

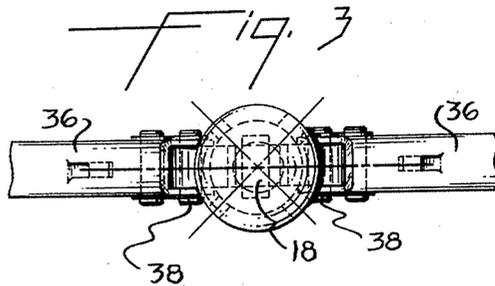
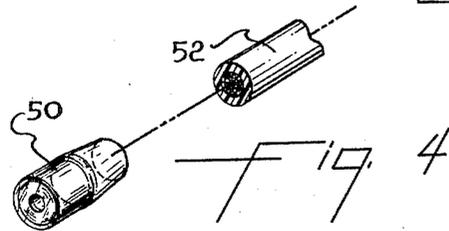
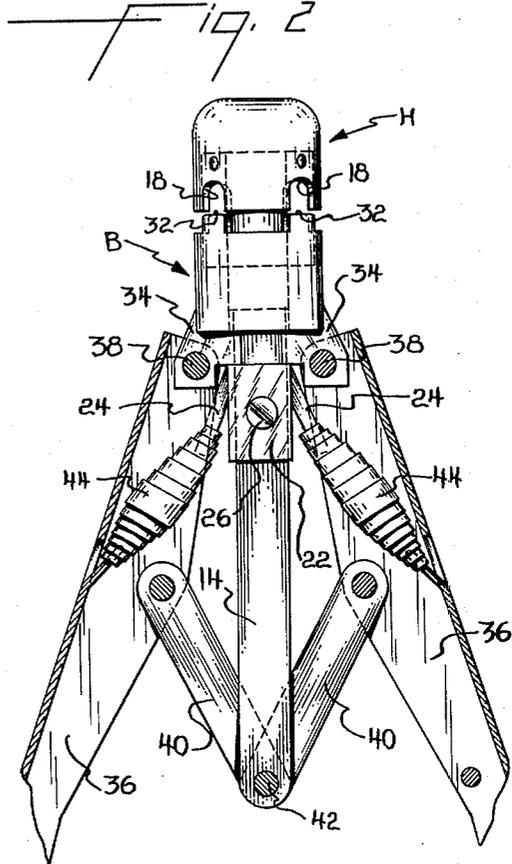
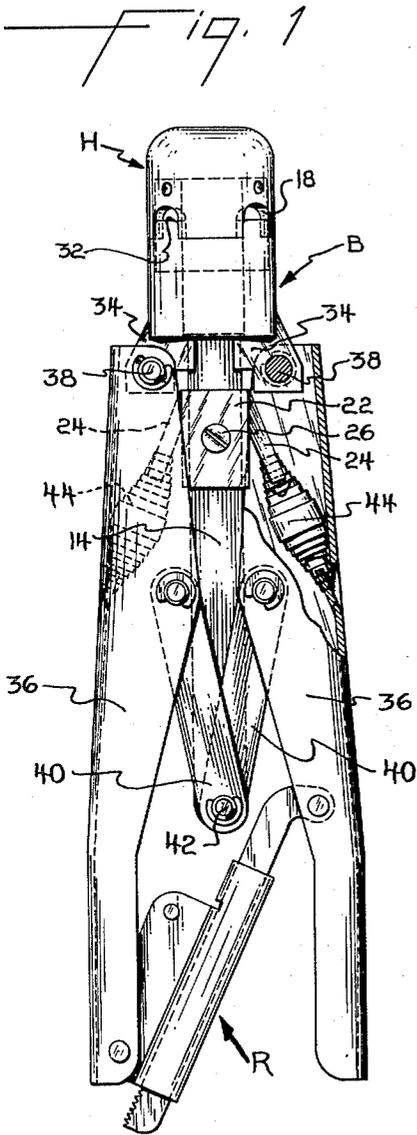
Dec. 15, 1959

H. W. DEMLER
HAND CRIMPING TOOL

2,916,953

Filed Aug. 19, 1957

2 Sheets-Sheet 1



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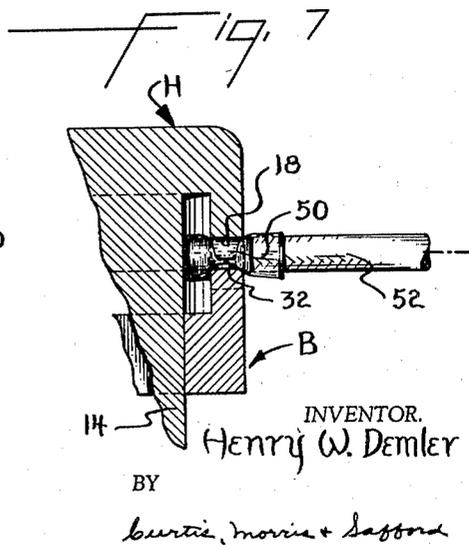
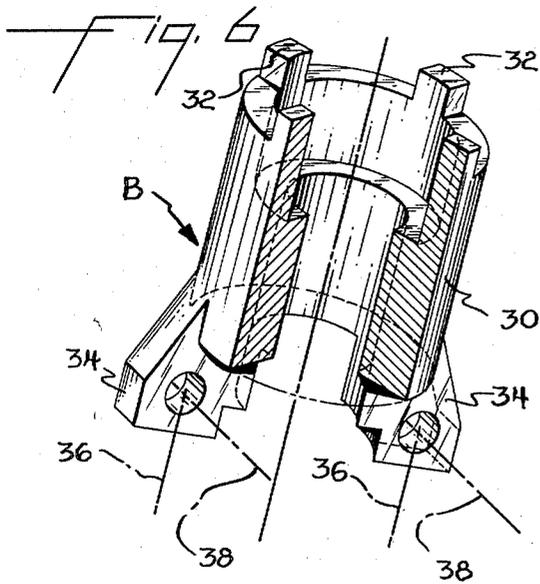
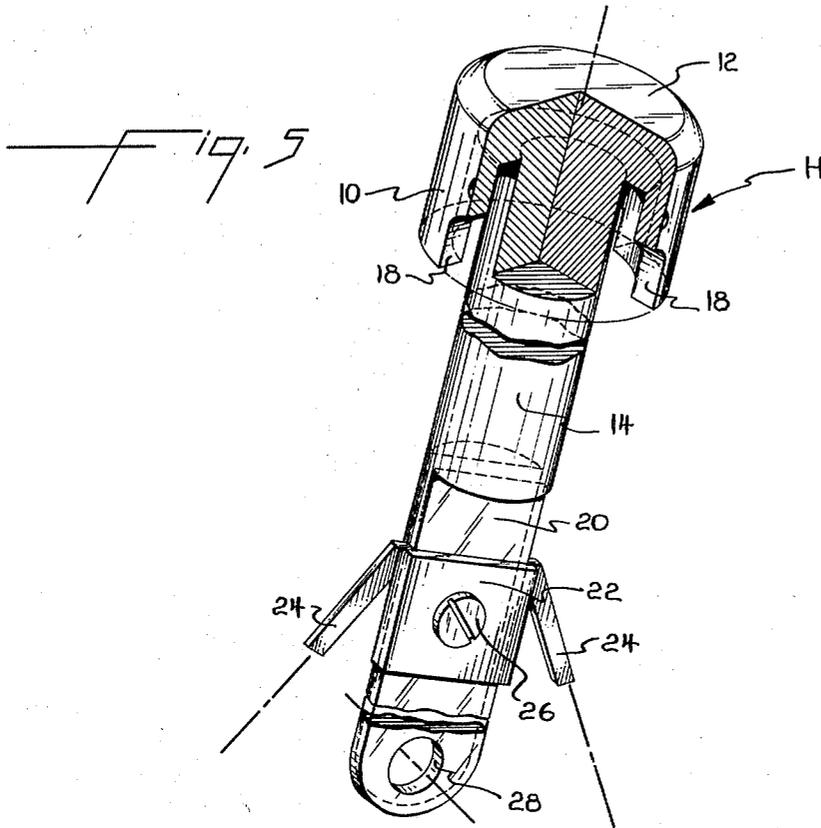
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2 Sheets-Sheet 2



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HAND CRIMPING TOOL

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Application August 19, 1957, Serial No. 678,771

1 Claim. (Cl. 81-15)

This invention is directed to a crimping tool for securing ferrules to conductors. More specifically it has particular application in securing insulated metal ferrules (called "caps") onto insulated wires. In some wiring assemblies it is desirable to provide more wires than the circuit requires immediately. These spare wires are available so that in future operations additional connections can be added to the circuit, without having to rewire the assembly. Initially these spare wires are capped with insulation to prevent short circuiting the assembly.

The present invention comprises a novel hand tool having particular utility for crimping these caps onto spare wires. Furthermore, the structure of the tool accommodates a plurality of die sets embracing a range of wire sizes hitherto uncomprehended in a crimping tool. This is accomplished by positioning the dies on the periphery of a cylindrical body and employing a head of the same cylindrical configuration with corresponding mating dies. The cylindrical surface between the die sets function as "bottoming" means for realigning the crimping members during the pressure stroke. Practically speaking, the number of die sizes is limited only by the size of the tool. A small, compact tool will easily accept four die sets.

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 illustrates a preferred embodiment of a tool incorporating features of this invention as shown in plan view, closed position;

Figure 2 is a view similar to Figure 1, showing the tool of Figure 1 in open position;

Figure 3 is a top view of the tool shown in Figures 1 and 2;

Figure 4 is an exploded view of a conductor and conductor cap which may be crimped with the tool shown in Figures 1-3;

Figure 5 is a perspective view (partially cut away) of the head member of the tool shown in Figures 1 and 2;

Figure 6 is a perspective view (partially cut away) of the body member of the tool shown in Figures 1-3; and

Figure 7 is a fragmentary view of the crimping dies in a closed position illustrating how the cap and conductor shown in Figure 4 are joined.

The tool includes a head member "H" (Figure 5) and a body member "B" (Figure 6). The head member comprises a cylindrical shell 10 closed at one end by a wall 12. A shaft 14 emanates from the wall coaxially of the shell. A plurality of die members 18 are formed in the periphery of the cylindrical shell at the open end thereof. The illustrated embodiment depicts four such die

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members, although a greater or lesser number could be employed.

One end of shaft 14 may be flattened, as at 20, to receive a sleeve 22, with projecting arms 24. A set screw 26 retains the sleeve in position. An opening 28, adapted to receive actuating linkage, is formed in the free end of the shaft.

The body member "B" comprises a cylindrical shell 30 having approximately the same outside diameter as the shell 10. Crimping dies 32 on the edge of the shell correspond to the dies 18 on the head member. Arms 34, diametrically disposed on opposite edges of the shell, are secured to handles 36 through pins 38.

When the tool is assembled (Figure 2), the shaft 14 of the head member "H" is fitted into the shell 30. The dies 18 on the head mate with the dies 32 on the body member and the shaft 14 projects through the longitudinal opening in the shell. The portion of the head between dies 18 functions as aligning means. A link 40 is secured to each handle and commonly pivoted to the shaft by pin 42 located in the opening 28.

A spring 44 is also secured to each handle and bears against the shaft 14 through arms 24 and sleeve 22. These springs normally retain the tool in a full open position, as shown in Figure 2. Pressure on handles 36 causes them to pivot about pins 38 and transmit longitudinal movement to the shaft 14, bringing the head members and the die members into engagement. A ratchet assembly "R" (see patent to Carlson, 2,618,993) assures full closing of the handles before they can be opened.

When joining a cap 50 (Figure 4) to a conductor 52, the cap is inserted into the proper size die 18 and the tool is partially closed so that the cap is retained between the die 18 and the corresponding die 32. The conductor 52 is threaded into the cap and the tool is then fully closed so that the dies 18, 32 deform the cap onto the conductor (Figure 7). Cooperation between the edge of the head 10 and the edge of the shell 30 prevents over-crimping as well as maintaining alignment in the final stage of the crimping operation. After the crimp is completed the springs 44 release the handles to return the tool to the open position and the conductor is withdrawn.

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 claim when viewed in their proper perspective against the prior art.

I claim:

A tool for crimping ferrules onto electrical conductors including a cylindrical head, a cylindrical body corresponding to the head, said head and body being relatively moveable toward and away from each other, a first plurality of dies formed in slots disposed about the periphery of the head, a second set of corresponding dies formed on projections disposed about the body and mating with the first set of dies, the areas between each set of dies constituting means for bottoming the dies, said head and said body being coaxial, and means for actuating said head relative to said body.

References Cited in the file of this patent

UNITED STATES PATENTS

1,475,273	Bernard	Nov. 27, 1923
1,882,095	Raggitts	Oct. 11, 1932
2,618,993	Carlson	Nov. 25, 1952

FOREIGN PATENTS

621,539	France	Feb. 7, 1927
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