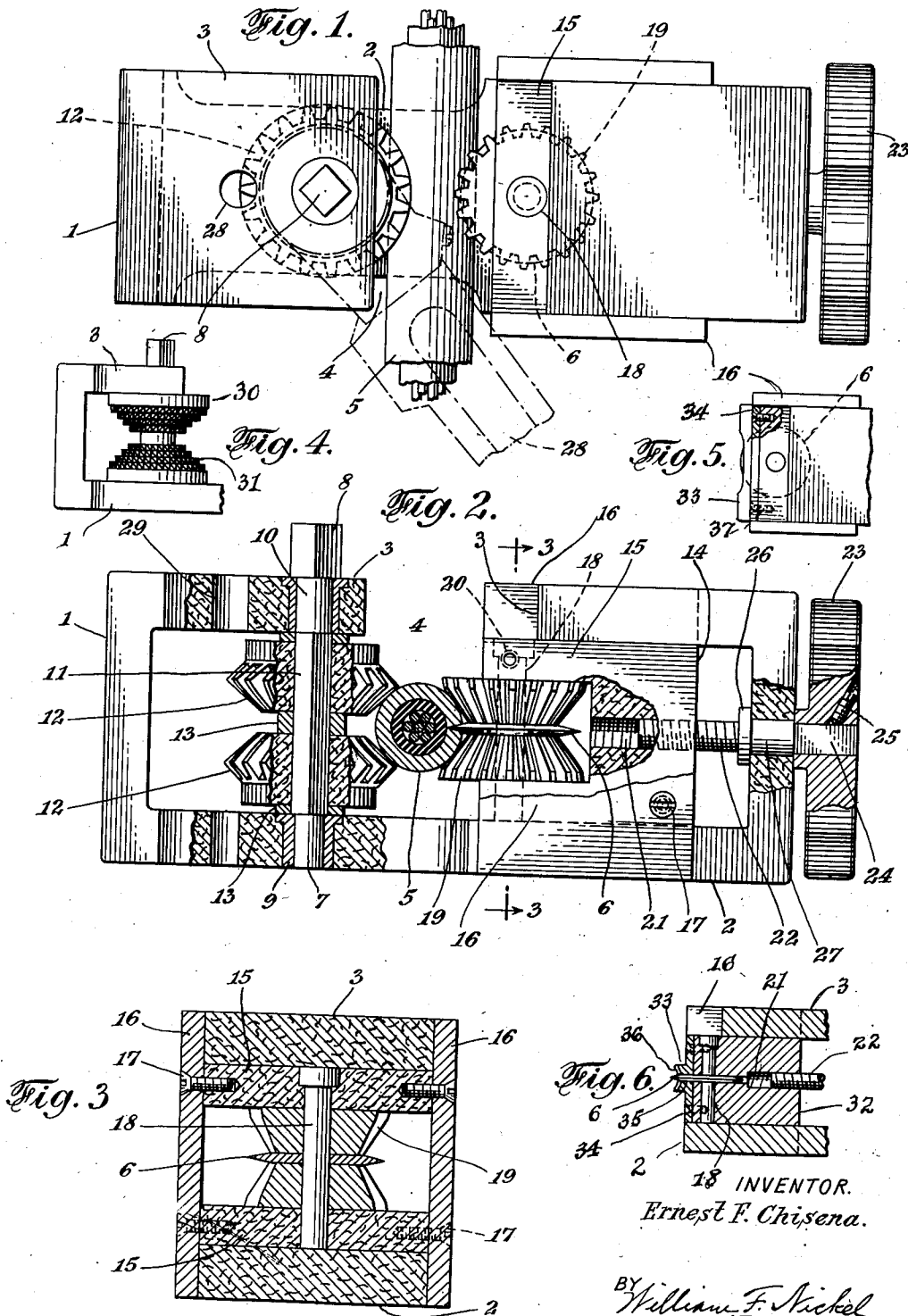


Aug. 4, 1953

E. F. CHISENA
CABLE INSULATION CUTTER

2,647,309

Filed May 22, 1950



UNITED STATES PATENT OFFICE

2,647,309

CABLE INSULATION CUTTER

Ernest F. Chisena, Brooklyn, N. Y.

Application May 22, 1950, Serial No. 163,467

3 Claims. (Cl. 30—91)

1

My invention is an improved cable insulation cutter, and more particularly an implement for slitting the outer tubular casings of electric cables when part of the casing or sheath has to be opened to give access to the insulated conductors inside the cable.

An important object of this invention is to provide a handy implement which can easily be manipulated by an electrical lineman to cut the outside sheath of an electric cable without risk of injury to one's hands or fingers.

Such cables have tubular casings or sheaths of metal such as lead, or other protective material which is resistant to the edge of a cutting blade and if the workman had to rely upon an ordinary knife, the operation would be risky and difficult. With this invention the slitting of such a sheath or casing is greatly facilitated, and all danger of injury is obviated. The implement not only opens the casing quickly but also holds the cable securely while the operation is being performed.

In its preferred form, the implement comprises a frame or body in which are mounted suitable members for seating the cable, and a cutting member for severing the sheath or casing in the manner required. Both the seating members and the cutting member are movable, and the implement has means for operating the seating members and shifting the frame, so that the cutting is progressively and smoothly accomplished from start to finish.

The drawings illustrate a preferred embodiment of the invention, and the construction and mode of use are fully explained herein. But the disclosure is by way of example only and I may vary the structural details without departing from the general combination of parts defined in the appended claims.

On the drawing:

Figure 1 is a top plan of a cutting implement according to this invention.

Figure 2 is a side view thereof, partly broken away and in section.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a view showing a detail in modified form, and

Figures 5 and 6 are respectively a side and sectional view of another design of parts associated with the cutter member of the implement.

The body or framework 1 has a continuous side 2, between the two ends, but the opposite side 3 has a gap 4. The framework thus has approximately the shape of a C when viewed edgewise, and the gap 4 gives admission to the

2

cable 5. This framework can be made of plastic, metal, wood, or other suitable material. At one side of the gap or opening 4 the framework carries a rotatable cutting disk 6 having an acute edge around the rim; and at the opposite side of the gap is a shaft 7, parallel to the axis of the cutter member, with one end 8 square for engagement by a tool, and projecting to the outside of the body 1. The sides 2 and 3 have openings with bearing sleeves or linings 9 in which rounded portions 10 of the shaft are seated. Between the portions 10 the shaft is preferably square as indicated at 11, and on this square section are two bevelled gears 12. These gears face each other and the teeth thereof have edges which effectively engage the cable 5. The gears are separated by a washer 13 and a similar washer is between each gear and the adjacent sleeve 9.

The cutter member 6 is rotatably mounted in a slidable crosshead 14 disposed between the side 2 and part of the side 3. This crosshead is shaped like the letter U lying on one side and has arms 15 in contact with the inner faces of the sides 2 and 3. To the crosshead are secured side plates 16 by screws 17, these plates overlapping the sides 2 and 3 to maintain the head in position. The ends of the arms 15 of the yoke-shaped head carry a pin 18 on which the disk 6 turns, and this disk is flanked by bevel gears 19 on the pin 18 to serve as reentrant guiding means for the disk 6. The shaft 7 and pin 18 are parallel, and the cable 5 is firmly held between the gears 12 and 19 during the cutting operation. The pin 18 is held in place by a small locking screw 20.

In the part or base of the yoke-shaped member 14 is a threaded opening 21 which receives a threaded stud 22, extending out through a bearing opening in the end of the frame 1 and having a knob 23 on its outer end, which has a squared portion 24. A locking screw 25 affixes the knob 23 to the end 24 so that the stud can be turned. On the stud is a collar 26 abutting the inner face of the adjacent end of the body 1 and acting in conjunction with the knob to prevent longitudinal movement of the stud 22. Hence, by rotation of knob 23 the disk 6 is forced against the cable or retracted. Between the collar 26 and the knob 23 the stud is round as indicated at 27.

In use the implement is manipulated to get the cable into the gap 4, laying the cable against the gears 12. The knob is then turned to force the sharp rim of the cutter disk 6 into the outer sheath of the cable and bring the gears 19 into engagement with it. In this position of the parts

3

the edge of the disk 6 is deep enough in the cable to cut through the sheath; and then a tool 28 is slipped upon the end 8 of the shaft 7 and the gears 12 turned. Thus the implement is fed along the length of the cable as far as the cutting or slitting should be accomplished. The cable is firmly held in the body 1 and there is no risk of injury to the workman.

If desired the sides 2 and 3 can have additional openings 29 to locate the shaft 7 farther from the disk 6 when large cables are to be cut.

The implement is simple and inexpensive, easy and certain in operation, and is well adapted to serve its intended purpose.

In Figure 4 a different type of gear 30 to be mounted on the shaft 7 is illustrated. This gear 30 is also bevelled or conical and has several annular rows of teeth 31 of different diameters. With two such gears the implement works better with large or small cables, particularly the latter.

Figures 5 and 6 illustrate a head 32 carrying the cutter disk 6 with guide members 33 associated with the disk 6 instead of gears 19. This head is merely a block with a slot for the disk 6 and retainer or guide plates 16 as before affixed to its sides. The head 32 is again adjusted by means of a knob 23 and a threaded stud 22 engaging a threaded opening 21 in the rear of the head. The guide ribs 33 project beyond the front of the head and their forward edges are spanned by a plate 34 having a slot 35 through which the disk 6 projects. The guide members or ribs 33 extend across the plate 34 above and below the slot 35 and have concave faces 36 inclined inward like the rims of the disks 19 towards the slot 35. The plate 34 is made fast to the head 33 by screws or other fasteners 37. This cross-head can advantageously be used with the type of gears 30 shown on Figure 4.

Having described my invention, what I believe to be new is:

1. An implement for longitudinally slitting the outer tubular casings of cables comprising a C-shaped frame having a gap in one side, a shaft rotatably supported in said frame adjacent said gap, bevelled gears facing each other mounted on said shaft to turn therewith, said shaft having an end projecting from the frame and shaped for engagement by a tool, a cross head slidably mounted in the frame, the gap being between the shaft and the head, guide plates on the sides of the head overlapping and engaging the outer sides of the frame, a pin on said head parallel to said shaft, a rotatable cutter disk on the pin projecting from the front end of the head, guide means having faces inclined towards the disk on the front of the head and projecting therefrom adjacent both faces of the disk in line with said gears, the gap permitting passage of a cable between the disk and said gears, to be engaged on opposite sides by the gears and guide means, a threaded stud in the frame and engaged so as to be held against longitudinal movement, a knob on the stud to turn the stud, the head having a threaded bore receiving said stud.

2. An implement for longitudinally slitting the outer tubular casings of cables comprising a C-shaped frame, having a gap in one side, a shaft

4

rotatably supported in said frame, adjacent said gap, bevelled gears facing each other mounted on said shaft to turn therewith, said shaft having an end projecting from the frame and shaped for engagement by a tool, a cross head slidably mounted in the frame, the gap being between the shaft and the head, guide plates on the sides of the head overlapping and engaging the outer sides of the frame, a pin on said head parallel to said shaft, a rotatable cutter disk on the pin projecting from the front end of the head, guide means having faces inclined towards the disk on the front of the head and projecting therefrom adjacent both faces of the disk, in line with said gears, the gap permitting passage of a cable between the disk and said gears to be engaged on opposite sides by the gears and guide means, a threaded stud in the frame and engaged so as to be held against longitudinal movement, a knob on the stud to turn the stud, the head having a threaded bore receiving said stud, said head being yoke-shaped with its arms presented to said gears, said guide means having the form of additional bevel gears rotatably mounted on said pin, with their smaller ends abutting said disk.

3. An implement for longitudinally slitting the outer tubular casings of cables comprising a C-shaped frame, having a gap in one side, a shaft rotatably supported in said frame adjacent said gap, bevelled gears facing each other mounted on said shaft to turn therewith, said shaft having an end projecting from the frame and shaped for engagement by a tool, a cross head slidably mounted in the frame the gap being between the shaft and the head, guide plates on the sides of the head overlapping and engaging the outer sides of the frame, a pin on said head parallel to said shaft, a rotatable outer disk on the pin projecting from the front end of the head, guide means having faces inclined towards the disk on the front of the head and projecting therefrom adjacent both faces of the disk in line with said gears, the gap permitting passage of a cable between the disk and said gears, to be engaged on opposite sides by the gears and guide means, a threaded stud in the frame and engaged so as to be held against longitudinal movement, a knob on the stud to turn the stud, the head having a threaded bore receiving said stud, said head having a slot in its front receiving said disk with the edge of the disk projecting from the slot, a closure plate spanning the front ends of said guide means and having a slot for said disk, said guide means having the form of ribs on said closure plates along both edges of said slot.

ERNEST F. CHISENA.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
927,345	Furlong	July 6, 1909
1,798,683	Korab	Mar. 31, 1931
1,801,311	Johnson	Apr. 21, 1931
1,835,597	Hill et al.	Dec. 8, 1931
2,346,227	Martin et al.	Apr. 11, 1944
2,374,753	Kramer	May 1, 1945
2,391,722	Lundeen	Dec. 25, 1945