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2,824,472

TOOL FOR CRIMPING AN ELECTRICAL CONNECTOR ONTO A CONDUCTOR

Filed Dec. 14, 1955

2 Sheets-Sheet 1

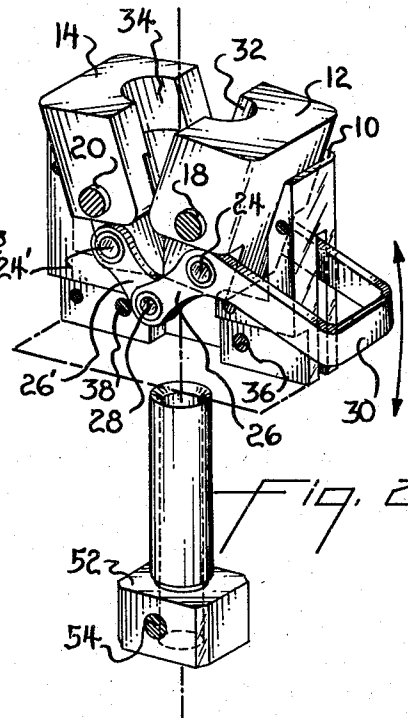
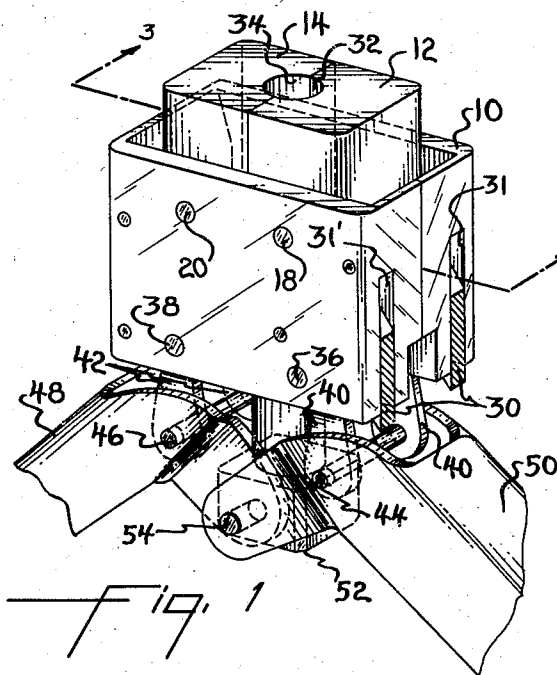
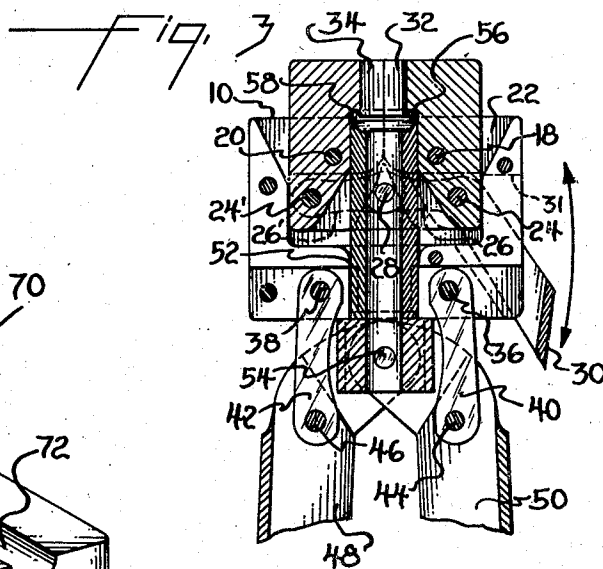
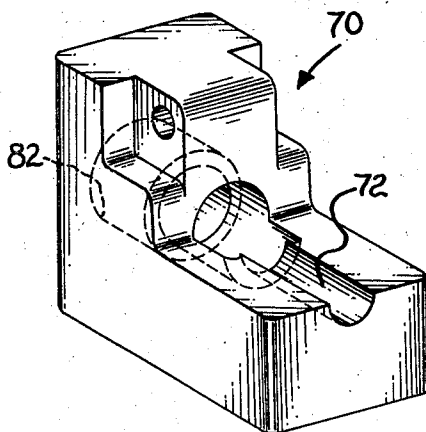


Fig. 4



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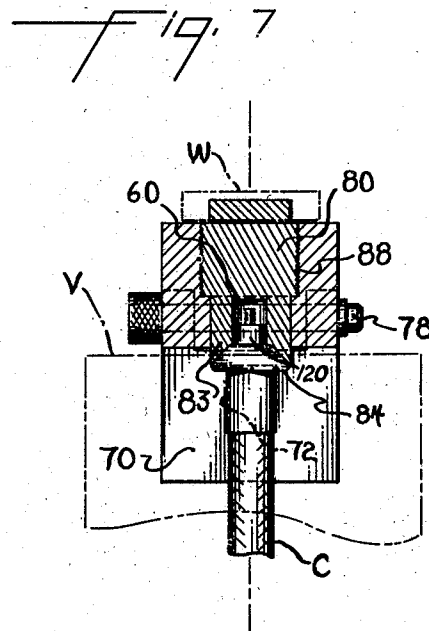
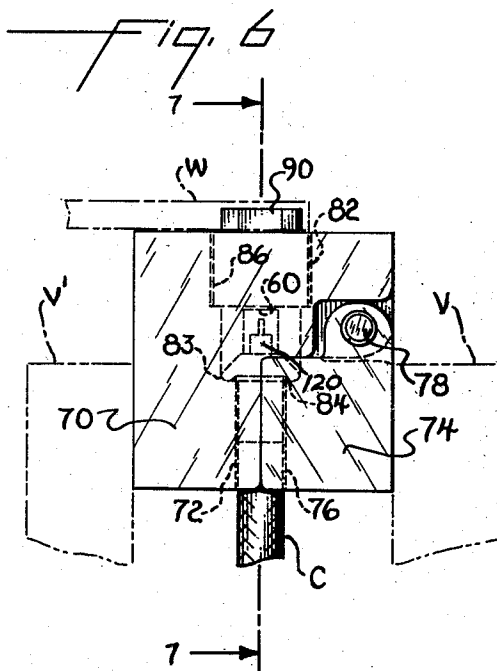
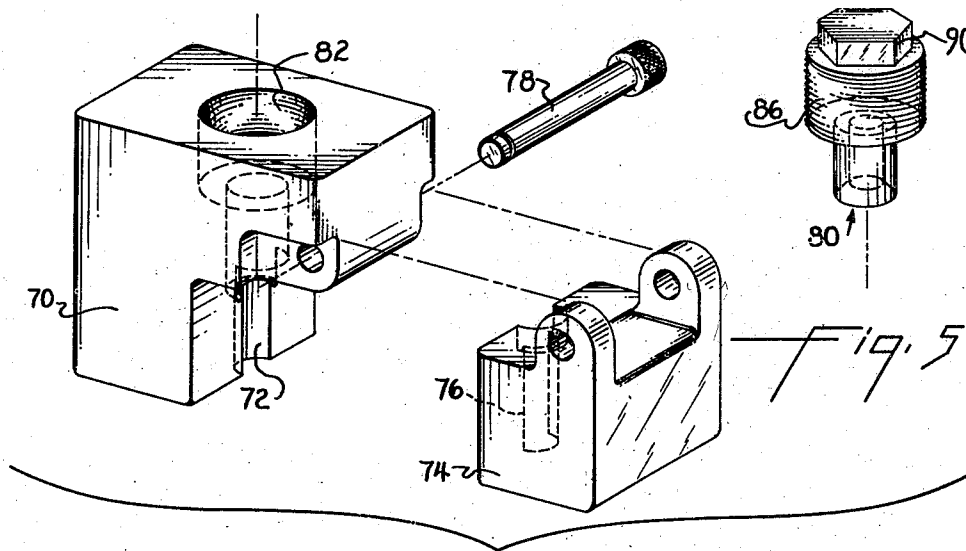
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TOOL FOR CRIMPING AN ELECTRICAL CONNECTOR ONTO A CONDUCTOR

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2 Sheets-Sheet 2



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TOOL FOR CRIMPING AN ELECTRICAL CONNECTOR ONTO A CONDUCTOR

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Application December 14, 1955, Serial No. 553,072

4 Claims. (Cl. 81-15)

It is an object of this invention to provide a special tool for securing an electrical connector to a shielded cable. An improved type of shielded cable connector is set forth in my copending patent application No. 553,071, filed December 14, 1955. It is an object of the present invention to provide a tool for crimping this connector to the shielding means on a shielded cable.

It is also an object of this invention to provide a crimping tool that will crimp a work piece in a longitudinal, as well as radial direction.

It is a further object to provide a tool of the type described that is compact and easily operated either by hand or in conjunction with a standard vise.

Other important features and objects of the invention to which reference has not been made hereinabove will appear hereinafter when the following description and claims are considered with the accompanying drawings, in which:

Figure 1 is a perspective view of a tool embodying principles of this invention;

Figure 2 is a cut away view of the tool shown in Figure 1, with the jaws in an open position and the ram retracted;

Figure 3 shows a sectional view taken through plane 3-3 of Figure 1 but with the jaws in closed position;

Figure 4 is a perspective view of a block forming part of a tool comprising another embodiment of the invention;

Figure 5 is an exploded view of the embodiment partially depicted in Figure 4;

Figure 6 is a plan view of the embodiment shown in Figures 4 and 5; and

Figure 7 is a sectional view taken through plane 7-7 of Figure 6.

The tool shown in Figure 1 employing principles of this invention consists of a body member, for example a block 10, made in two sections for ease of assembly. Within block 10 are a pair of jaws 12, 14 which are pivoted to the block at 18, 20. The inner wall of the block is tapered at 22 (Figure 3) to permit the jaws to pivot between open and closed positions. One end of each jaw has a pivot pin 24, 24' secured to a link 26, 26' respectively. These links are secured together by a common travelling pivot 28. A handle 30 is secured to link 26 to facilitate operation of the jaws. Rotation of the handle 30 operates the linkage to open and close the jaws. Openings 31, 31' in the block accommodate handle 30.

Each jaw contains a complementary segment 32, 34 of a die nest.

A pair of pins 36, 38 secure links 40, 42 to the block. The opposite ends of these links are pivoted at 44, 46 to a pair of handles 50, 48, respectively which in turn are pivoted to each other and also a ram 52 through a common pivot pin 54. The ram is longitudinally movable by the operation of the handles. One end of the ram constitutes a die 56 which cooperates with a recessed

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portion 58 in the die nest to deform a work piece. An opening 60 in the ram accommodates a portion of the conductor when it is desired to secure a connector to an intermediate portion of the cable.

Crimping the connector to the cable is accomplished by stripping the cable and adjusting the connector thereon in the manner shown and described in my copending application identified above. With jaws 12, 14 in the open position and ram 52 retracted (as shown in Figure 2) the conductor and cable are inserted within the jaws. Handle 30 is moved in a clockwise direction to effect the closing of jaws 12, 14 through linkage 26, etc. The jaws pivot about pins 18 and 20. Closing of the jaws radially deforms the connector onto the cable. After the jaws are closed, handles 48, 50 are brought together to cause ram 52 to move longitudinally toward the die nest. The die surface 56 of ram 52 cooperates with the recessed portion 58 of the die nest to deform the connector longitudinally. An opening 60 in the ram permits the cable to pass through the ram so that the connector may be secured to the cable at a point intermediate of the ends.

The embodiment shown in Figures 4 to 7 illustrates another tool employing principles of this invention, in this form using a vise to effect radial deformation and a threaded means to effect longitudinal deformation of the connector.

Figure 4 is a perspective view of a jaw 70 containing a die nest 72. A second jaw 74 (Figure 5) contains a complementary die nest 76. Jaw 74 is pivoted to jaw 70 by means of a pivot pin 78. A longitudinal ram 80 fits into an opening 82 in jaw 70. One end of the ram forms a die 83 which cooperates with a counter-bored section 84 of the die nest (see Figure 7). Ram 80 also has an outer threaded portion 86 which cooperates with the threads 88 on the inner surface of opening. Also ram 80 has wrench flats 90 to accommodate a standard wrench "W" as shown in Figure 6.

The operation of the tool depicted in Figures 4 to 7 is similar to that of the tool shown in Figures 1 to 3. A connector positioned on a cable is inserted within die nest 72, 76. The tool is then placed between the jaws of a standard vise (V, V' in Figure 6) and the vise jaws are actuated in a closing direction, causing the die nest 72, 76 to deform the connector radially. When radial deformation is completed a wrench "W" is used to move ram 80 toward die nest shoulder 84 thus causing longitudinal deformation of the connector between the die portion 83 of the ram and the shoulder portion 84 of the die nest.

An opening 60 in the ram accommodates the bare end of the cable. The connector and cable are extracted from the tool by reversal of the operation. Thus a tool is provided which radially and longitudinally deforms a connector onto a conductor by use of standard, hand operated tools.

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 proper perspective against the prior art.

I claim:

1. A tool for crimping an electrical connector onto a conductor including: a block, die nests in the block for receiving an electrical connector, the die nests being relatively pivotal between an open position for receiving the connector and a closed position for radially deforming the connector, means for actuating the die

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1 nests between the open and closed positions including a
 2 pair of links each pivoted at one end to one of the die
 3 nests, and a travelling pivot securing the other ends of
 4 each link together, a longitudinally movable ram for
 5 deforming the connector means cooperating with the
 6 ram to deform the work piece, and a pair of handles
 7 pivoted between the ram and the block for effecting
 8 longitudinal movement of the ram upon operation of the
 9 handles.

10 2. A tool for deforming an electrical connector onto
 11 a conductor including: a block, a pair of complementary
 12 jaws forming a die nest pivoted to and within the block,
 13 linkage means secured to a first handle and to the jaws
 14 for opening and closing the dies upon actuation of the
 15 handle, a pair of gripping handles pivoted to the block,
 16 and a ram longitudinally movable in the block and piv-
 17 18 otated to the gripping handles so that actuation of the
 19 gripping handles causes the ram to move longitudinally
 20 with respect to the die nest, and means cooperating with
 21 the ram to deform the work piece whereby a connector
 22 may be inserted in the tool and the first handle operated
 23 to actuate the jaws causing the die nests to deform the
 24 connector and the gripping handles subsequently actu-
 25 ated to cause the longitudinal ram to deform the con-
 26 nector.

27 3. A tool for deforming an electrical connector onto
 28 a conductor including: a body member, a plurality of
 29 jaws forming die members, said jaws pivoted to and
 30 within the body member, linkage means secured to the
 31 jaws for opening and closing the die members, means

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for operating the linkage means, a pair of pivoted han-
 dles attached to the body member, a ram longitudinally
 movable in the body member and pivoted to the handles
 so that actuation of the handles causes the ram to move
 longitudinally with respect to the die members, and means
 cooperating with the ram to deform the work piece where-
 by a connector may be inserted in the tool and the jaws
 and ram actuated to deform the connector onto the
 conductor.

4. A tool for deforming an electrical connector onto
 a conductor including: a body member, a plurality of
 jaws forming die members, said jaws pivoted to the body
 member with one end of each jaw therein, linkage means
 secured to the jaws for opening and closing the die
 members, means for operating the linkage means, a
 ram longitudinally movable in the body member, means
 to actuate the ram longitudinally with respect to the
 die members, and means cooperating with the ram to
 deform the work piece whereby a connector may be
 inserted in the tool and the jaws and ram actuated to
 deform the connector onto the conductor.

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