

Aug. 28, 1956

E. BELEK

2,760,731

WIRE WRAPPING TOOL FOR STRANDED WIRE

Filed Dec. 28, 1951

FIG. 1

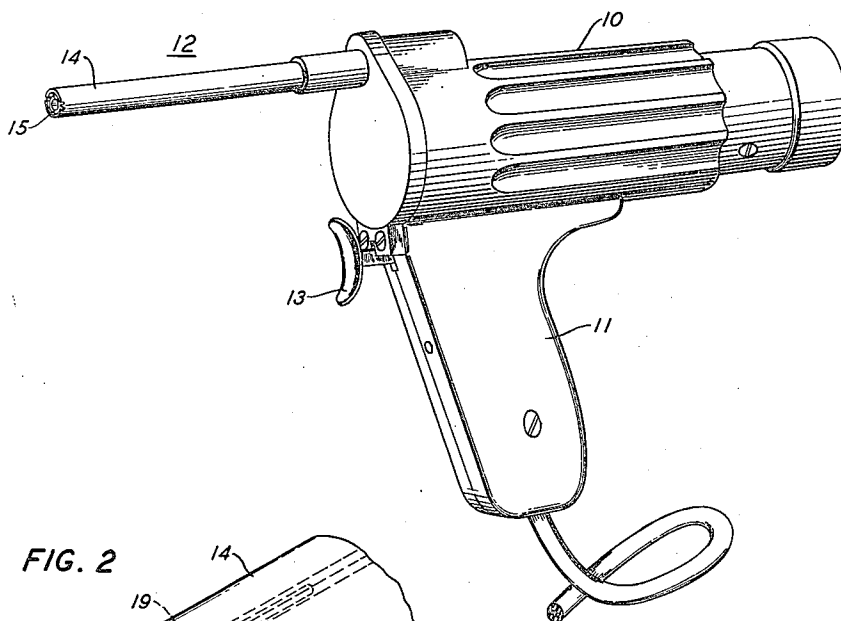


FIG. 2

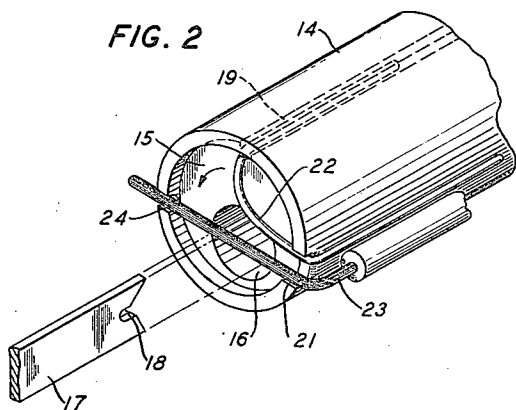


FIG. 3

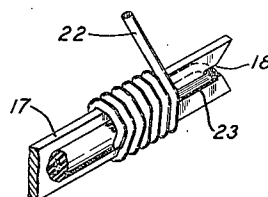


FIG. 4

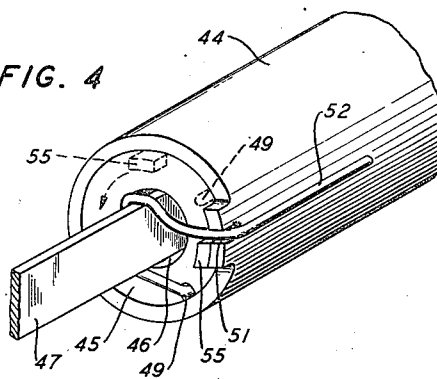
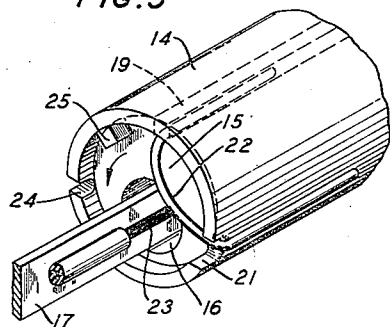


FIG. 5



INVENTOR
E. BELEK
BY John C. Morris

ATTORNEY

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WIRE WRAPPING TOOL FOR STRANDED WIRE

Emil Belek, Flushing, N. Y., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application December 28, 1951, Serial No. 263,784

2 Claims. (Cl. 242—7)

This invention relates to wiring tools and, more particularly, to such tools capable of making a wrapped wire connection on a terminal, on another wire, or a like conductor.

As is set forth more fully in Patent 2,585,010 to Hickman-Mallina-Reck, issued February 12, 1952, on application Serial No. 753,066, filed June 6, 1947, the application of Mallina, Serial No. 109,308, filed August 9, 1949, now abandoned, and the application of Mallina, Serial No. 294,607, filed June 20, 1952, a good electrical connection can be made by wrapping a wire on a suitably shaped terminal or other similar conductor. These connections may be soldered where it appears desirable, but, in general, are good connections as wrapped with no need for soldering.

One form of apparatus which has been used for making wrapped connections comprises a rotatable spindle having a substantially axial opening for receiving a terminal or like conductor and an orifice radially spaced from the opening for receiving and guiding a wire that is to be wrapped on the terminal. A rounded edge having a radius suitable for the size of wire being used is located between the orifice and the terminal opening to aid in guiding the wire during wrapping. The wire receiving orifice may be, for example, a hole in the spindle spaced from and substantially parallel to the terminal receiving opening, a longitudinal slot or groove in the surface of the spindle cooperating with a sleeve or other like element in which the spindle rotates, or other similar like means.

An object of this invention is to join a stranded or similar flexible wire to a terminal or like conductor by means of a wrapped connection.

A further object of this invention is to facilitate the making of certain types of wrapped connections by means of a tool which will both make the connection and sever the wrapping wire at an appropriate point.

A feature of this invention lies in a wire wrapping head including means for applying a stranded wire to a forked or notched terminal prior to wrapping a wire upon both the terminal and the stranded wire to produce a wrapped connection.

A further feature of this invention involves a member on the spindle cooperating with a wire holding notch to sever the initial end of a wrapping wire after a portion thereof has been wrapped on a terminal.

Other and further objects and features of this invention will appear more fully and clearly from the following description of illustrative embodiments thereof, taken in connection with the appended drawings in which:

Fig. 1 is a perspective view of a wire wrapping tool equipped with a wire wrapping head in accordance with this invention;

Fig. 2 is a perspective view of the end of one form of wire wrapping head;

Fig. 3 is a perspective view of a terminal with a stranded wire connected thereto by means of a wrapped connection;

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Fig. 4 is a perspective view of a wrapping head having means for severing a wire; and

Fig. 5 is a perspective view of a wrapping head combining the features of Figs. 2 and 4.

Referring to Fig. 1, the wire wrapping tool comprises a housing 10 including suitable operating means, a handle 11, and a wrapping head 12. A trigger or operating member 13 is mounted adjacent the handle 11 for controlling the operating mechanism. Patent 2,649,121 to F. Reck, issued August 18, 1953 on application Serial No. 15,834, filed March 19, 1948, shows an operating mechanism which may be used. The wrapping head 12 comprises a barrel or sleeve 14 and a spindle 15 rotatable therein.

As may be seen from Fig. 2, the spindle 15 is provided with a substantially axial opening 16 for receiving a terminal 17 on which a wrapped connection is to be made. The terminal 17 is provided with a fork or notch 18 for a purpose to be described. In the surface of the spindle 15 is a longitudinal groove or slot 19 which cooperates with a portion of the sleeve 14 to provide a wire receiving orifice.

On the end of the sleeve 14 is a notch 21 for receiving the initial end of a wire 22 with which the wrapped connection is to be made. Substantially diametrically opposite the notch 21 is another notch 24. These two notches are for holding a stranded or other flexible wire 23 in a position, across the opening 16, to be engaged by the fork 18 when the wiring tool is applied to the terminal 17. As may be seen from an inspection of Figs. 3 and 5, this operation folds the wire 23 into the fork 18 with portions thereof on either side of the terminal 17.

After the stranded conductor has been folded over the terminal, the wiring tool is operated in the usual manner to wrap the wire 22 around both the terminal 17 and the folded wire 23 to bind the wire 23 to the terminal, making a connection such as is shown in Fig. 3.

The wrapping head shown in Fig. 4 comprises a sleeve 44 containing a spindle 45 which is provided with a terminal receiving opening 46 and a wire receiving orifice 49. The end of the sleeve 44 is provided with a notch 51 for accommodating the initial end of a wire 52 to be wrapped on the terminal 47. The spindle 45 is provided with a projection 55 which cooperates with a wall of the notch 51 to sever the wire 52 after about three quarters of a wrap has been made. The wiring head is shown in the severing position, the initial position being indicated by the position of orifice 49 and projection 55 as shown in broken lines.

In order to facilitate operation of a wrapping head such as is shown in Fig. 2, the wire cutting feature of Fig. 4 may be added thereto as shown in Fig. 5. The various parts of this device correspond to those shown in Figs. 2 and 4 and are shown substantially in the initial position of Fig. 2 except that the terminal is partially inserted in the opening 16. In this type of tool, as in the one in Fig. 2, the stranded or flexible wire is folded into a notch in the terminal 17 and a wrapping applied thereto. However, using a cutting means as shown in Fig. 4 the initial end of the wrapping wire is severed at a point relatively close to the terminal. The parts are designated as in Fig. 2 with the projection 25 corresponding to projection 55 of Fig. 4 added.

A stranded wire may be connected to a plain unnotched terminal by laying the wire alongside of the terminal, inserting both wire and terminal in the terminal receiving opening 16 and a wrapping wire in the orifice 19 and wrapping as usual.

What is claimed is:

1. A wrapping head for a wiring tool comprising a spindle mounted for rotation in a sleeve, the spindle hav-

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ing a substantially axial opening to receive an end-notched terminal and having also an orifice spaced radially from the opening for receiving a wrapping wire, a first notch in the end of the sleeve for receiving the wrapping wire, said notch being of sufficient width to also receive a flexible conductor, a second notch in the end of the sleeve substantially diametrically opposite the first notch, for receiving a portion of the flexible conductor, whereby the flexible conductor may be laid in the terminal notch and folded along the terminal by insertion of the terminal into the spindle opening, a projection on the spindle adjacent the wire receiving orifice and radially spaced from the terminal receiving opening to cooperate with a wall of the first notch to shear off the initial end of the wrapping wire after about three quarters of a turn thereof has been wrapped around the terminal and the folded flexible conductor by rotation of the spindle, and means for rotating the spindle relative to the sleeve.

2. A wire wrapping tool for connecting a stranded wire to a forked terminal that comprises a rotatable wrapping spindle having a substantially axial terminal

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receiving opening and having also an orifice for receiving and guiding a wrapping wire, a sleeve on the spindle and having a notch for receiving a portion of the wrapping wire and also a portion of a stranded wire, a companion notch in the sleeve and spaced from the first-named notch for receiving another portion of the stranded wire for holding the stranded wire in a position to be laterally inserted in the terminal fork and folded upon the terminal when the tool is applied thereto, a projection on the spindle adjacent the periphery thereof and located circumferentially to cooperate with the first-named notch to cut the starting end of the wrapping wire upon about three quarters of a wire wrapping turn of the spindle, and means for rotating the spindle within the sleeve.

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