

July 5, 1932.

E. J. FOLEY

1,866,095

CUTTING TOOL

Filed April 29, 1930

FIG. 1.

FIG. 2.

FIG. 4.

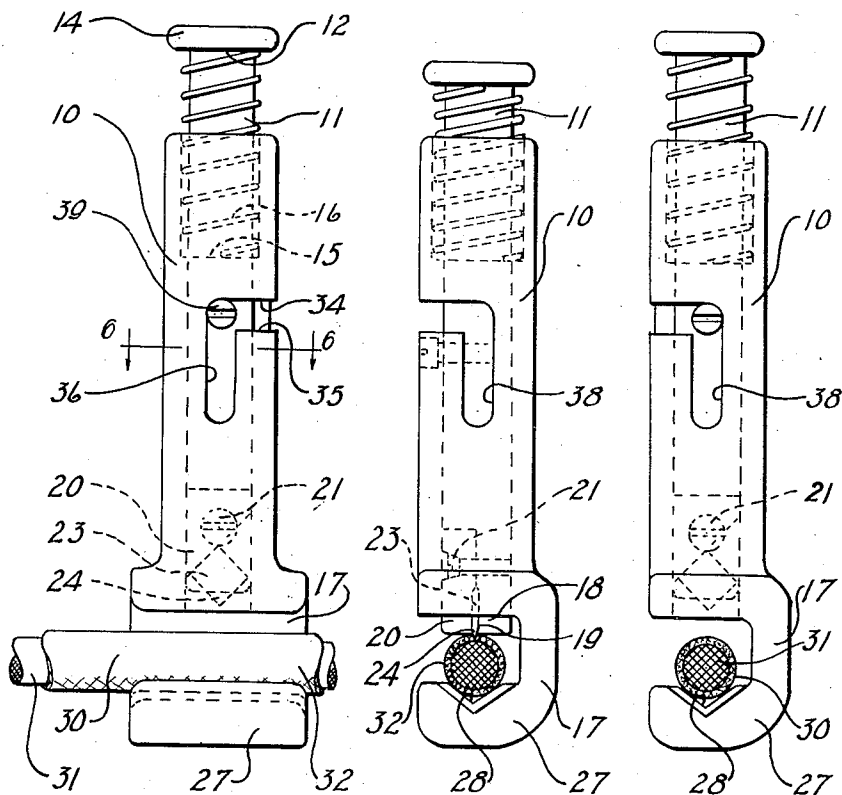


FIG. 3.

FIG. 6

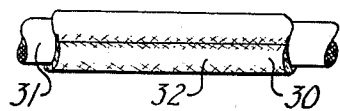
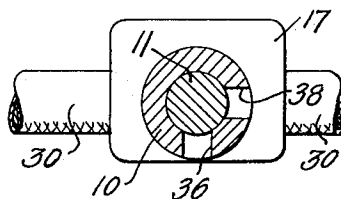
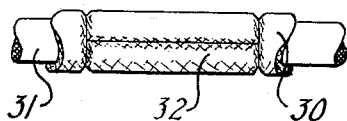


FIG. 5.



INVENTOR
E. J. FOLEY
BY
E. R. Nolan
ATTORNEY

UNITED STATES PATENT OFFICE

EDWARD J. FOLEY, OF NEW YORK, N. Y., ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

CUTTING TOOL

Application filed April 29, 1930. Serial No. 448,217.

This invention relates to cutting tools and more particularly to cutting tools for removing the covering from coated cores.

An object of the invention is to provide a simple, durable and efficient cutting tool.

One embodiment of the invention contemplates the provision, in a tool for slitting the braided textile covering of wires or cables preparatory to removing the covering therefrom, of a hollow handle which terminates in a hook-shaped portion, a jaw of which is provided with a V-shaped groove for accommodating the covered cable. A spring controlled plunger slidably mounted within the handle has a blade clamped therein and projecting from the plunger a distance corresponding to the thickness of the covering. The plunger is normally retracted within the handle but is adapted, when the handle is grasped by the operator, to be projected from the handle to slit the braided covering as the cable is drawn through the tool. A guide slot is provided with which cooperates a retaining element mounted on the plunger whereby the blade may be rotated through 90°, thus enabling the slitting of the covering either longitudinally or peripherally of the core.

A better understanding of the invention may be had by reference to the following detailed description and with the accompanying drawing forming a part thereof, in which

Fig. 1 shows a front elevation view of a cutting tool embodying the features of the invention, in retracted position;

Fig. 2 is a side elevational view of the tool shown in Fig. 1, but in cutting position;

Fig. 3 is a fragmentary showing of a coated core treated by the tool arranged as shown in Fig. 2;

Fig. 4 shows a side elevational view of the cutting tool shown in Fig. 1 with the plunger retracted, but otherwise in position to cut peripherally of the core,

Fig. 5 is a fragmentary illustration of the core treated by the tool as arranged in Figs. 2 and 4, respectively; and

Fig. 6 is a transverse section taken on line 6—6 of Fig. 1, showing the 90° spacing between the two leads 36 and 38.

Referring to the drawing, wherein similar parts are indicated by identical reference numerals, the cutting tool includes a tubular handle or sleeve 10 (Figs. 1, 2 and 4), in which is slidably mounted a rod or elongated plunger member 11, to an end 12 of which is secured a peripheral flange 14. The sleeve 10 is provided with an internal annular shoulder 15, upon which is seated a compression spring 16 which engages the flange 14 for the purpose of resiliently holding the plunger 11 normally retracted from a hook-shaped portion 17 of the sleeve. At that end adjacent the hook-shaped portion, the plunger is provided with a reduced portion 18, having a flat surface 19. A retaining block 20 is adjustably secured upon the flat surface 19 by means of a countersunk screw 21 for the purpose of rigidly mounting a cutting element or blade 23, having a sharpened corner cutting face 24. It will be noted that the blade is so positioned that the corner cutting face projects from between the members 18 and 20 a distance equal to the thickness of an article to be slit. The hook-shaped portion 17 of the sleeve is provided with a jaw 27 upon the face of which is formed a groove 28. This groove accommodates a cable 30, composed of a core 31 covered with braided or other suitable type of insulation 32, and constitutes means for positioning the cable with respect to the blade. The main portion of the sleeve 10 is provided approximately midway the ends with a U-shaped guide slot 34, having a base 35 and parallel leads 36 and 38 extending therefrom toward the hook-shaped portion. It will be understood that the lead 36 is on the face of the sleeve 10 and the lead 38 is removed therefrom by approximately 90° of the circumference of the sleeve to extend along the side thereof. A retaining pin or screw 39 secured to the surface of the plunger 11 projects into the slot 34 for the purpose of regulating the position of the blade 23 with reference to the cable.

In using the tool, the retaining screw 39 may be removed and the plunger 11 withdrawn from the sleeve 10 until the blade 23 has been correctly adjusted for the thickness of the covering to be slit. This is accom-

plished by partially unscrewing the counter-sunk screw 21 to permit adjustment of the blade between the reduced portion 18 and the retaining block, after which the screw 21 is tightened so as to rigidly assemble the blade therebetween. The plunger is then inserted in the sleeve and compressed somewhat against the tension of the spring 16 to permit registry of the retaining screw 39 therewith, whereupon the screw is tightened to position and the tool is ready for use.

In stripping insulation from cores, it is usually necessary only to produce one longitudinal slit in the core, after which the covering may be stripped off with the finger or, by rotating the tool around the cable as an axis, allowing the blade to strip the insulation therefrom.

To slit the covering 32 longitudinally, one grasps the sleeve 10 in the palm of the hand and brings the tool into engagement with the cable, the hooked portion being placed around the cable and the latter caused to rest in the groove 28. The exterior faces of the jaw 27 at the ends of the groove are bevelled or rounded as shown in Fig. 2 in order to prevent chafing of the cable as the tool is moved along it. Accordingly, the rear end of the plunger is pressed downwardly against the tension of the spring 16, causing the pin 39 to travel the extent of the guide lead 36 until the blade 23 projects toward the hooked portion and pierces the cable there compressed between the lower end of the plunger and the jaw 27. Then, with a quick motion and while retaining sufficient pressure upon the plunger to keep the blade buried in the insulation, the tool is pulled along to slit the cable longitudinally, as shown in Fig. 3, for the desired distance after which the pressure on the plunger is released. The spring 16 is then operative to draw the plunger back to its normally retracted position shown in Fig. 1, wherein the pin 39 is at the base of the U-shaped slot and the blade is completely withdrawn from contact with the insulation.

The tool may be used with equal advantage to clearly define the edges of the remaining insulation, and that which is to be removed, by turning the plunger with respect to the sleeve in an angle of 90°, causing the pin 39 to move from the face lead 36 to the side guide lead 38. As shown in Fig. 4, the blade is thus rotated to a position wherein by pressing the plunger to force the blade through the insulation and turning the tool about the cable as an axis, a peripheral cut is made in the cable. Releasing the pressure on the plunger, the tool is then slid along the cable to the opposite end of the area to be removed, and the circular cutting movement repeated. The cable then has the condition shown in Fig. 5. Releasing the plunger causes the blade supporting plunger to be retracted into the sleeve,

and permits the tool to be readily removed from the cable.

The tool described is readily adaptable for use with overhead cables as well as with those in front of the operator, for, by holding the sleeve between the fingers and pressing the plunger with the palm of the hand, the tool may be operated to slit the cable both longitudinally and peripherally as described with equal facility. By providing the blade retaining members 18, 20 and 21 for rigidly securing a blade in any predetermined position to correspond with the thickness of the insulation to be slit, it is assured that the insulation will be cut all the way through to the core; and it is also made certain that the core itself will be untouched by the blades. When once adjusted for use with cables having insulation of identical thicknesses, the embodiment presents a tool which may be used continually through numerous operations without requiring adjustment or incurring risk of getting out of order; and by its simplicity, which permits its use with one hand, the operator is enabled with the other to clear the way for its use by singling out the cable to be slit, separating it from adjacent cables, and otherwise assisting its efficient employment.

Although the embodiment described above is particularly adapted to the slitting of insulation, it is of course susceptible of other uses and numerous changes in construction without departing from the spirit of the invention, and the invention should therefore not be limited other than by the scope of the appended claim.

What is claimed is:

A slitting tool comprising a sleeve having a slot, a hook-shaped portion at one end thereof for receiving an article to be slit, a plunger mounted in the sleeve and rotatable to a plurality of positions with respect thereto, a blade projecting from one end of the plunger for slitting the article in a direction determined by the position of the plunger, and means carried by the plunger for cooperation with the slot in the sleeve for determining the position of the plunger.

In witness whereof I hereunto subscribe my name this 21st day of April, A. D. 1930.

EDWARD J. FOLEY.