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ELECTRICAL PLUG WITH DETACHABLE CAP

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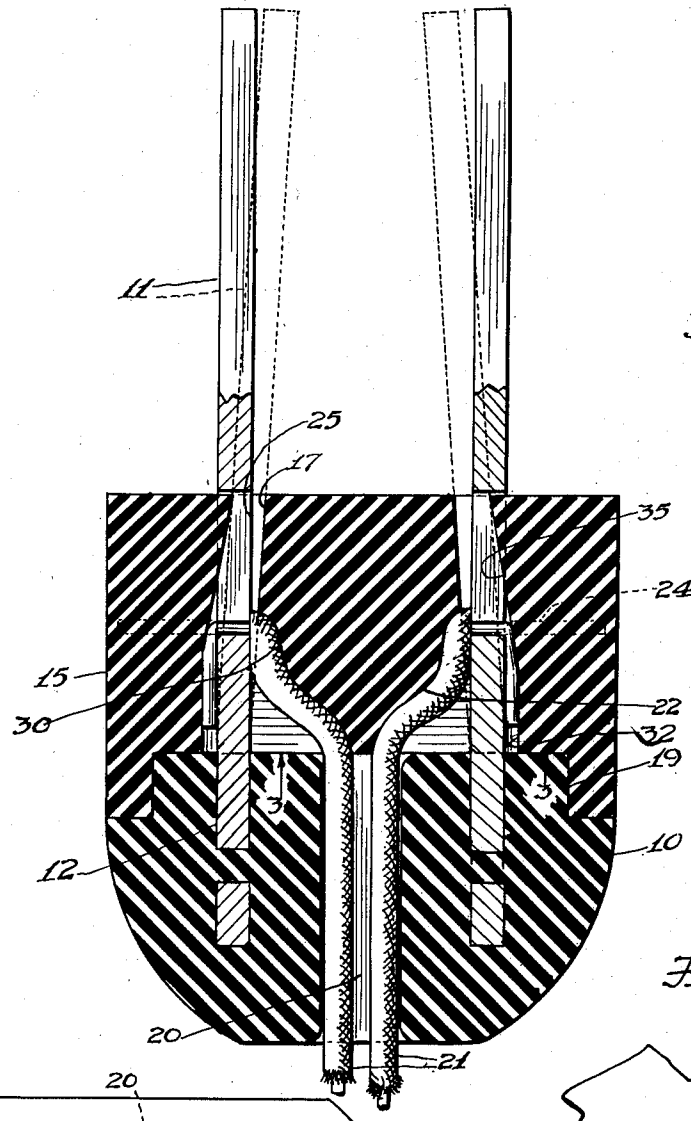


Fig. 1

Fig. 2

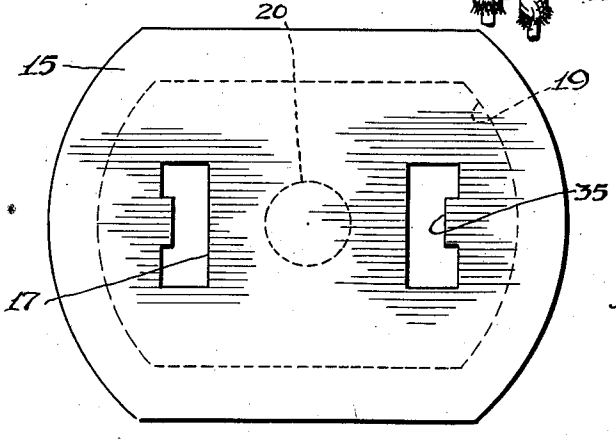
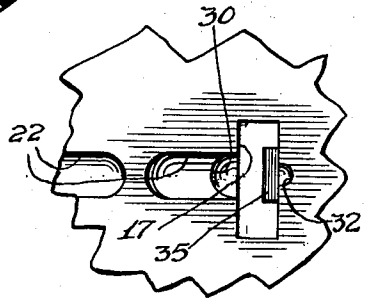


Fig. 3



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ELECTRICAL PLUG WITH DETACHABLE CAP

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2 Claims. (Cl. 339—196)

My invention relates to the type of electric plugs commonly used in homes and other places for the connection of lamps, wires and other appliances to electric current outlets, and the invention is more particularly an improvement upon the Electric Plug patented by me on April 7, 1942, under No. 2,279,173.

In the patented structure, the feature of the invention resided in the connection of the lead wires from the electric supply cord to the prongs of the plug without the need of the usual screws and attaching plates, so that a plug could be assembled with a cord by merely training and clamping such wires in the plug. While the clamping element for the wires in the patented structure involved a block insertible into the plug, it is one object of the improved structure to employ a cap serving the purpose of the block and constituting the forward portion of the plug.

Another object is to design the locking joint for the prongs and cap in a manner to permit the unlocking of the cap by the mere gathering of the prongs, so that the cap may be removed from the base of the plug for the inspection, repair or rewiring of the same.

An important object is to design a cap of the above character which is in a single piece, rendering the cost of the plug economical.

With the above objects in view, a better understanding of the invention may be had by reference to the accompanying drawing, in which—

Fig. 1 is a longitudinal, horizontal section of the improved plug on a magnified scale;

Fig. 2 is an end view of the cap alone from the front; and

Fig. 3 is a rear view of the cap portion indicated by the line 3—3 in Fig. 1.

In accordance with the foregoing, specific reference to the drawing indicates the base of the plug at **10** and the prongs thereof at **11**, the rear portions **12** of the prongs being embedded in the base **10** as is the usual practice.

The prongs **11** extend from the base **10** in the parallel courses indicated by full lines in Fig. 1 for proper application to an electric current outlet; and the cap **15** of the plug is primarily formed with a pair of longitudinal bores **17** for the passage of the prongs **11** when the cap is to be assembled with the base **10**.

The cap **15** is of a form dimensioned to match the base **10**; and the cap is assembled with the latter by a lap jointed annular formation **19**.

According to conventional design, the plug base **10** is bored axially, as indicated at **20**, to provide a passage for the insertion of the sections **21** of the lamp or other cord designed to be connected with the plug. However, before the cap **15** is applied to the plug base **10**, the protruding portions of the cord sections **21** are extended with their bared terminal wires **24** passing outwardly through slots **25** made in the prongs **11**, so that such wires are substantially in the horizontal positions indicated by dotted lines in Fig. 1.

When the cord sections **21** have been passed through the plug prongs in the manner just described, the plug

base is ready to receive the cap **15**. Accordingly, the latter is slid with its bores **17** along the prongs **11** toward the plug base. The rear face of the cap is made with a pair of cavities **22** which are of a form to receive the projecting end portions of the cord sections **21**. Each cavity **22** trains the related end portion outwardly, as shown in Fig. 1, into a constricted portion **30** of the cavity. The outer wall of the latter is so close to the prong **11** that the movement of the cap to join the plug base will bend the wire **24** back against the outer face of the prong, the wire seating in a groove **32** in the said outer wall. Thus, the constricted portion **30** of the cavity **22** and the groove **32** will exert a closing pressure on the cord section and bent-over wire with the effect of clamping the latter firmly to the prong **11** and establishing a tight electrical contact between the cord section and the prong.

The joints created between the plug prongs and the cord section in the manner just described are efficient in principle, but may loosen in case of shock or vibration unless the cap is locked from recession. Means are therefore provided to lock the cap to the plug prongs. Thus, the outer wall of each bore **17** is extended from the rear with an inwardly slanting rib **35** which bears against the related prong **11** on the rearward movement of the cap until the rib snaps halfway into the slot **25** of the prong, as shown in Fig. 1. The front end of the slot **25** therefore constitutes a bar to the accidental retraction of the cap from the plug in case of shock or vibration. However, if it is desired to remove the cap from the plug base, it is only necessary to gather the prongs **11** to the extent indicated by finely-dotted lines in Fig. 1. The prongs now clear the ribs **35**, permitting the retraction of the cap. Conversely, when the latter is to be reassembled with the plug base, the prongs **11** will be tensioned inwardly by the ribs **35** until the latter snap into the slots **25** of the prongs as stated before to again lock the cap against retraction.

It will now be apparent that the improved plug has a number of advantageous features. First, it retains the normal or conventional form of the base **10**. Further, the cap **15** is of a form suitable to match the base and form a lap joint therewith, presenting a smooth external appearance. Further the cap is both an end closure for the plug base and a mounting designed to receive and firmly clamp the wires entering the plug to the prongs thereof. Further, the locking feature of the cap is accomplished without adding any parts to the same or to the plug base, the slotting of the plug prongs and extension of the cap stock with the ribs **35** creating the components of the lock. A plug is thus formed which not only accomplishes the clamping of the connecting wires as in the patented structure, but also locks the clamping feature positively to the plug base to be proof against accidental loosening or separation. In this manner the components of the plug are permanently locked together and its connections with the cord tightly and electrically maintained.

While I have described the invention along specific lines, various minor changes and refinements may be made therein without departing from its principle, and I reserve the right to employ all such changes and refinements as may come within the scope and spirit of the appended claims.

I claim:

1. An electric plug comprising a base, a pair of prongs carried by the same and having projecting portions, each of the latter formed with a perforation, the base having a passage for the entrance of a pair of current cord sections with terminal wires engaging said portions, a cap having bores for the passage of said portions and the clamping of the wires to them when the cap is assem-

bled with the base, and means carried by the cap to lock the same to the base in such event, said means being ribs extending from the cap into said bores, said ribs being formed to tension the prongs on the movement of the cap and enter said perforations through approximately half the thickness of the prongs when said assembling is accomplished, and said bores having clearances for the manual flexing of the prongs out of engagement with said ribs to facilitate the unlocking of the cap by reverse movement.

2. An electric plug comprising a base, a pair of prongs carried by the same and having projecting portions, each of the latter formed with a perforation, the base having a passage for the entrance of a pair of current cord sections with terminal wires engaging said portions, a cap having bores for the passage of said portions and the clamping of the wires to them when the cap is assembled with the base, and means carried by the cap to lock the same to the base in such event, said means being ribs

extending inwardly from the cap into said bores, said ribs being formed to tension the prongs toward each other on the movement of the cap and enter said perforations through approximately half the thickness of the prongs when said assembling is accomplished, and said bores having clearances for the manual flexing of the prongs toward each other out of engagement with said ribs to facilitate the unlocking of the cap by reverse movement.

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