May 27, 1958 R. MARTINES 2,835,959

METHOD OF FORMING A PLUG FOR ELECTRICAL CONDUCTORS

Original Filed Oct. 1, 1948

FIG. 1

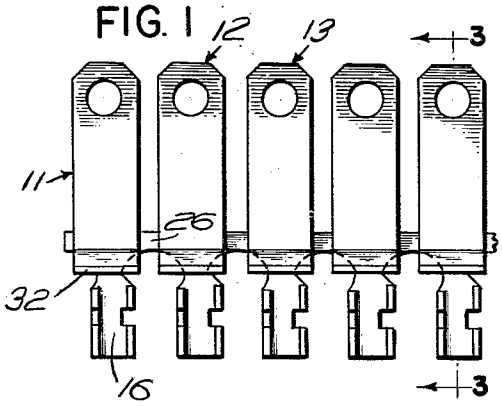


FIG. 2

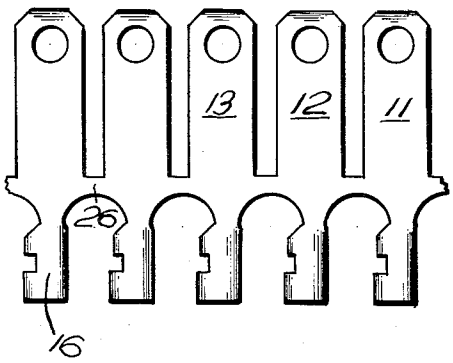


FIG. 3

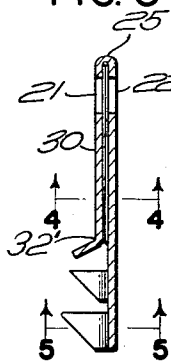


FIG. 4

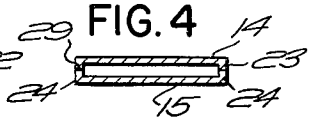


FIG. 5



FIG. 8

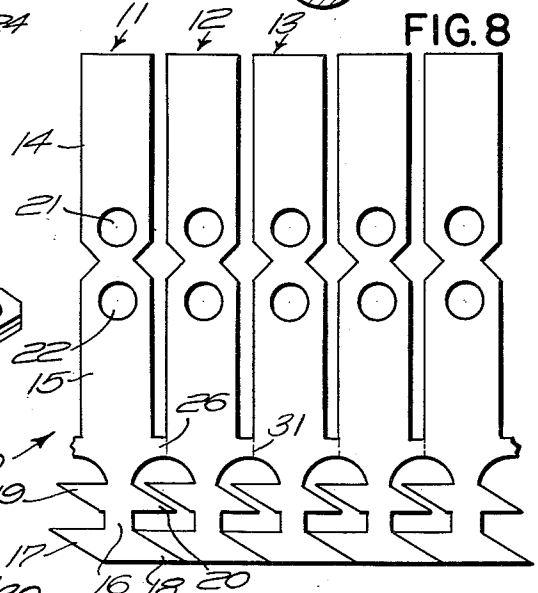


FIG. 6

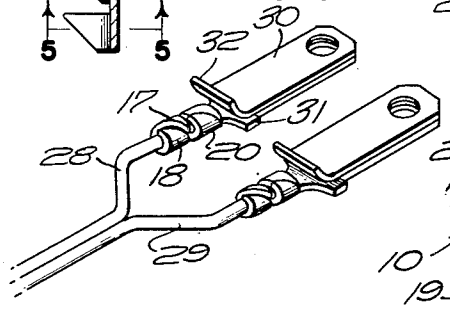


FIG. 7

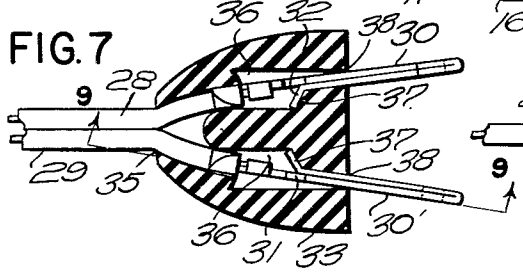
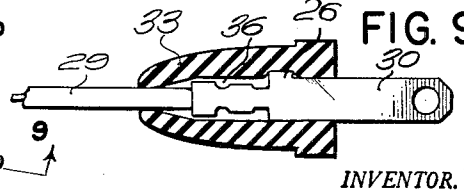


FIG. 9



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United States Patent Office 2,835,959 Patented May 27, 1958

2,835,959

METHOD OF FORMING A PLUG FOR ELECTRICAL CONDUCTORS

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Continuation of applications Serial No. 52,357, October 1, 1948, and Serial No. 196,901, November 21, 1950. This application August 20, 1954, Serial No. 451,166

2 Claims. (Cl. 29—155.55)

This invention relates to a wire terminal for a base plug and is a continuation of my applications Serial No. 52,357, filed October 1, 1948, now abandoned and Serial No. 196,901, filed November 21, 1950 now abandoned.

Wire terminals for the male plug for plugging into a base or other socket is required to be of a certain thickness for uniformity and for making contact with the female portions of the receiving socket. This usually requires the cutting out of the blades from a piece of stock which will be of the thickness required, and frequently provides edges which need to be smoothed up in order to prevent undue abrasion with materials with which they may contact.

One of the objects of this invention is to provide a blade which will be of less weight and less stock than blades heretofore provided.

Another object of this invention is to provide a blade which although formed of less weight stock will be of greater stiffness than blades heretofore provided.

Another object of this invention is to provide a blade which will have a better finished edge than blades heretofore provided.

Another object of this invention is to provide these blades in strip form connected together at such a location that when severed, the location of severing will be within the plug when the blades are assembled therein.

Another object of this invention is to provide the blades in side-by-side parallel relation in the strip and sufficiently spaced so that stock from between the blades may be utilized for wrapping about the wires to firmly hold the wires assembled with the blades.

A still further object of the invention is to provide blades in side-by-side spaced relation with a web holding them in position and severing this web on a single line to give a projection that will frictionally engage a plug body when assembled therein and resist movement of the blade within the plug.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a top plan view of a strip of terminals formed in accordance with this invention;

Figure 2 is a bottom view looking at the under side of these terminals;

Figure 3 is a sectional view through one of the terminals on line 3—3 of Figure 1;

Figure 4 is a section on line 4—4 of Figure 3;

Figure 5 is a section on line 5—5 of Figure 3;

Figure 6 is a perspective view of a pair of terminals assembled upon a pair of wires;

Figure 7 is a sectional view illustrating a plug with the pair of terminals and wires assembled therein;

Figure 8 is a top plan view of the strip of terminals before the terminals are folded to form the blades in two plies; and

Figure 9 is a sectional view on line 9—9 of Figure 7 illustrating the frictional engagement of the terminal with the plug body.

In proceeding with this invention I cut from a sheet of stock, which is of a gauge less than that required for blades, a plurality of terminals in which the blades are of double the length of their final form, and then I flange and fold the blades upon themselves so that the flanges contact and the blades become stiffened by reason of the flanges to provide a blade stiffer than usual and a blade in which there are two plies of material spaced one from the other. Flanging provides a finished smooth edge which is very desirable in the terminal. The connection between the parallel terminals is such that when the terminals are assembled in a male plug, the points of severing from a strip of terminals are also concealed within the male plug.

With reference to the drawings, and particularly Figure 8, 10 designates a strip of blades which are cut out from sheet stock comprising a plurality of identical formations which are later to become identical units of terminals such as at 11, 12, 13, and so forth. Each of these formations such as 11 comprises blade sections 14 and 15 which are spaced from similar blade sections of the next formation. There is a shank 16 from which opposite arms 17 and 18 extend and another pair of opposite arms 19 and 20 extend. The arms are in the shape of right triangles laterally extending from a center portion of each shank to complement each other and form two parallelograms on each shank. These arms being diagonally cut extend from the body a greater distance than that between the centers of the blades and provide sufficient material to fully grasp the wire and insulation, as shown in Figure 6. Holes 21 and 22 are formed in the blade sections 14 and 15. Webs 26 allow the extent of the arms to be greater than the distance between centers and therefore provide optimum wrapping of the insulation and the wire over a large range of sizes which could not result if the edges of the blades abutted.

The blade section 14 is bent at an obtuse angle as at 32' and both blade sections 14 and 15, as shown in Figure 4, are provided with flanges, there being the flanges 23 on the blade section 14 and the flanges 24 on the blade section 15. The arms 17, 18, 19, and 20 are bent upwardly at the same time the bending operation occurs to bend the flanges upwardly after which the blade sections 14 and 15 are doubled upon themselves as at 25 (see Figure 3) so as to cause the holes 21 and 22 to register as shown in Figure 3 and the flanges 23 and 24 to abut, as shown in Figure 4 with the obtuse portion 32 as shown in Figure 3.

The connection or web portion 26 between the units 11, 12, 13 and so forth will remain as illustrated in Figures 1, 2, and 8; thus, this strip of terminals thus bent up and formed and as now appearing in Figures 1 and 2 may be advanced forwardly in a machine or apparatus for attaching them to wires such as 28 and 29, as shown in Figure 6. At the time, or just subsequent to the time, of attachment of the wires to the terminals such as by bending the arms 17 and 18 about the insulation and the arms 19 and 20 about the bare wire, this severing of the sections into units will occur as shown in Figure 6 where the blades are now designated 30. The point of severance is at 31. The male plug is designated 33 and it will be noted that the shank 16 of the portion 31 where severance occurs, as well as the portion 32 which extends laterally of the blade, are within the plug and serve to provide a good grip on the plug, help to hold the blade 30 in position, and conceal and protect any rough severed edges.

The husk of the plug 33 is formed of rubber or a synthetic rubber-like material which is elastic. The blades 30, as shown in Figure 6, may be assembled with the conductors 28 and 29 and then forced into the opening 35

and down through the recesses **36** in the plug to emerge from an opening **38** while the angular end **32** will engage shoulders **37** in the recesses **36** to limit the movement of the blades through the plug. Additionally, the webs **26** will frictionally engage the walls of the recess **36** and serve to prevent movement of the blades in the plane thereof. There is a sufficient elasticity and yielding of the plug so that these parts may be assembled in this manner. It will thus be seen that the raw edge **31** of the terminal is housed in the body of the plug and will not abrade the user. The sharp edge, however, serves well in holding the blade in the husk as it tends to dig into the elastic material.

I claim:

1. The method of forming a plug for electrical conductors comprising cutting from sheet metal stock a strip of spaced parallel blades having a shank portion for each blade and separated from said blade by a web portion which also joins adjacent blades, each shank having a plurality of right triangular portions laterally extending from a center portion to complement each other and form two adjacent centered parallelograms on each shank, bending each blade at one end to form substantially a right angle and further bending each blade to form a two-ply blade, bending each right triangle shank portion inwardly and mutually toward each other to embrace a wire, severing each web along a single line to form individual terminals with a protruding web portion, and providing a plug body about the blades in such a manner that said plug body covers the angle end, the shank portions, and the severed webs leaving the other portions of the blade extending from the plug body, said web being frictionally held in the plug body.

2. The method of forming a plug for electrical conductors comprising cutting from sheet metal stock a strip of spaced parallel blades having a shank portion for each blade and separated from said blade by a web portion which also joins adjacent blades, forming wire receiving means on said shank portion, bending each blade at one end to form substantially at right angle and further bending each blade to form a two-ply blade, bending said wire receiving means to receive a wire, severing each web along a single line to form individual terminals with a protruding web portion, and providing a plug body about the blades in such a manner that said plug body covers the angle ends, the shank portions, and the severed webs leaving the other portions of the blade extending from the plug body, said web being frictionally held in the plug body.

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