Jan. 29, 1929. 1,700,495

G. A. HAYWARD

LOCKING SNAP PLUG

Filed Jan. 4, 1926

Fig. 1.

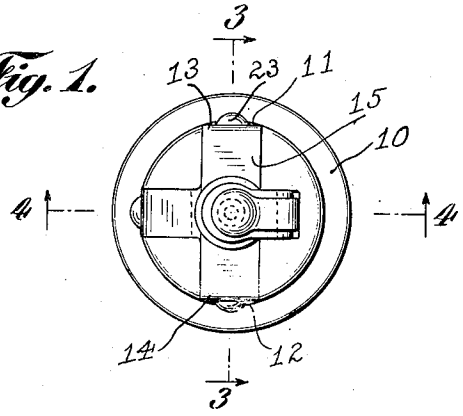


Fig. 5.

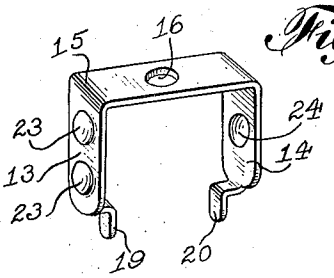


Fig. 2.

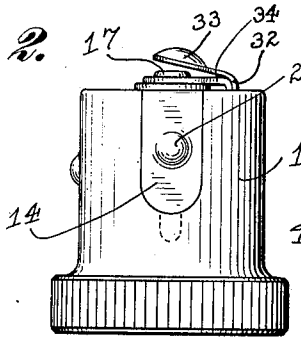


Fig. 4.

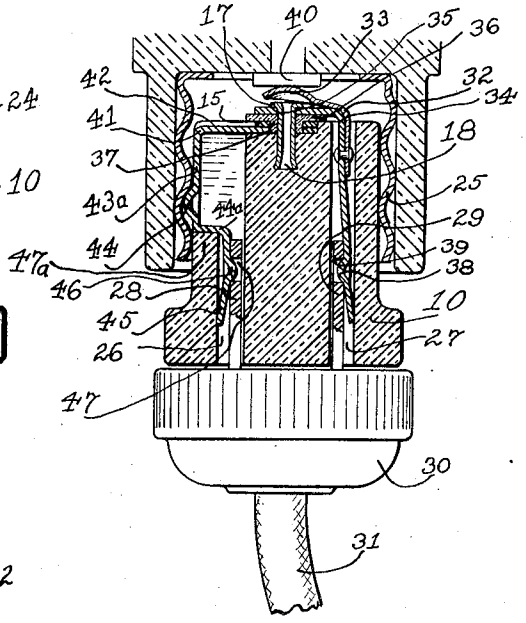
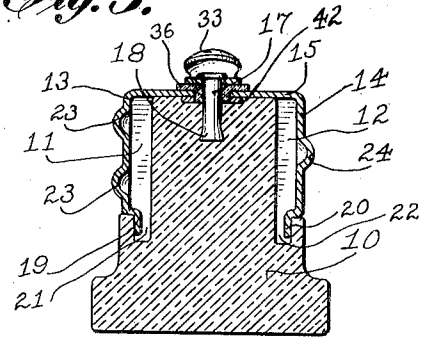


Fig. 3.



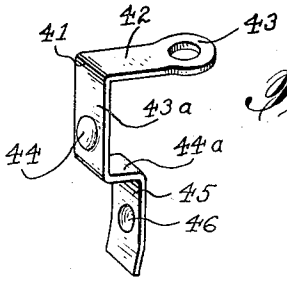


Fig. 6.

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UNITED STATES PATENT OFFICE.

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LOCKING SNAP PLUG.

Application filed January 4, 1926. Serial No. 79,077.

This invention relates to electrical connecting devices, and more particularly to a two-part detachable plug adapted to be easily snapped into and drawn from a standard electric wall socket having a threaded shell.

One object of the invention is to provide an electric socket plug of the above nature which may be inserted in and removed from a wall socket by direct motions of translation without any twisting motions whatever.

A further object is to provide a device of the above nature having a plurality of resilient arms extending outside the surface of the plug for yieldingly engaging the threaded shell of the wall socket.

A further object is to provide an electric socket plug of the above nature having a separable cap, and provided with locking means for preventing the withdrawal of the plug from the socket after the cap has been inserted into position.

A further object is to provide a socket plug of the above nature which will be simple in construction, inexpensive to manufacture, easy to assemble and manipulate, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view, there has been illustrated on the accompanying drawings, one form in which the invention may be conveniently embodied in practice.

Fig. 1 represents a top plan view of an electric socket plug embodying the invention.

Fig. 2 is a side view of the same.

Fig. 3 is a side sectional view of the plug taken along the line 3—3 of Fig. 1, looking in the direction of the arrows.

Fig. 4 is a side sectional view taken along the line 4—4 of Fig. 1, looking in the direction of the arrows, and showing the plug as it appears when in position within a wall socket.

Fig. 5 is a perspective view of the shell contact member.

Fig. 6 is a perspective view of the locking member.

In the common forms of socket plugs now in general use, it has been customary to provide a threaded shell upon the outer surface of the plug for engaging the corresponding threaded shell of the surrounding wall socket.

One disadvantage of this form of plug was that the continual twisting movements necessary to connect and disconnect the plug had a tendency to weaken the cord connection and also to produce snarls and kinks in the cord.

By means of the present invention the above and other disadvantages have been avoided. This has been accomplished by constructing a plug in such a manner that it may be moved into and out of the socket by direct motions of translation without twisting.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a substantially cylindrical insulating body member, said body member having a pair of oppositely disposed vertical side grooves 11 and 12 adapted to receive the resilient side arms 13 and 14 respectively of a U-shaped shell contact member 15.

The shell contact member 15 is provided with an aperture 16 in its base adapted to fit upon an eyelet member 17 by means of which it is secured to the body member 10. As shown in Figs. 3 and 4, the eyelet member 17 is flared at its bottom 18, whereby it will be securely anchored within said body member 10.

In order to hold the resilient arms 13 and 14 of the shell contact member 15 from extending too far outwardly, said arms are provided at their bottoms with inwardly offset lugs 19 and 20 which are adapted to lie within sockets 21 and 22 formed at the bottom of the grooves 11 and 12 of the body member 10. The arm 13 is provided with a pair of outwardly projecting knobs 23 and the arm 14 has a single outwardly projecting knob 24, said knobs being adapted to engage in the threads of a surrounding threaded socket shell 25, shown in Fig. 4.

By means of this construction, when the plug is pushed into the socket, the arms 13 and 14 will yield inwardly permitting the knobs 23 and 24 to pass over the successive ribs and grooves of the threaded shell until the center contact of the plug has come into engagement with the center terminal of the socket.

As clearly shown in Fig. 4, the body member is provided with a pair of slots 26 and 27 extending entirely therethrough, said slots being adapted to receive a pair of prongs 28 and 29, forming the contact members of a de-

tachable cap 30, said cap being connected to a two-wire extension cord 31.

The center terminal 40 of the socket is adapted to be engaged by a resilient angle member 32 having a concave contact section 33, said member 32 being secured to the depending arm of an L-shaped member 34. The top arm of the L-shaped member 34 has an aperture 35 adapted to fit about the eyelet 17 and said top arm rests upon a shouldered insulating washer 36, said washer being seated upon the base of the shell contact member 15 and having a depending portion 37 surrounding said eyelet 17.

In order to connect the center socket terminal with one prong of the cap 30, the depending arm of the L-shaped member 34 has an inwardly projecting knob 38 adapted to seat in a recess 39 in the prong 29. The bottom extremity of said depending arm is inclined outwardly so as to engage the outer portion of said slot 27.

In order to conduct the current from the shell contact member 15 to the other prong 28 of the detachable cap 30 and also to cause the plug to be locked in the socket whenever the cap is forced into the body member, provision is made of a locking member 41, as most clearly shown in Fig. 6. The locking member 41 is provided with a top horizontal base 42 having an enlarged apertured end 43 fitting around the eyelet 17 and adapted to rest underneath and in electrical contact with the shell contact member 15. The member 41 has an intermediate resilient depending section 43^a provided with an outwardly projecting knob 44 adapted to yieldingly engage the threads of the shell 25 when the cap 30 is detached. Below the section 43 the member 41 has a shoulder 44^a connected to an offset depending inclined extremity 45 provided with an inwardly extending knob 46 which is adapted to seat in a recess 47 in the prong 28. The shoulder 44^a is adapted to seat on a shelf 47^a above which the slot 26 is open to the top of the body member.

In operation, the body member from which the cap has been detached will first be pushed into the socket by a direct motion of translation as far as it will go. During this operation, the knobs 23, 24 and 44 will alternately pass over the ribs and grooves of the threaded shell 25 and will finally come to rest within the grooves at the inner-most portion of said socket. The operator will then insert the prongs 28 and 29 of the cap 30 into the slots 26 and 27 and force the cap into engagement with the body member. The electrical circuit will thereby be completed and at the same time the offset extremity 45 will be engaged by the prong 28, thus locking the knob 44 of the intermediate section 45 unyieldingly in the threaded shell. In this manner accidental or intentional removal of the plug from the socket by grasping the body member alone will be prevented until the cap is again detached from the body member.

While there has been disclosed in this specification one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosure but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In a two-part socket plug for electrically connecting a pair of conductors to the center and threaded shell terminals of an electric wall socket, an unthreaded insulating body member, a cap member having a pair of prongs projecting into said body member, a shell-contact member having a pair of resilient arms adapted to yieldingly contact with the ribs and grooves of said threaded shell, means to connect said resilient arms to one of said prongs, means for connecting said center terminal with the other of said prongs, comprising a horizontal base adapted to contact with said shell contact member, a vertical resilient depending section having an outwardly projecting lug adapted to yieldingly engage said shell terminal, and an inwardly offset vertical section for engagement with the other of said prongs.

2. In a two-part socket plug for electrically connecting a pair of conductors to the center and threaded shell terminals of an electric wall socket, an insulating body member, a cap member having a pair of prongs projecting into said body member, a shell-contact member having a pair of resilient members adapted to yieldingly contact with the ribs and grooves of said threaded shell, means to connect said resilient members to one of said prongs, means for connecting said center terminal with the other of said prongs comprising a horizontal base adapted to contact with said shell contact member, a vertical resilient depending section having an outwardly projecting lug adapted to yieldingly engage said shell terminal when said cap is detached, and to unyieldingly engage said shell terminal when said prongs are inserted in said body member, and an inwardly offset vertical section for engagement with the other of said prongs.

3. In a two-part socket plug for electrically connecting a pair of conductors to the center and threaded shell terminals of an electric wall socket, an insulating body member, a cap having a pair of prongs projecting into said body member, a shell-contact member having a base and a pair of resilient members

adapted to yieldingly contact with the ribs and grooves of said threaded shell, means to connect said shell-contact member to one of said prongs, means for connecting the center terminal with the other of said prongs comprising a horizontal base adapted to contact with the base of said shell contact member, an intermediate resilient depending section having an outwardly projecting lug adapted to yieldingly engage said shell terminal when said body member is being inserted into the wall socket, and an inwardly offset depending extremity for engagement with the other of said prongs, said cap when in attached position serving to unyieldingly lock the lug on said intermediate section in said threaded shell terminal to prevent withdrawal of said plug until the cap has been removed.

4. In a two-part electric socket plug, an unthreaded body member, a two-wire cord-holding cap adapted to be detachably connected to said body member, means for connecting one wire of said cord to the center contact of said socket, and means for connecting the other wire of said cord to the threaded shell contact of said socket, said last-named means including three resilient arms having outwardly extending knobs for engaging in the grooves of said threaded shell contact, one of said resilient arms being locked in said shell by the operation of inserting said cap, whereby said plug will be held against removal from said socket until said cap is detached.

In testimony whereof, I have affixed my signature to this specification.

GEORGE A. HAYWARD.