

Dec. 16, 1941.

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2,266,530

CONDUCTOR TERMINAL

Filed March 25, 1940

Fig. 1.

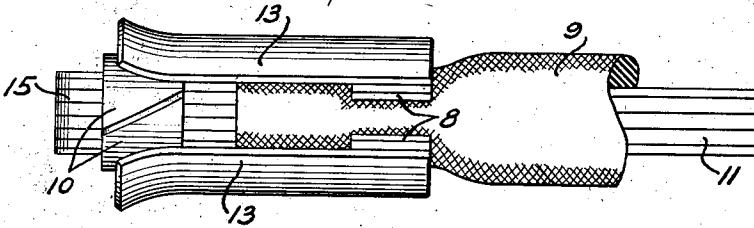


Fig. 2.

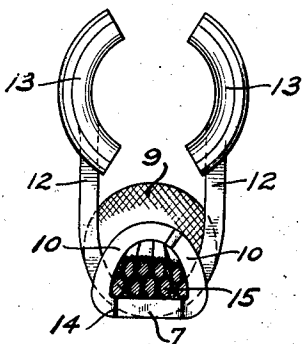
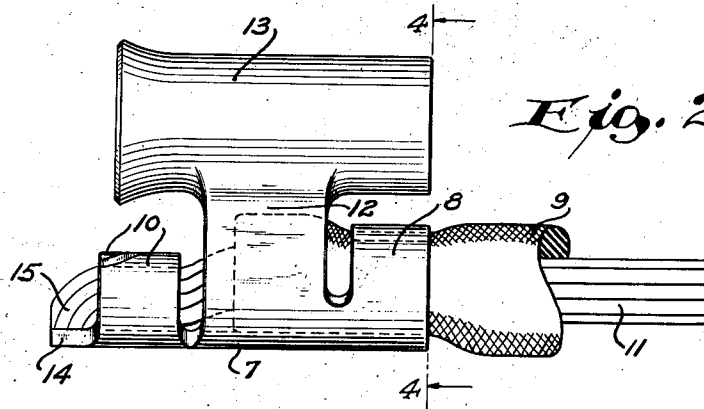


Fig. 3.

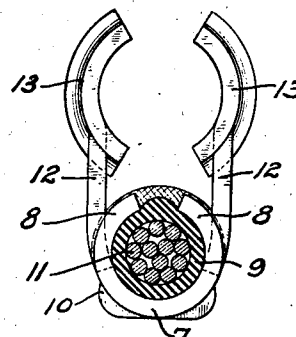


Fig. 4.

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2,266,530

CONDUCTOR TERMINAL

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Application March 25, 1940, Serial No. 325,707

2 Claims. (Cl. 173-269)

The present invention relates in general to improvements in the construction of electrical terminals or tips, and to an improved mode of attaching the same to the ends of flexible conductors such as insulated stranded wires.

An object of the invention is to provide an improved terminal for electrical conductors, which is simple in construction, and which can be readily and firmly applied to the end of an insulated wire so as to provide a most effective and durable connection.

Many different types of terminals for effecting convenient attachment of the ends of conductors to fixed parts such as binding posts or the like, have heretofore been proposed and used, with varying degrees of success. While some of these terminals may merely be clamped to the ends of the conductors, and especially solid wires, so as to provide a satisfactory connection; it is more desirable in the case of stranded wires or cables, to solder the terminal to the bare conductor in addition to clamping. Since clamping and soldering of the terminal to the bare end of the metal wire; in the case of relatively thin multi-strand insulated conductors, frequently results in breakage of the wire when the adjacent wire portion is bent or a pull is exerted thereon, and also results in withdrawal of the insulation from the terminal so as to bare the adjacent wire portion, it is extremely desirable to cause the terminal to clampingly embrace both the end of the wire and the adjacent end of the insulation or covering. It is also desirable in some types of terminals adapted to cooperate with a solid post or the like, to provide resiliency in the terminal attaching portion, and it is furthermore desirable to provide tips which can be readily formed of sheet metal and applied to successive conductors with the aid of automatic machinery.

The present invention therefore contemplates provision of a new and useful conductor terminal or tip, which may be quickly and effectively formed and applied to an insulated multi-strand conductor so as to provide a most efficient electrical connection while at the same time protecting the wire and preventing undesirable stripping of the insulation away from the terminal.

Another specific object of the invention is to provide an improved conductor terminal which can be readily firmly attached to the bared end of a wire as by clamping and dip soldering or welding, and which is resiliently cooperable with the conducting post to which it is detachably attachable.

Still another specific object of my invention is to provide a sheet metal claw type conductor

tip for relatively frail insulated stranded cables or the like which is simple, compact and durable in construction and which also provides a protective tip for the end of the conductor and for the adjoining insulating covering.

These and other objects and advantages of the invention will be apparent from the following description.

A clear conception of an embodiment of the present invention and of the mode of constructing and of applying terminals made in accordance with the improvement, may be had by referring to the drawing accompanying and forming a part of this specification wherein like reference characters designate the same or similar parts in the various views.

Fig. 1 is a considerably enlarged top view of one of my improved claw terminals showing the same applied to the stripped end of an insulated stranded wire;

Fig. 2 is a side elevation of the assemblage shown in Fig. 1;

Fig. 3 is an end view of the terminal looking toward the free end of the wire; and

Fig. 4 is an opposite end view of the terminal and a section through the adjacent wire and insulation, the section being taken along the line 4-4 of Fig. 2.

While the invention has been embodied in a sheet metal terminal having resilient attaching claws or jaws disposed laterally of the adjacent end of the stranded wire, it is not the intent to thereby unnecessarily limit or restrict the scope or utility of the improvement.

Referring to the drawing, the improved conductor terminal shown therein may be formed of a single blank of sheet metal with the aid of punches and dies, and comprises a continuous body portion 7 extending longitudinally of the stranded wire assemblage, and having one set of lateral end flanges 8 adapted to snugly embrace the wire insulation 9; another set of lateral flanges 10 spaced from the flanges 8 and adapted to snugly embrace the bare stranded wire 11 near its free end; a pair of resilient claws or jaws 12 projecting laterally past the wire 11 and insulation 9, and having approximately semi-cylindrical sockets 13 adapted to engage an attaching element or post; and an end lip 14 projecting outwardly beyond the clamping flanges 10 and adapted to be dip soldered to the extreme ends 15 of the wire strands.

The blanks from which the improved terminals are formed, may be cut from metal sheet stock with the aid of a punch, and may be subsequently formed and applied to the stripped end of the

wire 11 and to the adjacent insulation with the aid of simple distorting and folding dies. The flanges 8 which are approximately semi-circular in form, are folded directly toward each other and should be brought inwardly sufficiently to compress the relatively pliable insulation 9 as shown in Figs. 2 and 4, so that the extreme end portion of the insulating covering will bulge outwardly beyond the flanges 8. The flanges 10 which are folded directly toward each other over the bared end portion of the stranded wire 11 should be brought into snug direct clamping contact with this wire portion; and while the free ends of the flanges 8 may be parallel to the wire axis, the free ends of the flanges 10 are preferably disposed diagonally or at an oblique angle to the axis of the wire 11 so as to provide an overlap as shown in Fig. 1. The compressed extreme free end 15 of the stranded wire 11 is preferably distorted to contact with the lip 14, and the ends of the strands are soldered or welded to each other and to this lip 14 as well as to the flanges 10. The parallel flat flanges 12, which like the semi-circular flanges 8, 10 are formed integral with the body portion 7, are relatively resilient, and the sockets 13 are carried by the extreme outer ends of these resilient flat flanges 12.

The improved terminals may obviously be applied to the stripped ends of successive stranded wires 11 in rapid succession and with simple forming or shearing and crimping dies, and when properly applied, the terminal will obviously effectively resist removal by end pulling thereon, and will also prevent ready stripping of the insulation 9 away from the zone of attachment of the terminal. The improved assemblage will also protect the strands of the wire 11 against breakage due to repeated bending of the wire adjacent the zone of attachment of the terminal, and the extreme end 15 of each wire 11 may be effectively soldered to the lip 14 of the sheet metal terminal. The relatively long flanges 12 will obviously provide desired resiliency in the support for the sockets 13, and the sets of flanges 8, 10 provide a firm support for the flanges 12 and sockets 13, disposed on opposite sides of the resilient flanges and firmly embracing the wire at spaced points. The terminals may also be produced with relatively slight waste of material, by virtue of the fact that the flanges 8, 10 are disposed about within the length of stock from which the sockets 13 are formed, and are also disposed within the inner edges of these portions of the stock. The terminal assemblage is especially adapted for ap-

plication to very small and frail stranded wires or cables, having insulation which is not too securely attached to the wire.

It should be understood that it is not desired to limit this invention to the exact details of construction, or to the precise mode of application of the terminals, herein shown and described, for various modifications within the scope of the claims may occur to persons skilled in the art.

I claim:

1. In combination, an insulated electrical conductor wire having the insulation stripped from its end, an elongated flat metal base snugly engaging the bottom of the stripped end and of the adjoining insulation and having a series of three independent sets of upwardly directed integral flanges disposed at the opposite sides of the wire and also having an integral end projection extending beyond said flanges flush with the extreme stripped end of the wire and attached thereto by fusion of metal, the end set of flanges adjacent to said projection being wrapped snugly about the stripped wire and the opposite end set of flanges being wrapped snugly about the adjoining insulation, and the intermediate set of flanges extending upwardly a considerable distance beyond the top of the wire and insulation and having oppositely concave contact shoes forming a socket of approximately the same length as the overall distance from end to end of said flanges.

2. In combination, an insulated multi-strand electrical conductor wire having the insulation stripped from its end, an elongated flat metal base snugly engaging the bottom of the stripped end and of the adjoining insulation and having a series of three segregated sets of upwardly directed integral flanges disposed at the opposite sides of the wire and also having an integral end projection extending beyond said flanges flush with the extreme stripped end of the wire and soldered thereto above the base, the end set of flanges adjacent to said projection being wrapped snugly about the stripped wire strands and the opposite end set of flanges being wrapped snugly about the adjoining insulation, and the intermediate set of flanges extending upwardly a considerable distance beyond the top of the wire and insulation and having integral elongated contact shoes forming a resilient socket of approximately the same length as the overall distance from one end of said flanges to the other.

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