

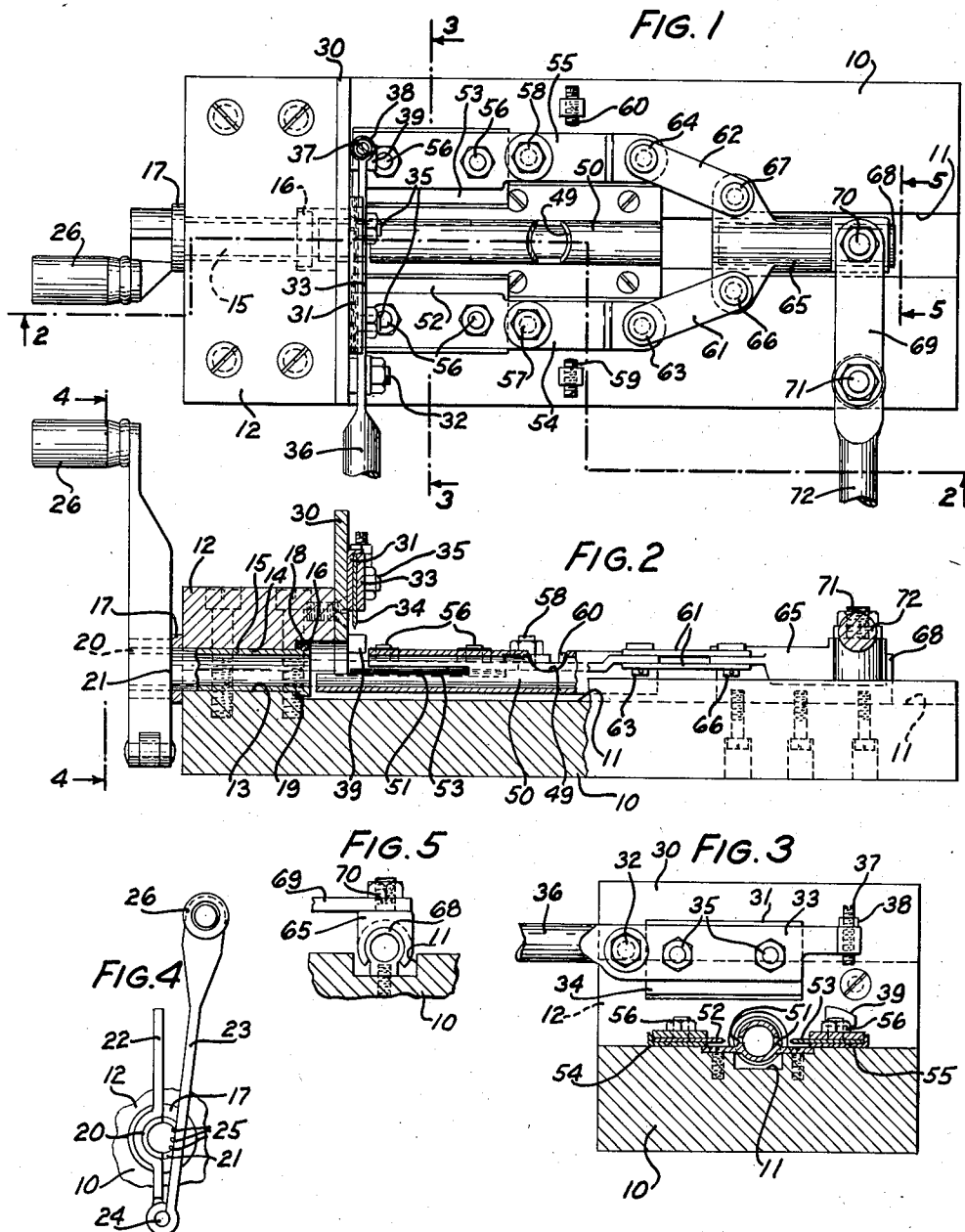
July 6, 1937.

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2,086,104

SHEATH CUTTING APPARATUS

Filed Oct. 10, 1936



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2,086,104

SHEATH CUTTING APPARATUS

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Application October 10, 1936, Serial No. 104,996

9 Claims. (Cl. 164—34)

This invention relates to sheath cutting apparatus, and more particularly to apparatus for preparing a sheath for removal from a core.

It is an object of the present invention to provide a simple and efficient apparatus for quickly cutting a sheath to render it readily removable from an article.

In accordance with one embodiment as applied to an apparatus for cutting a sheath of insulating material of an electrical conductor into sections prior to its removal from the conductor, there is provided a clamping means whereby a sheathed conductor while held in a predetermined position against longitudinal movement may be rotated, and while being rotated a vertically movable knife is moved into engagement with the sheath on the conductor to make a circular cut therein to disconnect the portion of the insulating sheath which is to be removed from the remainder of the sheath. A pair of horizontally movable knives are provided which through a toggle may be simultaneously moved into engagement with diametrically opposed portions of the sheath to cause the sheath to be cut into two separate parts as it is withdrawn from the device. After the portion of the sheath of a conductor which is to be removed has thus been separated from the remainder of the sheath and has been cut longitudinally into two separate parts, it may be easily removed from the conductor.

A better understanding of the invention may be had by reference to the following specification when considered in conjunction with the accompanying drawing, wherein

Fig. 1 is a plan view of apparatus embodying the invention;

Fig. 2 is a vertical sectional view taken substantially along the line 2—2 of Fig. 1 in the direction of the arrows;

Fig. 3 is a transverse vertical sectional view taken along the line 3—3 of Fig. 1 in the direction of the arrows;

Fig. 4 is a fragmentary detail view taken along the line 4—4 of Fig. 2 in the direction of the arrows showing the cord clamping means, and

Fig. 5 is a fragmentary sectional view taken along the line 5—5 of Fig. 1 in the direction of the arrows.

Referring now to the drawing wherein like reference numerals designate the same parts throughout the several views, the numeral 10 indicates generally a base having a groove 11 formed therein and having a superimposed guide member 12 secured to the left end thereof (Figs. 1 and 2). Formed in the base 10 and guide

member 12 are a pair of cooperating grooves 13 and 14 which form a bearing for a tubular member 15, the groove 13 being in alignment with the groove 11. The tubular member 15 has a collar 16 on the right end thereof (Figs. 1 and 2) and a cooperating collar 17 on the left end thereof to position the tubular member between the base 10 and guide block 12, the collar 17 engaging the left ends of the base and guide block and collar 16 engaging a shoulder 18 formed in the guide block, and a shoulder 19 formed in the base. The portion 20 of the tubular member 15 which extends to the left (Figs. 1 and 2) of the shoulder 17 is semicylindrical, one-half thereof being cut away, as shown at 21. The portion 20 of the tubular member 15 has secured thereto a member 22 of a clamping device which comprises the member 22 and a member 23 hinged to the member 22 at 24. Formed on the member 23 are a plurality of teeth 25 adapted to engage a rubber covered electrical conductor, part of the rubber sheath of which is to be removed from the conductor. The upper end (Fig. 4) of the member 23 is provided with a handle 26 whereby the member 23 may be moved to the left (Fig. 4) about its hinge 24 to clamp the conductor against the extension 20. Continued movement of the member 23 to the left (Fig. 4) will result in the rotation of the tubular member 15 and the conductor clamped therein by the teeth 25 will also be rotated. The conductor, the sheathing of which is to be removed, may be inserted through the tubular member 15.

Mounted upon the right end of the guide member 12 is a supporting plate 30 having a knife support 31 pivoted thereon at 32. The knife support 31 has cooperating therewith a knife retaining plate 33 by means of which a suitable knife blade 34 may be secured to the knife support, nut and bolt assemblies 35 being provided for securing the retaining plate and knife blade to the knife support. Formed integrally with the knife support 31 is an operating handle 36, whereby the knife support and the knife blade held therein may be moved into engagement with the sheath of a conductor which has been inserted through the tubular member 15.

Mounted upon the right end (Fig. 3) of the knife support 33, is a limit screw 37 having a cooperating lock nut 38 and adapted to engage a stop member 39 mounted upon the guide member 12. The limit screw 37 may be adjusted to regulate the amount of movement of the knife 34 so that the knife will be moved into and through

the sheath of the conductor, but will not engage and damage the core.

Positioned in the groove 11 is a guide tube 50 for holding the end of the covered conductor which is to be stripped in the groove during the stripping operation. This tube 50 is provided with an aperture 49 through which the conductor to be stripped may be seen and is slotted on diametrically opposite surfaces thereof as shown at 51 (Figs. 2 and 3) to permit knives 52 and 53 to be moved into engagement with the sheath of the conductor positioned in the tube. The knives 52 and 53 are mounted in knife supports 54 and 55, being secured in a place in the supports by means of nut and bolt assemblies 56-56. The knife supports 54 and 55 are similar to the knife support 33 and are pivoted to the base 10 at 57 and 58, respectively. Mounted on the base 10 are a pair of limit screws 59 and 60 similar to the limit screw 37 for limiting the amount of movement of the knives 52 and 53. These limit screws 59 and 60 engage the knife supports 54 and 55, respectively, and may be adjusted to permit the knives to cut the sheath and to prevent them from damaging the core.

The right ends (Figs. 1 and 2) of the knife supports 54 and 55 have toggle links 61 and 62 pivoted thereto at 63 and 64, respectively, and the right ends (Figs. 1 and 2) of the toggle links 61 and 62 are pivoted to a slidable yoke 65 at 66 and 67. The yoke 65 is slidably mounted upon a tubular member 68 suitably mounted in the groove 11, and has an actuating lever 69 pivoted thereto at 70. The actuating lever 69 is oscillatable about a pin 71 secured to the base 10, and when the actuating lever 69 is operated by its handle 72, it will cause the left hand ends of the knives 52 and 53 to be moved into or out of engagement with the sheath of a conductor positioned in the apparatus.

When the hereinbefore described device is used for stripping rubber insulation from a core of copper wire, the rubber covered wire may be inserted through the tubular member 15, guide tube 50 and tubular member 68 a predetermined distance as determined by the amount of insulation it is desired to remove from the wire. Stops of any conventional type may be provided in the groove 11 against which the end of the covered wire may be moved if it is desired to cut the same amount of insulation from a large number of wires. After the wire has thus been inserted through the tubular member 15, guide tube 50 and tubular member 68, the handle 26 may be moved to the left (Fig. 4) to clamp the cord between the member 22 of the clamping device and the member 23, whereupon the left end of the handle 36 may be raised (Fig. 3) to move the knife blade 34 into engagement with the insulating material of the cord and while the knife is pressed downwardly the clamping device may be rotated by a continued movement of the handle 26 to make a circular cut through the insulation on the wire, the limit screw 37 having been adjusted to permit the knife to move downwardly to such an extent as to cut through the insulation without damaging the wire. After the piece of sheath or insulation to be removed has been severed from the remainder of the sheath by the operation of the knife 34 and clamping device, the knife 34 may be moved to inoperative position by lowering the left end (Fig. 3) of the handle 36 and the lever 69 may be rocked about its pivot 71 in a counterclockwise direction to force the knives 52 and 53 through the insulation on the

cord at diametrically opposed portions thereof, whereupon the knives 52 and 53 being held in cutting relation with the sheath of the cord, the cord may be pulled out through the tubular member 15 and during its movement out of the device the cut-off portion of the sheath will be slit lengthwise into two separate pieces by the knives 52 and 53, thereby making the severed portion of the sheath easily removable from the wire.

Although a specific embodiment of the invention has been described, it will be understood that the device is subject to many modifications without departing from the scope of the appended claims.

What is claimed is:

1. A sheath cutting apparatus comprising means for rotating a sheathed core, a cutting member movable to cut a section of the sheath from the remainder of the sheath, and cooperating cutting members for cutting the section of sheath in two elongated parts.
2. A sheath cutting apparatus comprising means for rotating a sheathed core, a cutting member movable into engagement with the sheath while it is being rotated to cut a section of the sheath from the remainder of the sheath, and cooperating cutting members for cutting the section of sheath in two elongated parts.
3. A sheath cutting apparatus comprising means for rotating a sheath core, means movable into engagement with the sheath of the core during its rotation for cutting the sheath circularly, and means operable during the withdrawal of the sheathed core from the apparatus for cutting the sheath into two elongated strips.
4. A sheath cutting apparatus comprising means for rotating a sheathed core, means movable at right angles to the axis of rotation of the core for severing a section of the sheath from the remainder of the sheath, and means movable into engagement with the sheath at diametrically opposed points for cutting the section of the sheath which is to be removed into two separate parts.
5. A sheath cutting apparatus comprising a series of tubular members through which a sheathed core may be inserted, means for rotating one of said tubular members, a clamping device mounted on the rotatable tubular member for clamping the sheathed core thereto during the rotation thereof, a cutting means associated with the rotatable member for forming a circular cut through the sheath during the rotation of the sheathed core, and means for cutting a portion of the sheath into two separate parts during the withdrawal of the sheathed core from the apparatus.
6. A sheath cutting apparatus comprising a series of tubular members through which a sheathed core may be inserted, means for rotating one of said tubular members, a clamping device mounted on the rotatable tubular member for clamping the sheathed core thereto during the rotation thereof, a cutting means associated with the rotatable member for forming a circular cut through the sheath during the rotation of the sheathed core, and a pair of cutting members movable into engagement with the sheath at diametrically opposed surfaces thereof for cutting the sheath into two separate parts during its removal from the apparatus.
7. A sheath cutting apparatus comprising a series of tubular members through which a sheathed core may be inserted, means for rotating one of said tubular members, a clamping de-

vice mounted on the rotatable tubular member for clamping the sheathed core thereto during the rotation thereof, a cutting means associated with the rotatable member for forming a circular cut through the sheath during the rotation of the sheathed core, and a pair of cutting members movable into engagement with the sheath at diametrically opposed surfaces thereof for cutting the sheath into two separate parts during its removal from the apparatus comprising a member slidable upon one of the tubular members and having toggle levers interconnecting it with the cutting members to move the cutting members into engagement with the sheath.

8. In a sheath cutting apparatus, the combination with means for severing a section of sheath from the remainder of the sheath, of a pair of diametrically opposed knives, means for pivotally supporting said knives whereby they may be moved into engagement with the sheath, actuat-

ing means for said pivotal supports comprising a support member through which the sheath to be cut may extend, a yoke slidably positioned on said tubular member, linkage members interconnecting said yoke with the knife supports, and an actuating lever for operating said yoke.

9. A sheath cutting apparatus comprising a base, a tubular member rotatable in said base for receiving a sheathed core, means for clamping said sheathed core in the rotatable tubular member, means movable into engagement with the core for cutting through the sheath during the rotation of the tubular member, an actuating lever mounted upon said base, and a pair of cutting members actuatable by said actuating member for forming cuts in the sheath in the direction of its length during the withdrawal of the sheath from the apparatus.

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