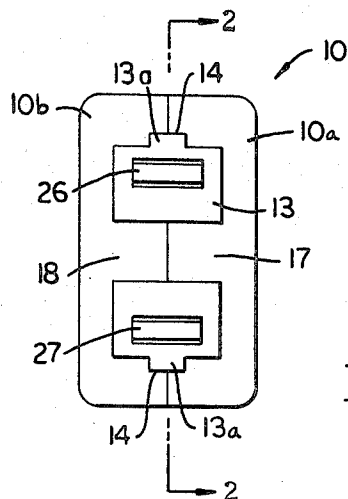


**Fig. 1.**

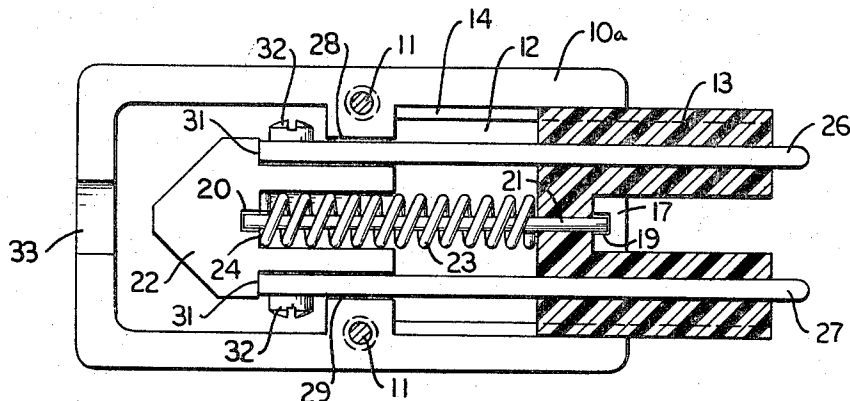


**Fig. 2.**

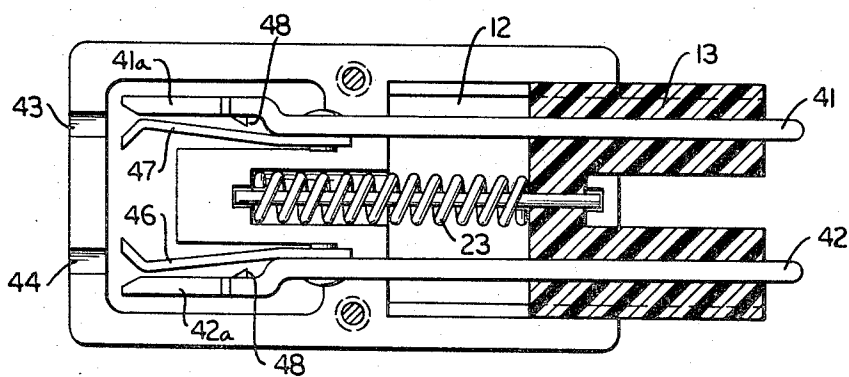


**Fig. 3.**

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**ELECTRICAL SAFETY PLUG ASSEMBLY****BACKGROUND OF THE INVENTION**

Various types of lock-in or latch-in electrical plugs are well known in the prior art, the object of these devices being, primarily, to prevent plugging or unplugging or dangerous tampering with an electrical connection by children. These devices do not protect against shock caused by accidental slipping of the user's hand across the prongs of the plug as it is being inserted or removed from an outlet. Normally, during insertion or removal of an electrical plug, a considerable portion of the length of the prongs (still carrying line voltage because still connected to the outlet) is exposed, and if the user's hand slips and bridges the exposed prongs, uncomfortable or dangerous electrical shock can result.

**SUMMARY OF THE INVENTION**

The inventive concept is that of a pronged electrical plug having a cavity in which a prong-insulating sheath is free to move, the sheath being biased into a position shielding the prongs and retreating to bare the prongs only as they are inserted into an electrical outlet.

**BRIEF DESCRIPTION OF THE DRAWING**

FIG. 1 is an end view of a safety plug assembly embodying the present invention.

FIG. 2 is a side sectional view of the plug assembly taken generally along the line 2-2 of FIG. 1.

FIG. 3 is a side sectional view, similar to FIG. 2, but illustrating a modified form of the assembly.

**DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Referring initially to FIGS. 1 and 2, the structure includes a housing formed by two matching halves, 10a and 10b which are held together by screws 11 (FIG. 2) or other suitable fastening means. The housing may be molded from any suitable material, such as nylon or a similar plastic material.

The mating halves of the housing are undercut to provide an interior cavity 12 (FIG. 2) and an insulating sheath or block 13 is slidably received within the cavity. As may best be seen in FIG. 1, opposite sides of the sheath 13 are provided with longitudinal ribs 13a which fit within a groove 14 formed in the housing.

The sheath 13 is generally U-shaped in configuration and is preferably formed of nylon or other suitable durable material. Registering abutments 17 and 18 extended from the housing halves and across the transverse portion of the sheath to limit extension of the sheath from the housing. An indentation 19 in each of the abutments 17 and 18 forms a seat for a pen 21. The pen 21 extends freely through an aperture in the transverse portion of the sheath 13 and extends longitudinally of the housing to bottom in an indentation 20 formed in a boss 22 (FIG. 2) extending from the sidewall of each of the mating housing halves (only the boss 22 of the housing portion 10a being shown in FIG. 2).

Resilient means, taking the form of the compressions spring 23 encircles the guide pen 21 and extends from a seat 24 in the abutment 22 to bear against the transverse portion of the sheath 13, urging the sheaths into its maximum extended position. Extending through the legs of the sheath 13 are electrical conductors taking the form of prongs 26 and 27. The inner ends of the prongs extend through longitudinal slots 28 and 29 formed in the housing halves and abut against shoulders 31 formed in the abutments 22. The inner ends of

the prongs are adapted to have electrical wiring connected to them by means of the screws 32, the wiring being accommodated in aperture 33 in the housing end.

In operation, when the parts are in their positions of FIG. 2, all but the tip portion of the prongs are masked by the sheath 13. When the prongs are inserted into an electrical outlet, the face of the outlet engages the ends of the leg portions of the sheath moving it toward its retracted position within the cavity in the housing, this movement taking place against the force exerted by the spring 23. As the plug is inserted in an electrical outlet, the prongs are covered, during insertion, by the sheath and the possibility of bridging the prongs by the hand or fingers of the user is eliminated.

Referring to FIG. 3 a modified form of the structure is shown, this structure differing from that of FIGS. 1 and 2 only in that the inner ends of the prongs 41 and 42 are adapted for receiving and holding prongs from an adjacent conventional plug which may be inserted through the apertures 43 and 44 in the housing. In FIG. 3 parts identical to those in FIG. 2 are given the same reference numerals.

Riveted to the offset inner ends of the prongs 41 and 42 are somewhat resilient leaves 46 and 47, these cooperating with the extending ends 41a and 42a of the prongs to grasp the prongs or other conductors inserted between them. A tooth 48, struck from each of the prongs, serves to retain the inserted conductors. The operation of this form of the device is the same as that of the structure of FIGS. 1 and 2, the structure of FIG. 3 serving merely as an adapter for interposing between a conventional plug and a conventional electrical outlet receptacle.

I claim:

1. An electrical safety plug adapted to plug into an electrical outlet, said plug comprising a housing, electrical prongs rigidly supported adjacent their inner ends within the housing and extending from the exterior thereof adapted for insertion into an electrical outlet, said housing having a cavity therein through which said prongs extend, an insulating sheath slidably received within said cavity and moveable therein parallel to said prongs from a retracted position wherein the sheath is within the housing to an extended position wherein the sheath extends from the housing to mask all but the tip portions of said prongs, said insulating sheath being generally U-shaped in configuration with the legs of the U enclosing said prongs, said housing having an abutment extending into said cavity and engageable with the base portion of said U-shaped sheath to limit extension of the sheath from the cavity and define said extended position thereof, and resilient means within the housing urging the sheath into its said extended position, whereby as the prongs of said plug are inserted into an electrical outlet said sheath is moved from its extended toward its retracted position against the force exerted by said resilient means to prevent exposure of any substantial portion of said prongs during insertion or removal of the plug prongs with respect to an electrical receptacle.

2. An electrical safety plug as claimed in claim 1 in which the supported inner end portions of said prongs are adapted for attachment of electrical wiring.

3. An electrical safety plug as claimed in claim 1 in which the supported inner end portions of said prongs are adapted to be contacted by prongs of an adjacent electrical plug, said housing having apertures therein adjacent the inner end portions of said supported prongs to permit insertion of the prongs of an adjacent electrical plug into said housing and into engagement with said supported prongs.