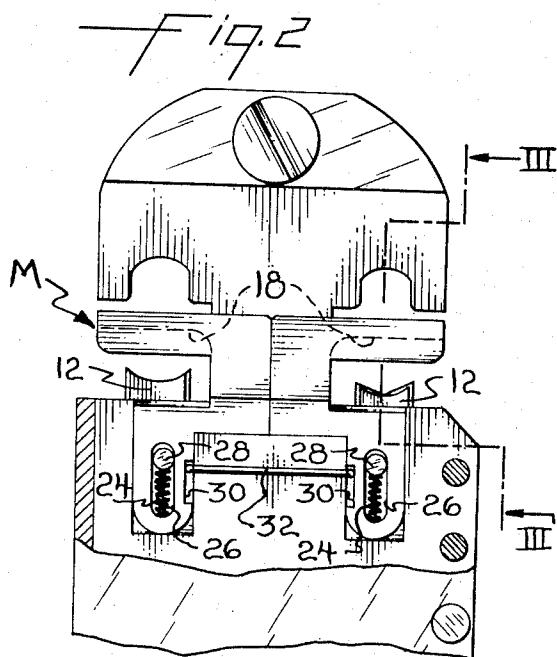
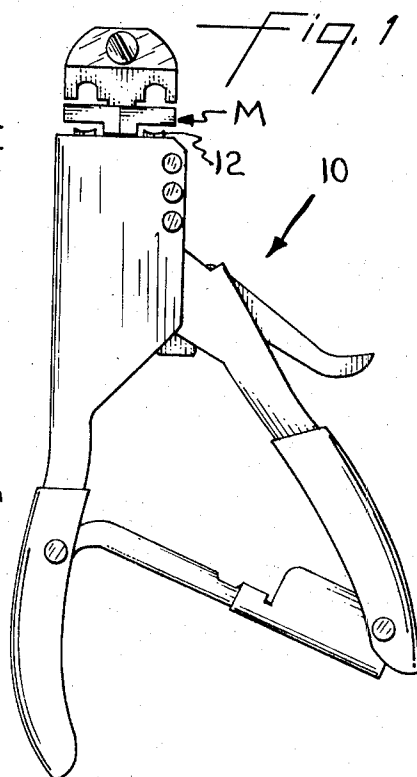
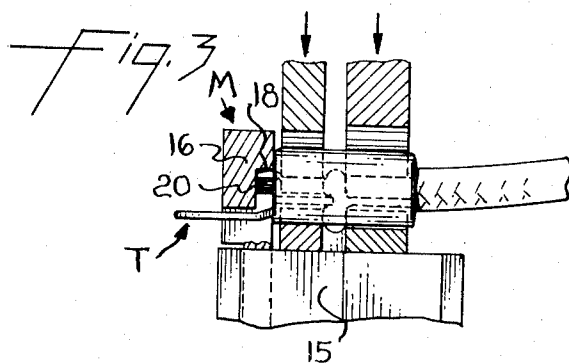
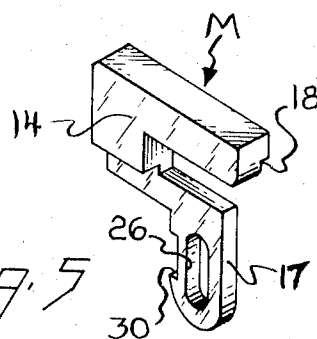
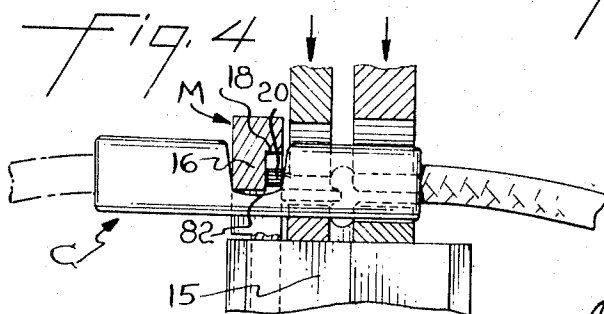


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H. W. DEMLER
WORK LOCATING AND HOLDING MEANS
FOR A PLIER TYPE CRIMPING TOOL
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INVENTOR:
Henry W. Demler
BY:
Curtis, Morris + Safford

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2,829,549

WORK LOCATING AND HOLDING MEANS FOR A PLIER TYPE CRIMPING TOOL

Henry W. Demler, Lebanon, Pa., assignor to AMP Incorporated, a corporation of New Jersey

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4 Claims. (Cl. 81—15)

In the art of crimping an electrical connector to a conductor, it is fairly common practice to position a ferrule-type connector having a ring or other connecting means thereon in a crimping tool between a pair of dies. The crimping dies are then brought to bear upon the ferrule which crimps it to a conductor. In such an operation it is highly desirable to have a means for holding the connector in place during the crimping operation. This means for holding the connector in place should provide a positive engagement between the connector and the crimping dies. The connector should be firmly aligned relative to the dies at all times during the crimping operation so that a perfect crimped connection is achieved. A further necessary function of the connector holding means is to permit the conductor to be easily inserted into the holding means.

Thus it is an object of this invention to provide a holding means for positioning a connector in a tool during a crimping operation. It is also an object of this invention to provide such a means into which a conductor may easily be inserted.

Other objects and attainments of the present invention will become apparent to those skilled in the art upon a reading of the following detailed description when taken in conjunction with the drawings in which there is shown and described an illustrative embodiment of the invention; it is to be understood, however, that this embodiment is not intended to be exhaustive nor limiting of the invention but is given for purposes of illustration in order that others skilled in the art may fully understand the invention and the principles thereof and the manner of applying it in practical use so that they may modify it in various forms, each as may be best suited to the conditions of a particular use.

In the drawings:

Figure 1 shows a hand operated crimping tool employing the present invention;

Figure 2 is a broken away view of the tool shown in Figure 1, illustrating on an enlarged scale the relative position of the connector-holding means;

Figure 3 is a sectional view taken through III—III of Figure 2, showing a terminal held in crimping position by the locating means;

Figure 4 is a view similar to Figure 3, showing a connector held in crimping position by the locating means; and

Figure 5 is a perspective view of a locator per se.

The crimping tool employed is of the type shown in patent application, Serial No. 457,085, filed September 20, 1954 in the name of Henry W. Demler, the present application constituting a continuation-in-part thereof. However, this tool is merely illustrative and the particular holding means described in this patent application may be used in various types of crimping tools. As shown in Figure 1 the crimping tool per se is generally indicated by the numeral 10. The holding means, designated M, is longitudinally slidable in the crimping tool.

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The crimping tool has a die member 12 projecting from one surface thereof. The holding means M is aligned with this die member and adjacent thereto.

As shown in Figures 2 and 5 the holding means has a generally U-shaped head member 14. Extending laterally from one arm of this U-shaped head member is a longitudinal body member 17. The U portion of member 14 accommodates an electrical terminal-type connector (hereinafter referred to as a terminal) as shown in Figure 3. This U-shaped inner surface has an edge 16 against which may be positioned an end face of the terminal. The edge 16 is so positioned that it will prevent longitudinal movement of the connector and maintain it in crimping relationship during the crimping operation. A portion of the edge 16 is somewhat recessed as at 18. As shown in Figure 3 this recess permits the wire to extend through a terminal and the recess acts as a wire stop. Thus as shown in Figure 3 the U-shaped member 14 holds the terminal (indicated by the letter T) in crimping position, while the recess member 18 abuts the wire of the conductor 20 to act as a wire stop. In crimping position it is possible to observe the wire 20 extending through the terminal T. With the wire extending through the terminal and abutting the U-shaped member 14, it can readily be discerned that the wire, terminal and dies are aligned in proper crimping relationship. Without the wire stop 18, it would be possible to insert the conductor too far into the terminal so that the crimp would be performed upon the insulation rather than upon the uninsulated end of the wire. Unless it is possible to see the end of the wire projecting from the ferrule, an imperfect crimp may be caused by failure to insert the conductor a sufficient distance into the terminal.

As shown in Figure 2 the member M is longitudinally slidable in the crimping tool and spring biased in a downward position by spring 24 which is accommodated by slot 26 in the body member 17. A lateral pin 28 extends transversely of the slot 26 and acts as a stop means for one end of the spring 24. The other end of the spring 24 bears against the lower end of the longitudinal slot, thus resiliently urging it downwardly. One edge of the body member 17 is recessed as at 30. This recess accommodates one end of a pin 32 affixed to the tool body to confine longitudinal movement of the holding means thus preventing over-travel of the locating means M.

The holding means is located in a slot adjacent the die means 12 whereby it cooperates with the die. As shown in Figure 3, when crimping a terminal the spring biased means 24 urges the U-shaped member downwardly, so that the holding edge 16 bears against one portion of the terminal and grips it between the U-shaped edge 16 and the die platform 14. It will thus be seen that this arrangement functions to hold the terminal in place prior to and during the crimping operation. It is positively located and affirmatively held by the spring actuated holding means. Because this holding means is spring actuated, however, it may be urged in an upward direction so that the terminal T may be easily inserted into the holding means. This provides a convenient means for inserting the terminal in proper place prior to the crimping operation.

A similar function occurs when using a butt connector. The butt connector may be inserted between the holding means and the die platform 14 so that the edge of the holding means is depressed into an indent 82 in the butt connector (generally indicated C). This lower edge 16 bears against the upper portion of the connector and confines it between the spring-urged member M and the lower platform 15 so that the connector is held in place by the affirmative action of the holding means. This posi-

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tions the butt connector in place prior to and during the crimping operation so that it is positively locked between the holding means and the platform. As in the case of the terminal the butt connector may easily be inserted into the holding means prior to the crimping operation. This is because the holding means M is spring biased and may easily be displaced by the action of the connector when inserted into the U-shaped member. However, once the connector is inserted in place the spring 24 urges the holding means downwardly to retain the butt connector in place.

Thus it is seen that this invention provides a novel and unique type of locating means, suitable equally for holding a connector or terminal in place prior and during a crimping operation.

Other changes in construction will occur to those skilled in the art and various apparently different modifications and embodiments may be made without departing from the scope of the invention. The matter set forth in the foregoing description and accompanying drawings is offered by way of illustration only. The actual scope of the invention is intended to be defined in the following claims when viewed in their perspective against the prior art.

I claim:

1. In a die operated tool for crimping an electrical connector to a conductor, a holding means for aligning the connector in the tool, a longitudinal slot in the holding means accommodating a spring means and a pin means in position in the slot transversely of the axis thereof to secure one end of the spring means in place wherein the other end of the spring means bears against one end of

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the slot, said holding means including a stop member positioned adjacent a die, and said holding means being resiliently biased between a position which holds the connector in place and a position which permits removal of the connector.

2. The device of claim 1 wherein a second pin is fixed relative to the tool and a recess is provided in the outer surface of the holding means parallel to said slot, one end of the second pin projecting into the recess to limit the extent of longitudinal travel of the holding means.

3. In a die operated tool for crimping an electrical connector onto a conductor, a holding means comprising: a U-shaped member, a body member extending transversely from one arm of the U-shaped member, a slot in said body member, a recess parallel to said slot on one edge of said body member, a shoulder on the second arm of the U-shaped member and a second shoulder on the curved portion of the U-shaped member, said second shoulder facing the body member and means in said slot resiliently resisting longitudinal movement of said holding means, whereby said holding means may locate an electrical connector prior to and during the crimping operation.

4. The device of claim 3 wherein a projection on the tool extends into the recess to limit travel of the holding means.

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