July 4, 1939. A. M. DRAVING 2,164,766

ELECTRICAL TERMINAL PRONG

Filed Feb. 13, 1936

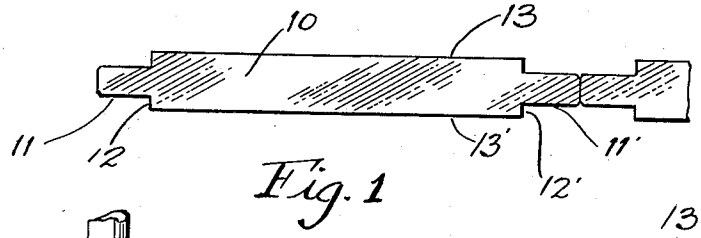


Fig. 1

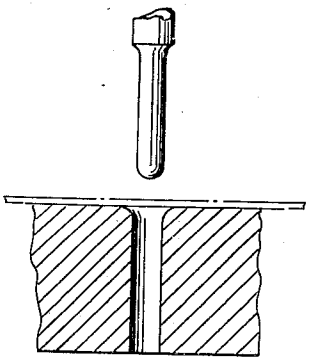


Fig. 2

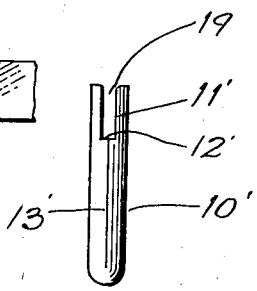


Fig. 3

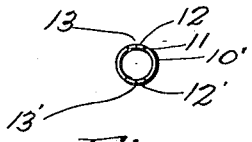


Fig. 4

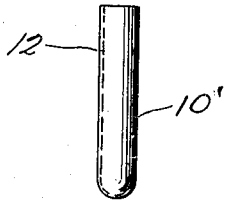


Fig. 5

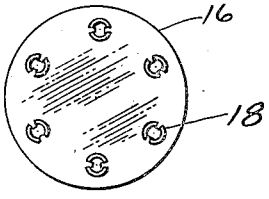


Fig. 10

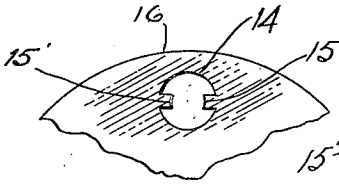


Fig. 6

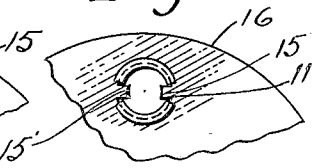


Fig. 9

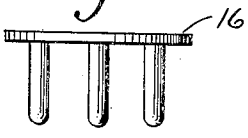


Fig. 11

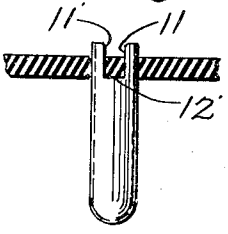


Fig. 7

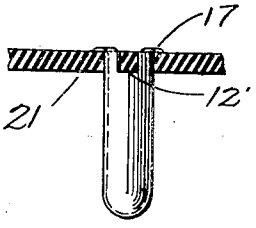


Fig. 8

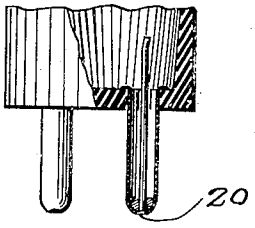


Fig. 12

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2,164,766

ELECTRICAL TERMINAL PRONG

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Application February 13, 1936, Serial No. 63,744

3 Claims. (Cl. 173—361)

My invention relates to improvements in electrical drawn metal terminal prongs for electrical plug-in-devices.

Prongs of this type, with which I am familiar, have been made either of solid metal, turned and drilled and which was costly, or formed of drawn seamless metal requiring many operations to produce. Still another type of prong was constructed of rolled sheet metal (rolled up from same) having one lengthwise seam. Usually, however, with this type the outer surface was not uniform, especially near the rounded end. Heretofore all known types of terminal prongs were made with a crimped or beaded shoulder for seating or limiting insertion of the prong in an insulating base.

One purpose of my invention is to provide a drawn metal terminal prong of uniform shape and maximum strength at low cost.

A further purpose is to provide a drawn metal terminal prong formed from strip metal in one operation.

A further purpose is to provide a drawn metal terminal prong in combination with an electrical plug-in-device.

A further purpose is to provide a drawn metal terminal prong having a slotted open end with the bottom edge of the slot serving as a limiting or abutting shoulder when mounted on an insulating base.

A still further purpose is to provide sidewall extensions by means of the aforesaid slot in the open end of the prong to provide means for riveting, or eyeleting-over the prong end when mounted on an insulating base.

A still further purpose is to provide an insulating mounting base having suitably formed apertures to receive and hold a drawn metal prong.

With the foregoing and other objects in view I have devised an improved terminal prong construction and method of fabricating same and my invention lies in the structure and features hereinafter described and claimed.

Referring to the drawing.

Fig. 1 shows a strip of metal prior to drawing with its ends notched to form slot and side wall extensions.

Fig. 2 shows a punch and a section through the die for forming a prong with a sheet metal strip shown in dotted lines thereon.

Fig. 3 shows a front elevation of a prong completely formed with sidewall extensions and having a slotted area at the open end.

Fig. 4 shows a top view of Fig. 3.

Fig. 5 shows a side elevation of a prong with straight sides.

Fig. 6 shows a fragment of an insulating base having an aperture to receive a prong.

Fig. 7 shows a front elevation of a prong inserted in an aperture in the insulating base before peening over of side wall extensions, with the base shown in section.

Fig. 8 is the same as Fig. 7 except that the side wall extensions have been peened over after the riveting operation has been completed.

Fig. 9 shows a top view of a fragment of insulating base with the prong mounted therein and peened over as in Fig. 8.

Fig. 10 is a top view of the entire insulating base showing the prong apertures and the prongs riveted in same.

Fig. 11 shows a side elevation of the base and prongs of Fig. 10.

Fig. 12 shows a section partially in elevation, of prongs and a vacuum tube base with a terminal wire soldered in a prong.

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

My invention is directed to a desirable form of electrical terminal prong and the economical formation thereof from strip metal and requiring a simple notching and shearing operation prior to drawing, to minimize waste.

Electrical terminal prongs as has been mentioned have heretofore been manufactured with a rolled or pressed abutment shoulder formed intermediate their ends, which is costly in the manufacture of drawn or rolled seamed or seamless prongs. It is a feature of the invention to eliminate the shoulder without sacrificing strength or anchoring ability.

To economically produce a strong uniformly true seamed tubular prong without a bead or an abutment shoulder, I provide strip metal of the proper width so that when converted from the flat strip 10 to the tubular prong 10': by bending it in the center about the end of the punch, sides 13 and 13' in Fig. 1 become the seams 13 and 13'. Notching the strip edges as at 11 and 11' (Fig. 1), thus reducing the width at these points and forming shoulders 12 and 12' prior to bending, after the drawing operation, provide means forming abutment shoulders 12 and 12', between the transversely arcuate extension pieces 11 and 11' arising out of the straight walls of the tubular prong 10' (Figs. 3, and 4). The insulating base, Fig. 10, shows apertures through which prongs are inserted and rigidly fixed by peening over the side wall extensions 11 and 11' as at 18. One of the prong

receiving apertures 14, is shown in Fig. 6, in which the insulating base is 16 and the aperture 14 is of generally cylindrical form, slightly larger in diameter than the prong 10' to permit insertion of the prong. Two projections or ears 15 and 15' extending inwardly from the circumferential edge of the aperture 14 engage slots 19 between extensions 11 and 11' of the fully opened end of the prong and prevent the prong from turning in the aforesaid base. After the prong has been inserted preparatory to peening, the abutment shoulders 12 and 12' engage and seat against the under side of the aperture-projections 15 and 15', which thereby aligns the prong to extend truly at right angles to the under side of the insulating base 16.

The side wall extensions 11 and 11' extend through and past the top surface of the insulating base, as indicated in Fig. 7, and are peened over outwardly as at 17 (Fig. 8), thereby drawing abutment shoulder 12 firmly against the under side 21 of the insulating base, producing a rigid alignment between the longitudinally split rigid tubular prongs and the insulating base member.

In Fig. 12 I have shown an insulating base of a radio tube being pre-apertured to receive and hold the drawn split tubular prongs. The terminal wires of the inner parts of the vacuum tubes, such as the filament, grid and plate, are soldered to the prong by providing a suitable hole 20, in the rounded end of the prong so that the terminal wires may be inserted and the ends of same reach the substantially opened tip of the prong and are soldered to same by dipping the ends of the prongs in solder.

While I have described but a single embodiment of my invention in the drawing and description, it is still possible to modify same without departing from the scope of the appended claims.

What is claimed as new is:

1. A plug-in device including an insulating base member provided with an aperture, the side walls of the aperture being semi-circular and separated each from the other by at least two inwardly extending portions of the base member material, and a terminal prong mounted in said aperture, the said prong including a drawn metal tube having side wall seams, one end thereof being generally rounded, the other end thereof being open, the open end being slotted back in at least two places to accommodate the inwardly extending portions of the base member material and the bottom of each slot constituting an abutment shoulder adapted to contact the under surface of the said inwardly extending portions, the side wall extensions of the prong adjacent the slots passing through the aperture, fitting against the semi-circular side walls thereof and being peened over against the upper surface of the insulating base member, whereby the prong is firmly held in place and is secured against rotation.

2. An electrical terminal prong which consists of a sheet metal strip doubled upon itself to form a cylindrical element having an open end and a substantially rounded end, the side walls at the open end being cut back, respectively, from the seams to provide at least two oppositely disposed semi-circular extensions, each extension having a periphery less than half the periphery of the element.

3. An electrical terminal prong which consists of a sheet metal strip doubled upon itself to form a cylindrical element having an open end and a substantially rounded end, the side walls at the open end being cut back, respectively, from the seams to provide at least two oppositely disposed semi-circular extensions, each extension having a periphery less than half the periphery of the element, in combination with an orificed, substantially planar insulating base, the orifice being provided with at least two oppositely disposed projections extending toward the axis thereof, the projections being disposed, respectively, in the slots defined by the side wall extensions of the prong to prevent rotation thereof, the said extensions being peened over into contact with the surface of the substantially planar element to lock the prong in position.

ARTHUR M. DRAVING.