

July 28, 1936.

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2,049,093

ELECTRICAL OUTLET PLUG

Filed June 18, 1934

Fig. 1.

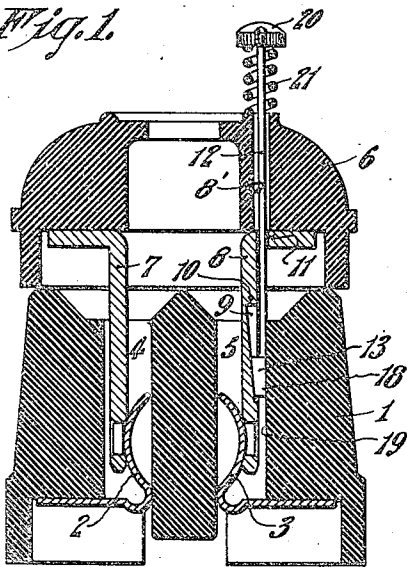


Fig. 2.

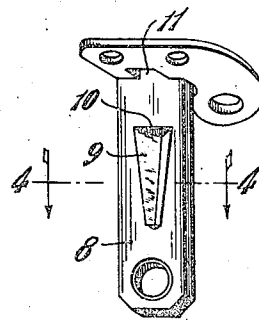


Fig. 3.

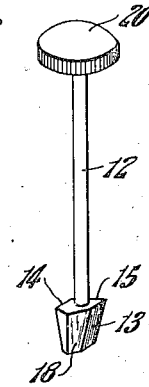


Fig. 4.

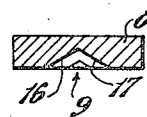


Fig. 5.

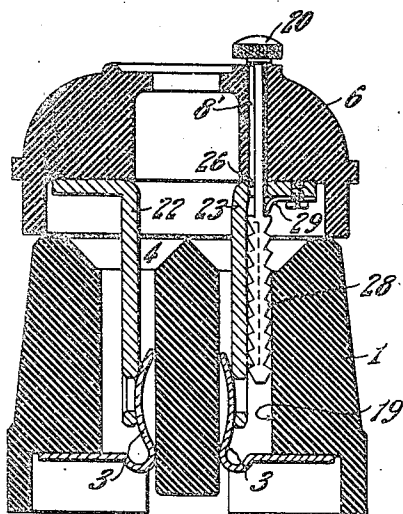


Fig. 6.

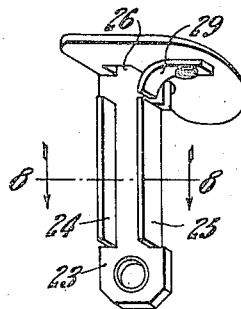


Fig. 7.

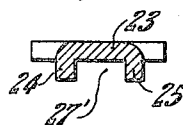
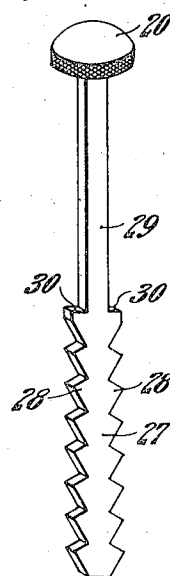


Fig. 8.



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UNITED STATES PATENT OFFICE

2,049,093

ELECTRICAL OUTLET PLUG

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Application June 18, 1934, Serial No. 731,104

5 Claims. (Cl. 173—361)

This invention relates to improvements in electrical outlet plugs.

An object of my invention is to provide an outlet plug that may readily be locked into its socket, in order to prevent its being withdrawn when a comparatively slight pull is exerted upon an electrical cord, or cable, that is attached to the plug.

At the present time, when an extension cord is used for carrying a lamp, or other electrical device, at its outer end, for various uses, as for example, in making repairs on an automobile, the plug is often withdrawn from its socket, upon a slight pull, thus rendering the lamp, or other electrical device useless. Frequently, the extension cord is a long and comparatively heavy one, with the result it is difficult to make the plug remain in its socket, when in use.

Broadly stated, my improvements consist in providing one of the contact blades of the plug with a locking device, or attachment, whereby, when the plug is to be used and the attachment is moved into one position, the plug cannot be withdrawn from its socket, and, when the attachment is moved into its original position, the plug may be readily withdrawn in the usual way.

In one form of my invention, I form a tapered, angular recess in one blade of the plug and a member slidable in the recess for exerting a pressure on the blade and the adjacent wall of the plug.

In another form of my invention, I form one blade of the plug with a channel-like structure, in which is placed a rotatable, flat-shaped member having teethlike, or serrations, on its opposite edges. Means are provided for rotating this flat-shaped member, whereby the blade of the plug will be firmly retained in its socket; when it is turned back again, the plug is then free to be withdrawn.

Referring to the drawing which forms a part of the specification, and in which:—

Fig. 1 is a vertical, sectional view, showing the plug locked, or retained in place in the socket.

Fig. 2 is a detail, perspective view of one of the blades of the plug removed from the plug and showing the angular and tapered groove therein.

Fig. 3 is a detail, perspective view of the slidable plug member that is located in the angular and tapered groove of the plug.

Fig. 4 is a transverse, sectional view of the blade on the line 4—4 of Fig. 2.

Fig. 5 is a vertical, sectional view of a modification through the socket and plug with the plug locked in place.

Fig. 6 is a perspective view of one of the blades

of the modified construction of the plug, removed from the plug.

Fig. 7 is a detail, perspective view of the flat, locking member formed with the serrations on its opposite edges, and

Fig. 8 is a sectional view on the line 8—8 of Fig. 6, showing the serrations.

Referring to the drawing in detail:—

1 indicates the socket portion as a whole, having the usual spring contact terminals 2 and 3, located in the recesses 4 and 5. 6 indicates the removable plug member to which is secured the contact blades 7 and 8 and formed with the openings 8'. One of the blades, as 8, is formed with the V-shaped and longitudinally tapered groove, 9, or recess, 9, having the stop, or shouldered, upper end portion 10. The upper end portion of the blade 8 is formed with an opening 11 in which is slidably located the rod member 12 on the lower end of which is the enlargement, or block 13, having the inclined faces 14 and 15, the angle of which corresponds with the angle of inclination of the opposite surfaces 16 and 17 of the groove, or recess 9. The face, or surface 18, of the block 13, engages the vertical wall 19 of the socket 1, as shown, when the block 13 is moved downward by pressure on the knob 20 at the upper end of the rod 12, and against the tension of the expansion spring 21. When in this position, the plug 6 is firmly and frictionally retained in the socket, by reason of the tapered groove construction 9. When the block 13 is drawn upward against the shoulder 10, the blade 8 is free and the plug 6 may be withdrawn in the usual manner. The spring 21 will now retain it in this position.

Referring to the construction, shown in Figs. 5, 6, 7, and 8; 22 and 23 indicate the two contact blades of the plug 6. The blade 23 is formed with the ear portions 24 and 25, and the opening 26. Located in the space 27' between the ear portions is a flat blade member 27, having the oppositely located projections 28. The rod portion 29 is located in the opening 26 of the blade 23, and in the opening 8' of the plug 6, as shown. 29 indicates a spring stop for engaging one of the shoulders 30, for retaining the blade member 27 in its locking position, shown in Fig. 5, when turned through an arc of 90°. In this position, the teeth 28 engage the blade 23 and the surface wall 19, whereby the plug 6 is prevented from being withdrawn, when the blade 27 is turned, so as to lie within the space 27', the teeth 28 will not engage the wall 19, nor the blade 23. The

plug 6 can now be withdrawn from the socket 1 in the usual manner.

From this description, it will be seen that I have provided a very inexpensive and simple means for retaining a plug in its socket and which means will permit the plug to be withdrawn, in the usual manner.

What I claim is:—

1. In combination, an electric socket and a plug member therefor, frictional means for retaining a blade of the plug against easy removal from its socket, said means comprising a longitudinal channel that is tapered and wedge-shaped in cross section in a contact blade of the plug, and wedge means in the said channel for forcing the contact blade of the plug against the contact member in the socket and also for engaging a wall surface in the socket by said wedge means, whereby the plug is frictionally retained against easy removal from its socket, and whereby relative lateral motion of said plug blade and wedge means is prevented.

2. A plug and socket construction comprising, in combination with a contact blade of the plug, said blade having a tapered and V-shaped groove in cross section formed therein, a wedge-shaped block slidably located in the said groove, a rod connected to the block and extending through and above the plug cap, a knob on the upper end of the rod, spring means on the rod between the knob and the top of the cap for retaining the wedge-shaped block in its inoperative elevated position in the upper end of the said groove for removing lateral pressure on the blade of the plug by the said rod portion which extends through the opening in the plug part and above the same for operating the wedge-shaped block.

3. In an electric plug and socket construction having engageable contact and blade members when assembled, slidable means in the plug in

engagement with a blade of the plug and a wall of the socket for frictionally retaining the plug against removal, said means comprising a grooved portion in the said blade of the plug which groove is tapered in the direction of the movement of the slidable means in the plug and V-shaped in cross section, the slidable member which is tapered and V-shaped in cross section is located in the said grooved portion for forcibly engaging the said blade and the said wall of the socket.

4. In combination in an electric socket and its removable plug, means for retaining the plug connected to the socket in order to prevent its removal upon a slight pull, said means comprising a tapered groove in a blade of the plug, a slidable member in the said groove and adjacent a wall of the socket in which a contact is located, the groove being tapered from the upper end portion of the blade and downward towards its lower end, whereby when the slidable member in the groove is moved downward in the groove in the blade and against said wall of the socket, the plug and its blade will be frictionally retained against removal from the socket member, as described.

5. In combination in an electric socket and its plug in which the contact terminals mutually contact when assembled, slidable means associated with a blade of the plug and extending through an opening in the blade and an opening in the plug to its outer end surface, a knob on the slidable means, the blade having a V-shaped and tapered groove with which the slidable means engages, a stop shoulder at one end of said groove, a spring for retaining the slidable member against the stop, said spring being located between the knob and the outer end of the plug.

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