July 17, 1951 H. W. NORMAN ET AL 2,561,218

WIRE STRIPPING TOOL

Filed Sept. 11, 1947 2 Sheets-Sheet 1

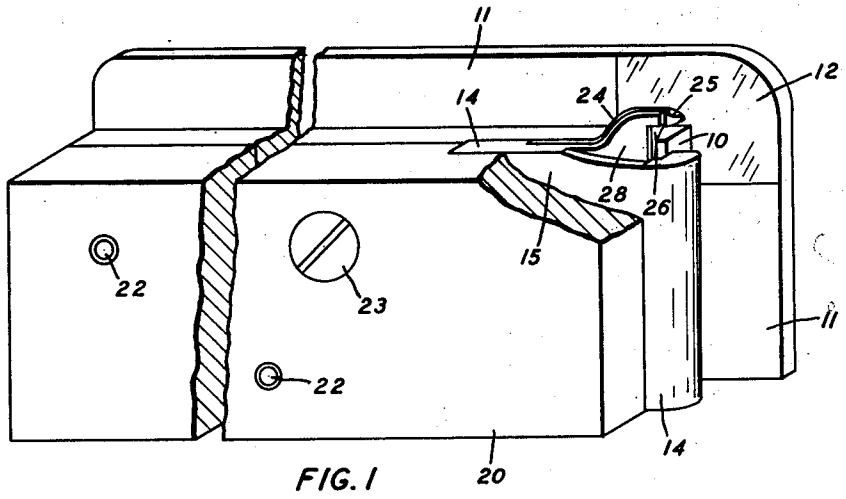


FIG. 1

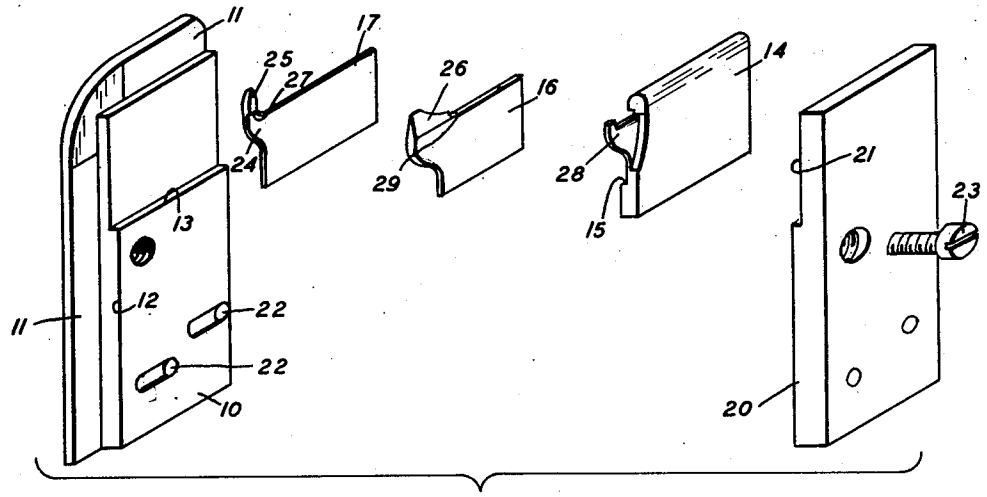


FIG. 2

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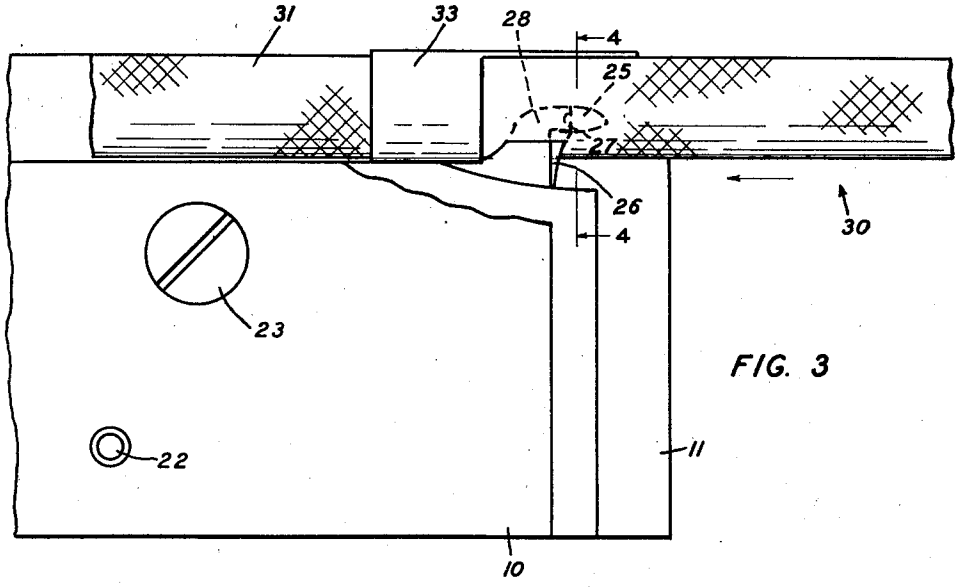


FIG. 3

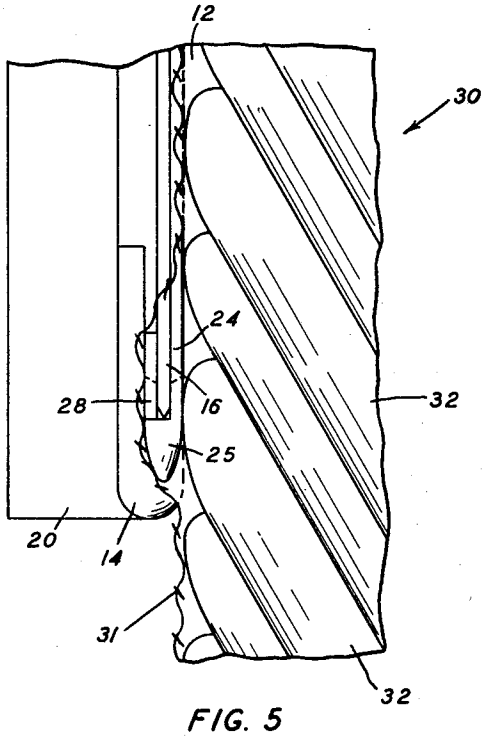


FIG. 5

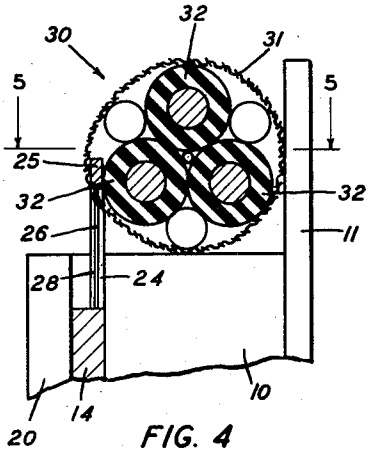


FIG. 4

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WIRE STRIPPING TOOL

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2 Claims. (Cl. 81—9.51)

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This invention relates to stripping tools, and more particularly to a tool for stripping the textile covering from the end of cords used in communications apparatus.

In general, the various types of cords used in connection with communications apparatus comprise a plurality of conductors twisted together and covered by suitable textile covering which has been applied by conventional knitting or braiding operations. In the manufacture of such cords it is necessary to remove the textile covering from the end of the cord so that terminal lugs can be clamped on the ends of the individual conductors by suitable automatic machines. In the past the operator of the terminal clamping machine removed the portion of the textile covering by means of scissors. This method of removing the textile covering proved to be costly, time-consuming and very tiring on the operator.

An object of the invention is to provide new and improved tools for stripping textile coverings from cords.

A tool for stripping the textile covering from the ends of cords embodying certain features of the invention comprises a round-nosed nib for piercing the textile covering at the starting point of the stripping operation, a knife blade positioned against the opposite side of the nib having its cutting edge slightly back of and below the nib for slitting the covering as the end thereof is drawn across the nib, and means spacedly positioned with respect to the piercing means and associated knife edge for directing the end of the cord along a predetermined path with respect to the nib and associated slitting knife.

A complete understanding of the invention will be had from the following detailed description of a specific embodiment thereof, when read in conjunction with the appended drawings, in which:

Fig. 1 is an isometric view of a braid stripping tool embodying specific features of the invention;

Fig. 2 is an exploded view showing each component of the tool, shown in Fig. 1 in its proper position with respect to the associated parts of the tool;

Fig. 3 is an enlarged, front elevation of the tool showing a cord positioned on the tool with the braid thereof engaged by the knife of the tool;

Fig. 4 is an enlarged, sectional view taken along line 4—4 of Fig. 3, and

Fig. 5 is an enlarged, sectional view taken along line 5—5 of Fig. 4.

Referring now to the drawings, and more particularly to Figs. 1 and 2, a rectangular base 10

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is provided with a thin flange 11 extending along the top and right hand side thereof and forming an elongated shoulder 12 at its junction with the base. The base 10 is provided with a recessed portion 13 which is designed to receive a retainer 14, the depth of the recess 13 being substantially less than the thickness of the retainer. The retainer 14 is provided with a groove 15 in which a thin knife blade 16 and a relatively thin pilot member 17 are positioned in the order named. The retainer 14, having the blade 16 and the pilot member 17 assembled in the groove 15, is positioned in the recess 13 of the base 10, in which position the retainer 14 serves to hold the blade 16 and the pilot member 17 against the surface of the recess 13. A plate 20 is provided with a recessed portion 21 and is arranged to be positioned on the base 10 so that the recess portion 21 engages the portion of the retainer 14 extending beyond the recess 13 of the base 10. A pair of dowel pins 22—22 serve to properly align the clamping plate 20 with respect to the base 10 and a screw 23 is arranged to threadedly engage a tapped bore provided in the base 10 and thereby clamp the plate 20 tightly on the base 10. The above-described parts are assembled in this manner to form the composite stripping tool shown in Fig. 1.

The pilot member 17 is provided with a vertical ear 24 having a round-nosed nib 25 formed on the right side thereof and extending substantially to the right of the front edge of the pilot member 17. The blade 16 is provided with a short, arcuate-shaped knife edge 26 on the upper end thereof, the extreme top edge of which is arranged to butt against a shoulder 27 formed at the base of the nib 25. The retainer 14 is provided with an ear 28 of substantially the configuration as the ear 24 which causes the nib 25 of the pilot member 17, in which case, the upper end of the ear 28 also engages the shoulder 27 at the base of the nib 25. The ears 24 and 28 are shaped to expose only a desired portion of the cutting edge of the knife 26 from the under side of the nib to the top edge of the retainer 14. The base of the arcuate-shaped knife edge 26 extends beyond the front edge of the blade 16 to form a shoulder 29 which abuts the top edge of the retainer when it is assembled therein and serves to hold the knife edge in position with respect to the nib 25. The retainer 14 and the pilot member 17 are assembled in the tool so that the bottom edges thereof are flush with the bottom of the base 10 and the plate 20, which arrangement locates the nib 25 with respect to the shoulder

12 of the base 10. The right hand corner of the flange 11 is highly polished and a portion of the right hand corner of the shoulder 12 adjacent to the nib 25 is rounded and polished, which two surfaces serve to guide a cord as it is drawn across the nib 25 in a manner to be hereinafter described.

Referring now to Figs. 3 and 4, it will be noted that the end of a cord indicated generally at 30 is shown in the slitting position on the tool, that is, after the nib 25 has pierced and entered inside a textile covering 31, enclosing a plurality of conductors 32—32 spirally twisted together to form the core of the cord 30. In this position, the cord 30 is squeezed in between the flange 11 and the ear 24 which carries the nib 25, and the bottom of the periphery of the cord is resting on the shoulder 12, as shown in Fig. 5. When the nib enters inside the covering 31, the under side thereof engages the inside of the covering and tends to hold the cord down on the shoulder 12 and in between the flange 11 and the nib 25. The flange 11 is spaced from the nib 25 so that when the cord 30 is placed on the flange 11 the nib will pierce the covering 31 at a point substantially tangent to the core formed by the twisted conductors 32—32 (Fig. 5). The shoulder 12 is located with respect to the nib 25 to prevent the nib from engaging the inside of or projecting through the portion of the covering 31 disposed directly above the portion pierced by the nib, thereby acting to keep the nib inside the covering. The position of the nib 25 with respect to the flange 11 and the shoulder 12 is critical with respect to the operation of the tool and is determined in each case from the diameter of the cord from which the textile covering is to be stripped.

The nib 25 (Figs. 1 and 3) is designed to be capable of passing through the interstices of the textile covering 31, which may be knitted or braided on the cord 30, and yet not sharp enough to cut into or damage the insulation on the conductors 32—32. Since the knife edge 26 is clamped between the ear 24 which carries the nib 25 and the ear 28 of the retainer 14 in the manner hereinbefore described, it cannot touch the conductors 32—32 (Fig. 5) as the nib passes through the covering. A stay band 33 has been attached on the cord 30 a predetermined distance from the right hand end thereof, and it is necessary to remove that portion of the covering 31 which extends from the edge of the stay band 33 to the right end of the cord in order that suitable terminals may be clamped on the ends of the individual conductors 32—32.

The above-described tool operates in the following manner to strip the textile covering from the end of a cord:

Let it be assumed that the composite tool is positioned on a suitable work table in such a manner that the end of a cord, such as the cord 30 may be drawn easily across the nib 25 and the knife edge 26 of the tool in a direction indicated in Fig. 3. The end of the cord is first placed on the flange 11 of the base 10 at a relatively sharp angle so that the covering 31 is against the end of the nib at a point directly to the right of the stay band 33. Having placed the cord in this position on the flange and the nib, the cord is urged slightly against the nib and at the same time drawn to the left, which movement immediately causes the nib 25 to catch in the interstices and pierce the covering 31 at a point adjacent to the stay band 33. The nib passes into

the covering 31 until the periphery of the cord 30 rests on the rounded and polished portion of the shoulder 12, whereupon the cord 30 is now squeezed in between the flange 11 and the ear 24 which carries the nib 25. Due to the position of the nib with respect to the flange, the nib enters the covering at a point substantially tangent to the conductor core of the cord 30 as viewed in Fig. 3. The nib is positioned above the rounded corner of the shoulder 12 a distance which will permit the nib to enter a sufficient distance inside the covering, but will prevent the nib from coming out of the portion of the covering directly above the nib. After the nib 25 has pierced the covering 31, the cord 30 is then drawn across the nib in a direction substantially parallel to the longitudinal axis of the base 10 or at a slight angle thereto, which movement directs the covering directly behind the nib against the knife edge 26 which slits the covering. During the slitting operation of the covering the flat side of the nib slides along the side of the conductors and prevents them from being cut or damaged by the knife edge 26.

In the case where the covering 31 is braided loosely on the conductor core it is only necessary to draw the cord a short distance to the left, because the looseness of the covering permits the slitted portion of the covering to revolve slightly about the conductors 32—32 of the cord 30. This movement of the covering allows the knife edge 26 to make a spiral cut in the braided covering. In so doing, all of the main threads of the braided covering are cut in a very short stroke of the cord so that a substantial portion of the end of the braided covering is removed from the end of the cord as a braided tube. However, when the covering 31 is braided tightly on the cord or is a knitted type of covering, it is necessary to draw the cord 30 to the left until the entire end of the covering is slit from the stay band 33 to the end of the cord.

While the above-described tool is particularly well adapted to remove textile coverings from the ends of cords used in connection with communications apparatus, it may be readily adapted to strip various types of coverings from the ends of conductors and cables without departing from the spirit and scope of the invention set forth in the appended claims.

What is claimed is:

1. A tool for stripping the textile covering enclosing the conductor core of cords, which comprises a body member, a pair of guiding surfaces formed on the body member at right angles to each other for directing the end of a cord along a predetermined path as it is drawn across the tool to slit the textile covering thereof, a plate having a round-nosed nib supported from one corner thereof positioned against the body member, said nib being positioned with respect to the guiding surfaces so that when the end of a cord is drawn against the nib it pierces the covering at the start of the slitting operation at a point substantially tangent to the periphery of the conductor core and below the central axis of the cord and is prevented from projecting out of the covering immediately above its point of entrance, a knife blade positioned against the plate and having its cutting edge projecting from one corner thereof slightly behind and below the nib of said plate, a retainer for holding the plate and the blade in position with respect to said body member, said blade having a shoulder provided at the base of the cutting edge therefor for locating the cutting edge with respect to the

nib, and means for clamping the retainer in place against the body member.

2. A tool for stripping a braided covering enclosing the conductors of a cord, which comprises a rectangular base having guide surfaces extending along one edge thereof over which a portion of a cord may be advanced and having a recess in one face thereof, a plate having a round-nosed nib projecting from one corner at right angles to one edge thereof positioned in said recess of the base so that the nib is spaced a predetermined distance from one of the guide surfaces of the base so that the nib will pierce the braided covering as the cord is drawn across the guide surfaces, a blade positioned against the plate and having a knife edge projecting beyond and along a portion of one edge thereof, said knife edge serving to slit the braided covering as the end of the cord is drawn longitudinally across the guide surfaces, a retainer having a groove therein to align the nib and the knife edge so that the knife edge is slightly to the rear of the nib, said retainer having a shoulder

which positions the knife edge a predetermined distance below the nib and having an ear projecting therefrom so as to hold the projecting portion of the blade against the projecting portion of the plate, and means for clamping the retainer in the recess of the base so as to hold the nib and the blade a predetermined distance from the other guide surface of the base.

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