March 17, 1936. L. J. CLAYTON 2,033,973

ELECTRIC CORD ATTACHMENT PLUG

Filed Jan. 23, 1933

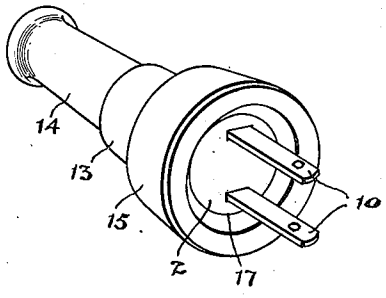


Fig. 1.

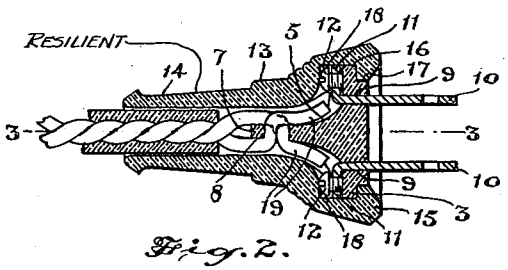


Fig. 2.

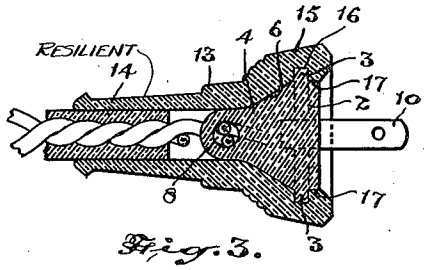
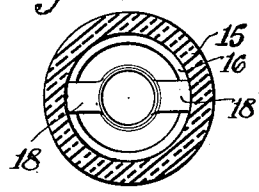


Fig. 3.

Fig. 7.



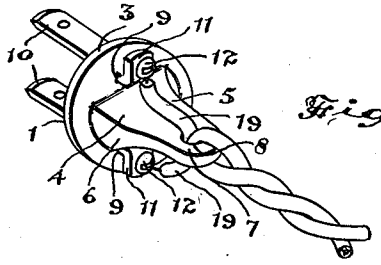


Fig. 4.

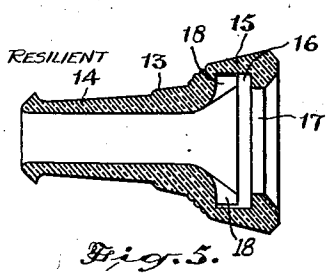


Fig. 5.

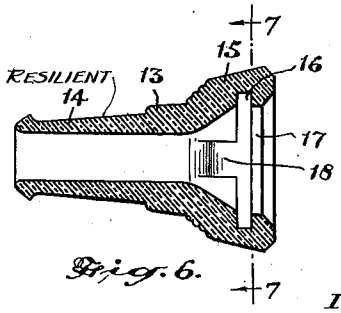


Fig. 6.

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ELECTRIC CORD ATTACHMENT PLUG

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Application January 23, 1933, Serial No. 652,999

3 Claims. (Cl. 173—361)

The principal objects of this invention are, to provide a plug connector for flexible cords which will withstand extremely rough usage and will effectively hold the cord from disconnection from the terminals.

A further and important object is to devise a plug of very simple and inexpensive construction which may be easily assembled and in which defective or damaged terminals may be easily and quickly replaced.

The principal features of the invention consist in the novel construction of a flexible socket member and a semi-flexible terminal-holding member and metal terminals whereby the terminal-holding member and the metal terminal mounted therein are securely held within recesses formed in the socket member but are capable of being readily removable therefrom.

In the accompanying drawing, Figure 1 is a perspective view of my improved plug.

Figure 2 is a longitudinal mid-sectional view of the plug taken through the metal terminals and showing the manner of securing the electric cord.

Figure 3 is a longitudinal sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a perspective view of the semi-flexible terminal holder showing the terminals and wires in their assembled positions.

Figure 5 is a longitudinal sectional view of the flexible socket member taken on the same plane as the section, Figure 2.

Figure 6 is a longitudinal sectional view of the flexible socket member taken on the same plane as the section, Figure 3.

Figure 7 is a sectional plan view of the flexible socket member taken on the line 7—7 of Figure 6.

Numerous forms of flexible attachment plugs have been devised in which the metal terminals are moulded into or otherwise rigidly secured in the body of the material or to a member removably secured in the flexible body.

In the invention herein shown the terminal holder 1 preferably moulded of semi-hard rubber, is formed with a circular portion 2 provided with a projecting annular flange 3 and extending from the back thereof is a centrally arranged lug 4 extending across one diameter thereof. This lug is formed with inwardly tapering sides 5 and inwardly tapering edges 6 leading to a flat-sided portion 7 which is provided with a hole 8 extending therethrough.

A pair of narrow parallel slots 9 are arranged one at either side of the base of the lug 4 and extend through the circular portion 2. These slots are spaced apart the desired distance for the spacing of the terminals.

The terminals 10 are each formed of a metal strip of the same dimensions as the slots 9 and one end 11 of each is bent at right angles and the short end is provided with a threaded hole in which a binding screw 12 is threaded.

The body 13 of the plug is moulded in one piece preferably of a flexible rubber material and is provided with a tubular shank 14 and a flaring bell end 15 which may have any desirable external pattern.

The inner wall of the bell end 15 is formed with an annular groove 16 of approximately the same diameter and depth as the flange 3 of the member 1 and the inner diameter 17 of the chamfered rim is adapted to fit snugly around the perimeter of the circular part 2 of the member 1.

A pair of recesses 18 are moulded in the inner wall of the bell end of the body 13 in diametrically opposed relation and these extend inwardly from the groove 16 toward the tubular shank. The inner wall of the bell end 15 tapers inwardly from the groove 16 so that when the member 1 is inserted therein the tapering surfaces 6 of the member 1 fit snugly thereagainst as shown in Figure 3 and the perforated end 8 fits snugly into the bore of the tubular shank.

The laterally and outwardly turned ends 11 of the terminals and the screws 12 extend into the recesses 18 and the tops of the screws snugly abut the top surfaces of the recesses.

In assembling this device, the terminals 10 are pushed through the slots 9, the walls of which snugly hold the terminals in a parallel position. The ends of the wires 19 are threaded through the hole 8 from opposite sides and the ends are secured to the terminals by the binding screws. The wire is thus locked securely by being crossed through the perforated lug and as the lug is of a semi-hard material, preferably a rubber compound, the wires will not be fractured by pulling against the lug nor will the insulation be injured.

When the wires of the terminals have thus been connected, the body member, which is first threaded over the wires, is slipped down over the member 1 and the flexible bell end is distended to encircle the circular end, the flange 3 being bedded into the annular groove 6, the ends of the terminals and their binding screws fitting snugly into the recesses 18.

The device when thus assembled forms a substantially solid plug. The material is sufficiently hard to hold the terminals securely, but it is sufficiently resilient to resist fracture and though it

may be distorted by being stepped on or run over by a vehicle it will immediately on release from stress resume its original shape. The manner of securing the terminals, without rigid connection either to the holder or to each other permits a remarkable degree of distortion of the plug without injury.

In the event of a terminal being damaged so as to impair the proper use of the plug or if a wire should become disconnected it is merely necessary to strip the bell end of the body member from the terminal holder and pull out and replace the damaged member or repair the connection and then replace the terminal holder.

The extreme simplicity of the device as well as its remarkable cheapness will, from this description, be readily apparent.

It will be noted that the electric wires passing through the hole 8 will, upon being pulled, stretch the material of the lugs so that the hole is elongated and the side walls of the hole acts as a snubber to hold the wires securely.

What I claim as my invention is:—

1. An electric attachment plug including an outer resilient tubular member and an inner contact blade holding member of relatively rigid material removably arranged within said outer tubular member, said blade holding member having contact blades removably threaded therethrough and said blades having their inner ends turned laterally and directly overlapping the rearward side of the holding member, binding screws in said laterally turned ends, disposed in the longitudinal direction of the plug the inner wall of the outer tubular member having bottomed notches formed therein accommodating the laterally turned ends of the terminals and the binding screws, and means retaining said blade-holding member resiliently interlocked with said outer tubular member with the heads of said binding screws engaged in cushioning pressure contact with the bottoms of said notches.

2. An electric attachment plug of the interfitting two piece type composed of an outer tubular element and an inner blade holding insert having spaced contact blades mounted therein and lead wires connected to the blades and extending rearwardly, in combination with a rearwardly elongated resilient rubber lead-gripping member directly connected with and extending rearwardly from said inner blade holding insert in a plane intermediately between the plane of disposition of said spaced blades, the rearwardly extending lead wires being converged and looped transversely through and frictionally engaged by said rearward extension from opposite sides to provide a cushioned strain relief anchorage therefore.

3. An electric attachment plug including an outer resilient tubular member and an inner contact blade holding member of relatively rigid material removably and resiliently interlocked with said outer tubular member, said blade holding member having contact blades mounted therein and having a resilient rearwardly extending lug formed integral therewith, said lug having a single opening therethrough at its inner end extending in a direction transversely of the longitudinal axis of the tubular outer member and of a size to snugly receive a pair of side by side lead wires in frictional contact, and lead wires extending laterally through said single lug opening and crossing each other in side by side relation therein and extending forwardly within said outer member for connection with the rearward ends of said contact blades, said lead wires being adapted on longitudinal stress to tension said resilient lug and said lug when tensioned being adapted to constrict the walls of the said opening into frictional gripping engagement with the inserted lead wires.

LEWIS J. CLAYTON.