

June 27, 1939.

A. M. DRAVING

2,163,779

ELECTRICAL TERMINAL PRONG

Filed March 24, 1936

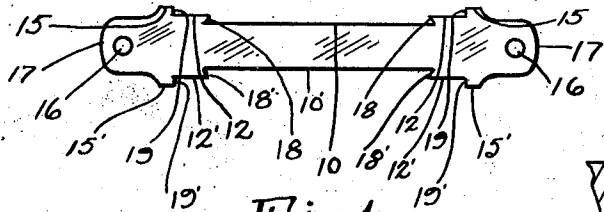


Fig. 1

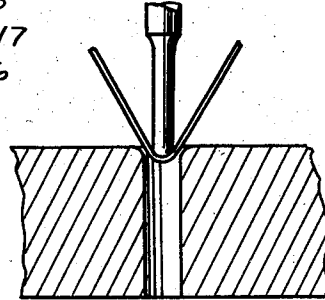


Fig. 2

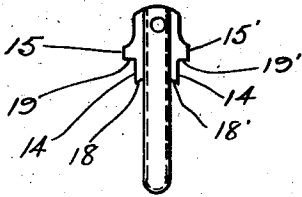


Fig. 3

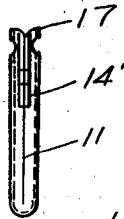


Fig. 4

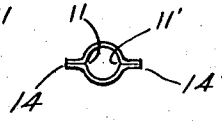


Fig. 5



Fig. 6

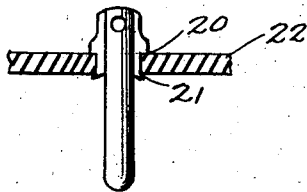


Fig. 7

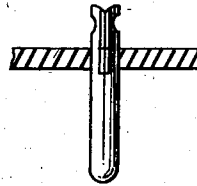


Fig. 8

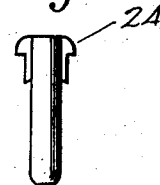


Fig. 9

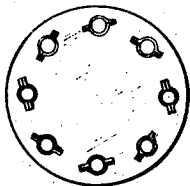


Fig. 10

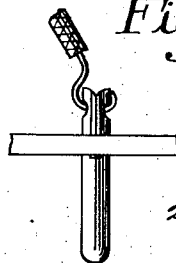


Fig. 11

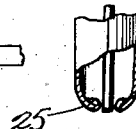


Fig. 12

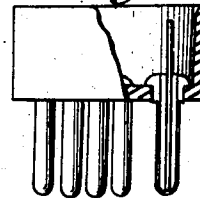


Fig. 13

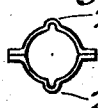


Fig. 14

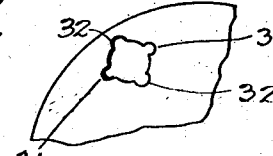


Fig. 15

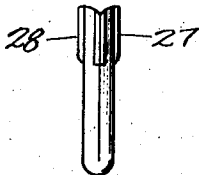


Fig. 16



Fig. 17

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UNITED STATES PATENT OFFICE

2,163,779

ELECTRICAL TERMINAL PRONG

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Application March 24, 1936, Serial No. 70,605

3 Claims. (Cl. 173—361)

My invention relates to improvements in an electrical terminal prong, blanked and formed from strip sheet metal, with unique means for anchoring it in an apertured insulating base and also to providing means for soldering a current carrying terminal wire thereto.

I have shown longitudinal seamed terminal prongs of a somewhat similar type in my co-pending applications bearing Serial Numbers 63,744 filed February 13th, 1936 and 64,481 filed February 18th, 1936, the latter application having matured to the patent numbered 2,125,713 and dated Aug. 2, 1938.

Heretofore electrical terminal prongs formed from sheet metal and employing a rolled or pressed bead for an abutment shoulder intermediate their ends, have been found to fracture at said beaded point after being moulded or anchored in an insulating base.

One object of my invention is to provide a terminal prong having maximum strength, uniform dimensions and finish, blanked and formed from sheet metal.

A further object is to provide a tubular terminal prong with lateral integral sidewall extensions for rigidly anchoring said prong in an insulating base.

A further object is to provide abutment shoulders on the sidewall extensions intermediate the prong ends.

A further object is to provide terminal wire soldering holes intermediate the open end of the prong and the lower face of the abutment shoulder.

A further object is to provide a terminal prong of the aforesaid type in combination with a vacuum tube base.

A further object is to provide a terminal prong having features as set forth in the foregoing objects in combination with an insulating base for a plug-in device.

A still further object is to provide an insulating base having suitable apertures to receive and hold blanked and drawn metal prongs with the foregoing referred to features.

In accordance with the foregoing and other objects, I have devised an improved construction and method of fabricating from sheet metal, a terminal prong with lateral side wall extensions for anchoring the prong in an apertured insulating base and means for attaching a terminal wire to said prong, and my invention lies in the structure and features hereinafter described and claimed.

Referring to the drawing:

Fig. 1 shows a blank punched from sheet metal strip.

Fig. 2 is a fragmentary view in partial section of a punch and die serving to illustrate the method of folding and drawing a blank to form the seamed tubular prong.

Fig. 3 shows a front elevation of a prong.

Fig. 4 shows a side elevation of a prong.

Fig. 5 shows a top elevation of a prong.

Fig. 6 shows a plan view of an aperture in a fragmentary portion of an insulating base.

Fig. 7 shows a front elevation of a prong mounted in an insulating base showing the peening shoulder forced outwardly for securing a prong in an aperture of the base.

Fig. 8 is a fragmentary view in side elevation of a prong mounted in an insulating base.

Fig. 9 is a view in elevation of a prong mounted in an insulating base and showing holes for fastening a current carrying wire thereto preparatory to soldering same.

Fig. 10 shows a modification of the prong shown in Fig. 7, the rounded end of which is pierced for a terminal wire.

Fig. 11 shows an elevation of a moulded base for a radio vacuum tube with terminal prongs mounted in same, also a section through a base and a prong showing a terminal wire inserted and soldered at the tip of same.

Fig. 12 shows a fragmentary section of the tip of a prong showing pierced and turned-back wall of the tip to form means for guiding a terminal wire to the soldering hole in the tip, and also serving as a means to prevent solder from flowing out of the interior of prong.

Fig. 13 shows plan view of an insulating base and prongs staked in same.

Fig. 14 is still another modification of the device illustrated in Fig. 8 showing stiffening ribs in the longitudinal sidewall.

Fig. 15 is a front elevation of the device shown in Fig. 14.

Fig. 16 is a top elevation of the device shown in Fig. 15.

Fig. 17 is a top view of an aperture in an insulating base adapted to receive and hold a modified prong of the type shown in Figs. 14, 15 and 16.

While I have illustrated in the accompanying drawing, and will hereinafter describe, a preferred embodiment of my invention, I do not wish to be limited to the particular details illustrated and described, my invention is best set forth in the claims which form a part of my application.

Referring to the drawing, like numerals refer to like parts in figures where they appear.

To produce a terminal prong with lateral integral extensions to the side walls when formed from sheet metal to a seamed tubular structure, I provide strip ductile sheet metal first blanked as shown in Fig. 1 the overall length being substantially twice that of the axial length of the prong when finished. The width of the blank along the edges 18 and 18' is approximately equal to half the circumference of the substantially tubular section of the prong. The blank is placed over the recess in the die and driven down into same by a round end punch. By this drawing action the ends of the blank are folded towards each other to form two substantially semi-circular cross sectioned portions and their longitudinal edges are brought into juxtaposition thereby forming a seamed tubular round end prong in which edges 10 and 10' of the blank becomes the seams 11 and 11' in Figs. 4 and 5, and the integral sidewall extensions 12 and 12' to the sides 10 and 10' form the sidewall tongues 14 and 14', Figs. 3 and 4, which engage grooves in the side walls of an aperture in an insulating mounting base shown in Fig. 6, when the prong is staked in same. The lower sides or peening shoulders 18 and 18' of said tongues 14 and 14' extends past the lower side of the apertured base to permit riveting or pressing outwardly of said shoulders to cause same to jam into the aperture grooves and to firmly anchor prong in same. These sidewall extension tongues can be made any length to suit the depth of the aperture into which the prong is staked. They can also be located at any distance intermediate the prong's ends. They also co-operate with the aperture sidewall grooves and serve as means to prevent the prong from turning in the aperture. Sidewall extension portions 15 and 15' extend still farther out from the prong's axial center line than the aforementioned sidewall extension tongue and by means of this increase in width over that of the overall width of said tongue, produce a shoulder at 19 and 19', Figs. 1 and 3, which serves as an abutment shoulder and as means to limit the insertion of the prong when staked in a base aperture. The abutment shoulder functions as the underside of a rivet head as shown at 20 in Fig. 7 and is drawn down on the top surface of the base 22 when the lower side 21 of the sidewall tongue is riveted or pressed outwardly binding prong securely in said base. Ends 17 of the blank have a hole punched in same if so desired to permit the threading therethrough of a current carrying wire prior to soldering it to the prong.

A modification of my prong is shown in Fig. 10 in which the open end portion 17 is omitted, forming the open end of the prong as at 24 and the terminal wire is threaded down thru the tubular prong to its rounded end 25 which is pierced as shown at Fig. 12. The wall of said rounded end is turned back to provide means for guiding the aforesaid terminal wire to engage said pierced hole and also providing means to retain molten solder which has flowed into the

interior of the prong's end during the soldering operation.

A still further modification of my terminal prong is shown in Figs. 14, 15 and 16. Beads 27 and 28 are formed on the prong's longitudinal sidewalls, diametrically opposite and outwardly from each other, and extending from the open end of the prong downwardly, their axial length the same as that of the prong's sidewall extensions and serve as stiffeners for the prong. A fragmentary portion of an insulating base showing an aperture to receive and hold a terminal prong is shown in Fig. 6. The aperture sidewall is grooved as at 30. Said grooves are diametrically opposite each other and extend the entire depth of the aperture sidewall. These grooves permit the passing of the prong's sidewall tongue. A view of a fragmentary portion of an insulating base, Fig. 17, shows an aperture having a plurality of sidewall grooves, 31 and 32, located diametrically opposite to each other thereby being adapted to receive and hold the modified prong shown in Figs. 14, 15 and 16.

Having described my invention what I claim is:

1. An electrical terminal prong for plug-in devices, constituted by a folded, substantially tubular, member having seamed sidewalls, the said member being drawn and formed from a strip of sheet metal, one end thereof being generally rounded, the other end being open, the member being additionally provided with integral sidewall extensions cut back to form two shoulders, an outer shoulder and an inner shoulder, the inner shoulder being adapted to be bent over for anchorage purposes, said shoulders being disposed intermediate the extreme ends of the member.
2. An electrical terminal prong for a plug-in device or the like comprising a folded, substantially tubular member having seamed sidewalls, drawn and formed from a strip of sheet metal, one end thereof being generally rounded, the other end being open, the member, along the seams thereof, being provided with a plurality of upper radial extensions and a plurality of lower radial extensions integral therewith, said extensions being adjacent the open end, the upper extensions providing a support, the lower extensions providing peening shoulders, the member at the open end thereof having such configuration as to permit the attachment thereto of a connector wire.

3. In combination, a generally planar element of insulating material having a plurality of apertures therethrough, the sidewalls of which are grooved, and in each aperture of which is disposed an electrical terminal prong generally circular in cross-section, which prong is provided with axially extending beads corresponding in contour to the sidewalls of the opening in which it is mounted, the said prong being provided with supporting shoulders and with peening shoulders in alignment therewith, said peening shoulders being so distorted from their normal position as to lock the prong in place.

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