Dec. 25, 1945. C. V. LUNDEEN 2,391,721

INSULATION SLITTING TOOL

Filed April 8, 1944 2 Sheets-Sheet 1

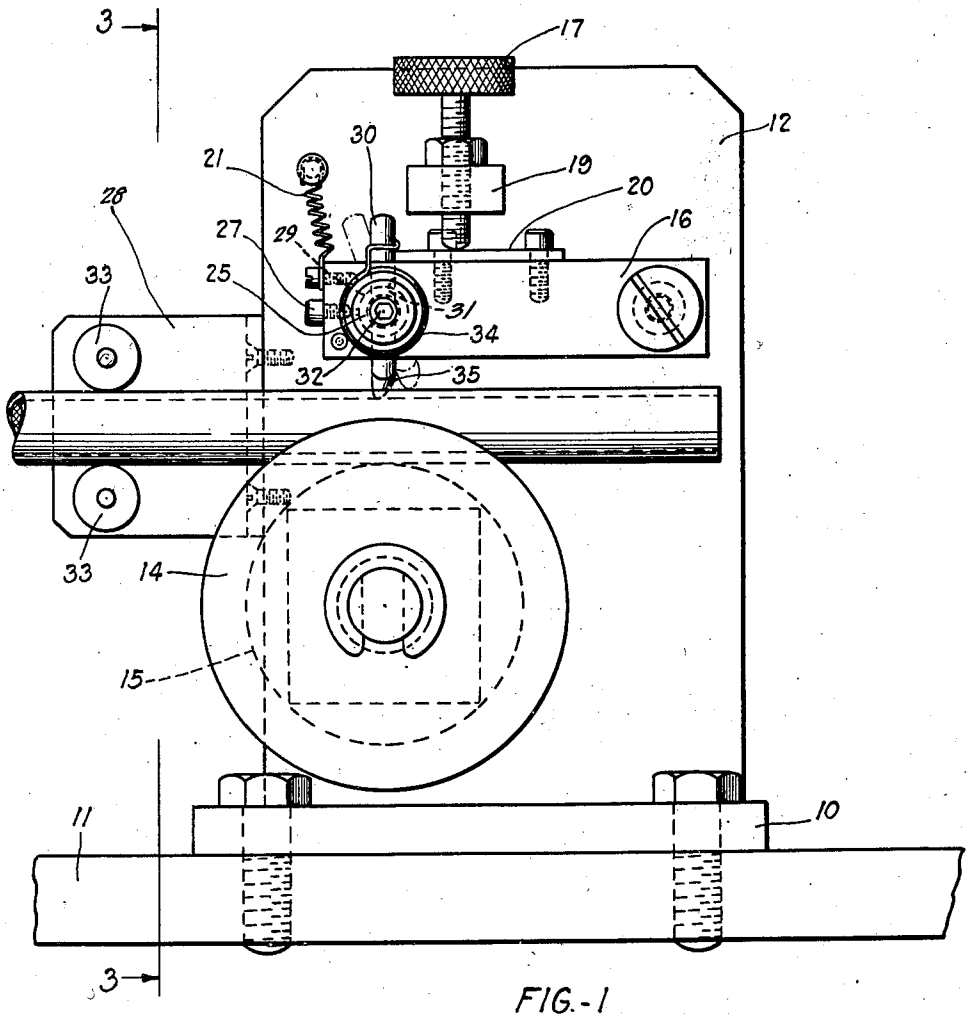


FIG. - 1

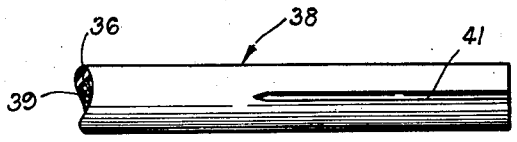


FIG. - 2

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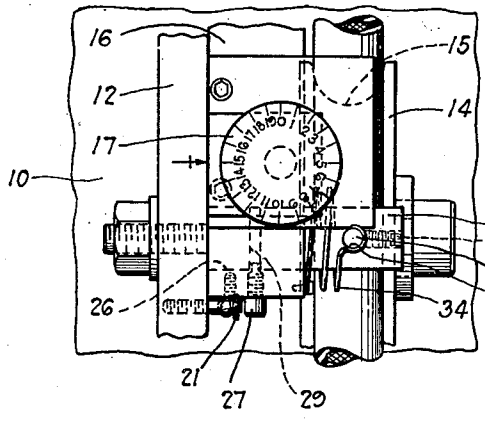


FIG. - 4

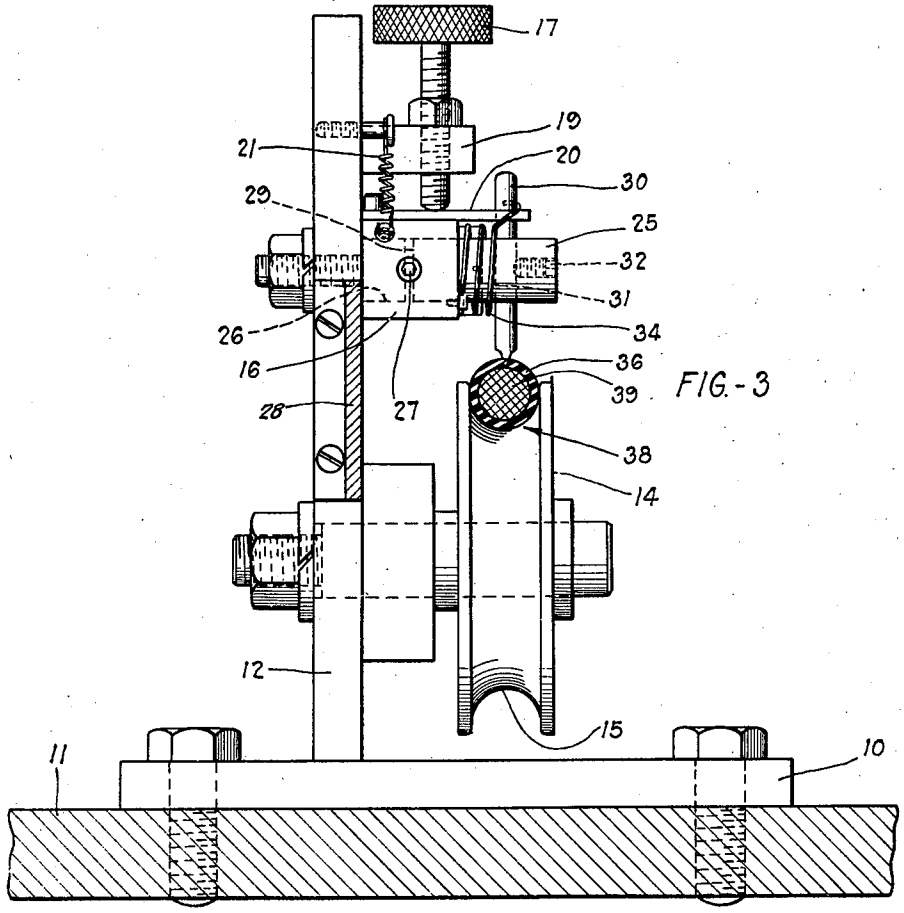


FIG. - 3

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UNITED STATES PATENT OFFICE

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INSULATION SLITTING TOOL

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Application April 8, 1944, Serial No. 530,164

16 Claims. (Cl. 164—36)

This invention relates to insulation slitting tools and has for its object the provision of new and improved insulation slitting tools.

One fixture embodying the invention comprises a base, an upright secured to the base, a cutting blade, means for securing the blade to the upright, and means for holding an article against the blade.

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

Fig. 1 is a side elevation of a fixture embodying the invention;

Fig. 2 is a plan view of a cable slit by the fixture shown in Fig. 1;

Fig. 3 is a vertical section of the fixture taken along line 3—3 of Fig. 1, and

Fig. 4 is a fragmentary plan view of the fixture.

Referring more specifically to the drawings, there is illustrated a device for slitting insulating jackets on wires, cables and the like. This device comprises a horizontal base plate 10 (Fig. 1), which is bolted to the top of a work table 11, and which has a vertical plate 12 secured thereto. A vertical guide roller 14 having a peripheral groove 15 is rotatably secured to the plate 12. The right end of an arm 16, as viewed in Fig. 1, is pivotally secured to the plate 12 and an adjustable, calibrated screw 17 (Figs. 1 and 4) mounted on a lug 19 formed on the plate 12 limits the clockwise movement of the arm 16, as viewed in Fig. 1, by acting as an abutment against which a plate 20 bolted to the top of the arm 16 strikes. A tension spring 21 attached to the plate 12 and to the arm 16 urges the arm upwardly.

A pin 25 (Fig. 3) is rotatably secured in an aperture 26, formed in the arm 16, by a set screw 27 projecting into a groove 29 formed in the pin 25. A cutting blade 30 having a cutting edge 35 formed on one end thereof, projects through a hole 31 formed in the pin 25 and is adjustably secured therein by a set screw 32. The blade 30 is urged in a clockwise direction, as shown in Fig. 1, with respect to the arm 16 by a torsion spring 34 (Fig. 2) secured to the blade 30 and to the arm 16. This movement of the blade 30 is limited by the plate 20.

A pair of rollers 33—33 are rotatably mounted at the left of the roller 14 on a bracket 28. These rollers serve to maintain the end of a cable 38 in a horizontal position when the end of the cable is positioned in the groove 15.

In the operation of the device described hereinabove, to slit a jacket 36 (Fig. 3) of the cable 38, the end of the cable 38 is inserted between the rollers 33—33 and through the upper portion of the groove 15 of the roller 14 from the left, as viewed in Fig. 1, the cable forcing the blade 30 to turn in a counterclockwise direction to the position shown in dotted lines in that figure as it is so inserted. After the cable 38 is inserted the desired distance, it is drawn a short distance to the left, as viewed in Fig. 1. As the cable is drawn to the left, the cable and the torsion spring 34 rotate the cutting blade 30 in a clockwise direction until the blade strikes the plate 20, at which time the cutting edge 35 projects through the jacket 36 formed on a cable core 39. The operator then draws the cable 38 farther to the left whereby a longitudinal slit such as a slit 41 (Fig. 2) is formed in the jacket 36.

The cable 38 is guided by the rollers 14 and 33—33 as it is withdrawn therefrom. The roller 14 holds the cable adjacent to and in the same plane as the cutting blade 30 and is rotated easily as the cable is drawn thereover. Thus the roller 14 does not retard the cable as the latter is withdrawn.

The rollers 33—33 maintain the end of the cable 38 in a horizontal position and rotate very easily as the cable is drawn therebetween. Thus, the cable is maintained substantially perpendicular to the cutting blade 30 during the slitting operation, whereby any movement of the cable with respect to the cutting edge 35 which might damage the cable core 39 is prevented.

The calibrated set screw 17 may be threaded farther into or out of the lug 19 to adjust the position of the cutting blade 30 with respect to the roller 14 to adapt the fixture for slitting cables whose diameters are larger or smaller than the cable 38, or to cables having thicker or thinner jackets than the jacket 36.

What is claimed is:

1. In a fixture for slitting jackets of rubber covered cables, a support, a cutting blade, an arm for pivotally mounting the cutting blade on the support, means spaced from the cutting blade for holding an article against the cutting blade whereby a portion of an article drawn therebetween is cut by the cutting blade, and a calibrated adjustment screw engaging the blade mounting means for selectively varying the distance between the cutting blade and the article holding means.

2. In a fixture for slitting jackets of rubber covered cables, a support, a cutting blade, an arm for securing the cutting blade pivotally with respect to the support in a plane parallel with the support, means for limiting the pivotal movement of the arm with respect to the support, and means spaced a predetermined distance from the limiting means for holding an article to be cut against the cutting blade.

3. In a fixture for slitting jackets of rubber covered cables, a support, a lever pivotally secured to the support, a cutting blade secured to the

lever, means for limiting the movement of the lever with respect to the support, and means spaced a predetermined distance from the limiting means for holding an article to be cut against the cutting blade.

4. In a fixture for slitting jackets of rubber covered cables, a support, a lever pivotally mounted on the support, a cutting blade pivotally secured to the lever, an adjustable calibrated set screw for limiting the movement of the lever with respect to the support, means for limiting the movement of the blade with respect to the lever, and a roller mounted on said support for forcing an article to be cut against the cutting blade.

5. In a fixture for slitting jackets of rubber covered cables, a support, an elongated blade, a pin for mounting the blade pivotally on the support, means for limiting the movement of the blade with respect to the support, and a roller positioned adjacent to the blade for guiding a cable past the blade, whereby the blade is pressed against the limiting means and cuts the insulating jacket of the cable.

6. In a fixture for slitting jackets of rubber covered cables, a support, a lever pivotally mounted on the support, a cutting blade secured to the lever, an adjustable stop for limiting the movement of the lever with respect to the support, means for urging the lever against the stop, and a roller mounted on said support for forcing an article against the cutting blade.

7. In a fixture for slitting jackets of rubber covered cables, an upright support, a cutting blade pivotally mounted on the support, means for limiting the pivoting movement of the cutting blade in one direction, means for holding a cable against the cutting blade, and means for urging the cutting blade toward the limiting means, whereby the cutting blade penetrates and slits a jacket of the cable as the cable is drawn between the holding means and the blade.

8. In a fixture for slitting jackets of rubber covered cables, an upright support, a lever pivotally secured to the support, a blade secured to the lever, a stop for limiting the movement of the lever with respect to the support, a roller positioned in the plane of movement of the lever a predetermined distance from the end of the cutting blade when the lever abuts the stop, means for adjusting the position of the stop, and means for urging the lever toward the stop.

9. In a fixture for slitting jackets of rubber covered cables, an upright, a lever pivotally secured at one end thereof to the upright, means for limiting the pivotal movement of the lever with respect to the upright, a cutting blade, means for securing the blade to the free end of the lever for rotation about the transverse axis of the blade, means for limiting the rotation of the blade, and means positioned a predetermined distance from the end of the blade when the blade and the lever are in positions limited by the above mentioned limiting means for holding an article against the end of the blade.

10. In a fixture for slitting jackets of rubber covered cables, an upright, a lever pivotally secured at one end thereof to the upright for movement in a vertical plane, a lug having a tapped bore therethrough secured to the support, a calibrated set screw threaded into the tapped bore for limiting the upward movement of the lever, a spring for urging the lever upwardly, a pin rotatably secured to the free end of the lever, a cutting blade secured to the pin in such a manner that the ends of the blade project beyond the periphery of the pin, a torsion spring secured to the pin and to the lever tending to rotate the pin with respect to the lever, a stop secured to the lever for limiting the rotation of the pin caused by the torsion spring to a position in which the point of the blade is directed downwardly, a grooved roller rotatably secured to the upright in a vertical plane directly below the point of the blade for holding a cable against the blade, and a pair of guide rollers for maintaining the cable substantially perpendicular to the cutting blade when the point of the cutting blade is directed downwardly.

11. In a fixture for slitting jackets of rubber covered cables, a support, an elongated cutting blade, means for mounting the cutting blade pivotally on the support about an axis transverse to the blade, a stop, means for urging the blade toward the stop, and means spaced a predetermined distance from the cutting blade for holding a jacketed cable against the cutting blade, whereby the jacket of a cable drawn in one direction between the holding means and the cutting blade is cut by the cutting blade to a predetermined depth but is not cut when the cable is drawn therebetween in the opposite direction.

12. In a fixture for slitting jackets of rubber covered cables, a support, an elongated cutting blade pivotally secured on the support for pivotal movement about an axis perpendicular to and intersecting the longitudinal axis of the blade and provided with a cutting edge, a stop, means for yieldably urging the cutting blade toward the stop, and a roller spaced a predetermined distance from the cutting edge, whereby the jacket of a cable drawn in one direction between the cutting blade and the roller is cut to a predetermined depth but is not cut when the cable is drawn therebetween in the opposite direction.

13. In a fixture for slitting jackets of rubber covered cables, a support, a cutting blade pivotally secured to the support, means for limiting the movement of the cutting blade in one direction, means for urging the cutting blade in the same direction, a roller spaced from the edge of the cutting blade, and means for selectively varying the distance between the edge of the cutting blade and the roller, whereby the jacket of a cable drawn between the cutting blade and the roller is cut to a predetermined depth.

14. In a fixture for slitting jackets of rubber covered cables, an elongated cutting blade, means for mounting the cutting blade for pivotal movement about a transverse axis thereof, means for limiting in one direction the pivotal movement of the blade, and an abutment positioned near the blade for holding a cable against the blade.

15. In a fixture for slitting jackets of rubber covered cables, an elongated cutting blade, means for mounting the cutting blade for rotation about an axis perpendicular to and intersecting the longitudinal axis thereof, a stop for limiting in one direction the rotation of the cutting blade, and a grooved roller mounted adjacent to the cutting blade for guiding a cable past the cutting blade.

16. In a fixture for slitting jackets of rubber covered cables, a cutting blade, means for mounting the cutting blade for rotation, means for limiting the rotation of the blade in one direction, and an abutment for holding a cable in a position in which the cutting blade can engage the cable.

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