

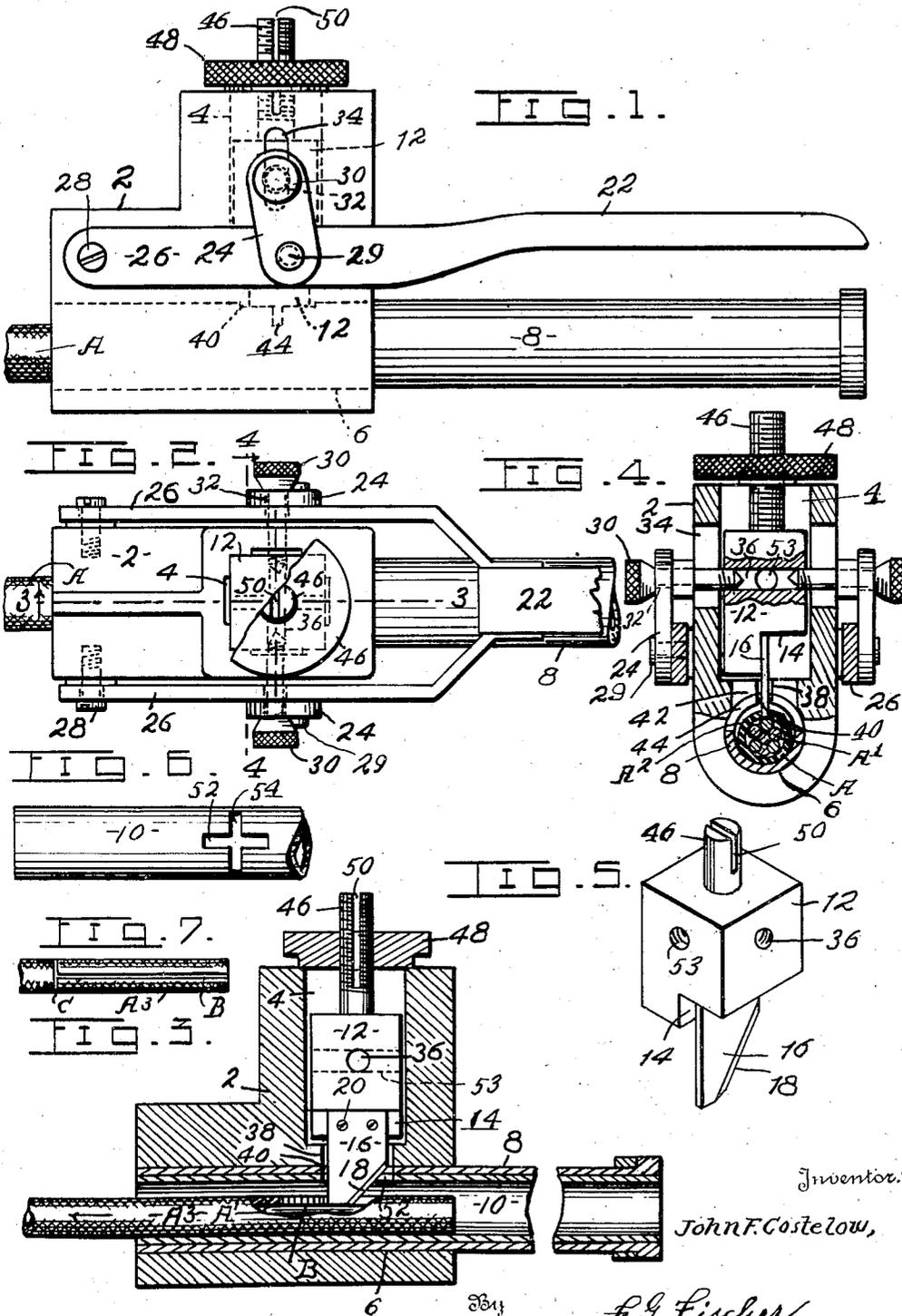
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INSULATION CUTTER

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INSULATION CUTTER

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My invention relates to a new and useful device whereby the insulating coverings of single and multiple wire cables can be quickly stripped from the ends or any other portion of said cables for all purposes such, for instance, as splicing the cables or connecting them to various electrical instruments.

My device is capable of accommodating insulations of different thicknesses and diameters and is adapted to act upon various kinds of insulation, such, for example, as fabrics, lead sheathings and all rubber insulations.

In the use of my device a blade is employed for slitting the insulation of a cable longitudinally any desired length and then cutting the insulation circumferentially at one or both ends of the slit, so that the slitted portion can be easily peeled off the cable with the fingers. The blade also enables slitting of the main outer insulation without danger of cutting or otherwise damaging the inner insulation of single or multiple cables. The blade is inclosed in a frame having a tubular guide for the insulated cables which also protects the fingers from coming into contact with the blade and being cut thereby. Interchangeable inserts of various diameters and adapted to fit in the tubular guide, or each other, are provided for cables of different diameters to keep the latter from turning axially or shifting laterally and thereby becoming damaged while being slit.

In order that the invention may be fully understood, reference will now be had to the accompanying drawing, in which—

Fig. 1 is a side elevation of the device.

Fig. 2 is a broken top plan view thereof.

Fig. 3 is a broken longitudinal section on line 3—3 of Fig. 2.

Fig. 4 is a cross section on line 4—4 of Fig. 2.

Fig. 5 is a detail perspective view of the blade and a holder therefor.

Fig. 6 is a fragmentary top plan view of a tubular guide.

Fig. 7 shows a fragment of a small cable with the insulation slit longitudinally and cut circumferentially.

In order to avoid confusion in the following description and claims as to the position and direction of movement of parts, it will be assumed that the device is disposed in a horizontal position as disclosed by Fig. 1.

In carrying out the invention I employ a frame 2 having a vertical recess 4 in its upper portion and a bore 6 extending longitudinally through its lower portion. The bore 6 is provided with a tubular guide 8 of suitable length firmly secured

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at one end within said bore and adapted to guide cables when their insulation is being slit. Figs. 1, 2 and 4 disclose a large cable A in the tubular guide 8, comprising a multiple of insulated wires A' enclosed in insulation A2.

For cables A3, Figs. 3 and 7, too small in diameter to be properly guided in the tubular guide 8, a tubular insert 10 is provided that removably fits within the guide 8, Fig. 3, and if desired smaller inserts may be provided that removably fit within each other.

Adjustably mounted within the recess 4 is a blade holder 12 provided at its lower portion with a notch 14 extending from front to rear of the blade holder, Figs. 3 and 5, and inwardly from one side to about the center of the holder to receive a blade 16 having an inclined cutting edge 18. The blade 16 is removably secured in the notch 14 by suitable means, such as screws 20, so that on becoming dulled by use the blade can be removed and sharpened for further use, or discarded for another sharp blade.

The blade holder 12 is adapted to be adjusted up or down by means of a hand lever 22 and links 24, for use on cables of different diameters and insulation of different thicknesses. The hand lever 22 is disposed longitudinally above the tubular guide 8 and provided with a bifurcated end 26 operably connected to opposite sides of the frame 2 by pivotal means 28. Each link 24 is operably connected at its lower end to the adjacent side of the bifurcated portion 26 by pivotal means 29, and operably connected at its upper end to one side of the blade holder 12 by appropriate means such as a thumb screw 30, which extends freely through an aperture 32 in the link and a slot 34 in the adjacent side of the frame 2. The inner ends of the thumb screws 30 are tapered to points and threaded into opposite ends of a small bore 36 extending transversely through the blade holder 12.

The blade 16 extends downward into the path of the insulation A2, Fig. 4, which is to be slit longitudinally as shown at B on the small cable A3, Fig. 3, through registering slots 38 and 40 in the frame 2 and the tubular guide 8, respectively. The slots 38 and 40 parallel the axis of the tubular guide 8 and their middle portions intersect the middle portions of transverse slots 42 and 44, like the intersecting slots 52 and 54 of the insert 10, Fig. 6. The slots in the frame 2 register with the corresponding slots in the guide 8 and, like the slots 38 and 40, extend through the frame 2 and the tubular guide 8, respectively. The foregoing arrangement of the slots 42 and

44 permit the blade to be set transversely to the insulation A2 and cut the latter circumferentially at one end of slit B, as shown at C on the small cable, Fig. 7, so that the slit portion can be readily removed from the cable.

In order that the blade 16 may be adjusted to accommodate outer insulations A2 of different thicknesses and diameters and avoid damaging the inner insulation of the wires A', Fig. 4, means are provided for checking the downward movement of the blade comprising a stem 46, projecting from the upper end of the blade holder 12, and a rotatable element 48 threaded upon said stem and adapted to contact the upper surface of the frame 2 when the blade has penetrated the insulation. The rotatable element 48 may be adjusted to any predetermined point upon the stem 46, which has a vertical slot 50 so that the opposite sides of the stem may spring apart sufficiently to frictionally hold the rotatable element at any point to which it may be adjusted.

The operation briefly stated is as follows: When the insulation A2 of the cable A is to be slit longitudinally as above stated, the lever 22 is pulled upward to lift the blade holder 12 and the blade 16 until the lower end of the latter is withdrawn from the slot 40 in the tubular guide 8, or the slot 52 when the tubular guide 8 is provided with a tubular insert 10, as shown by Fig. 3. The cable is then inserted in the front end of the tubular guide 8, or insert 10, the proper distance, as shown by Fig. 3, after which the lever 22 is pushed downward to lower the blade holder 12 and force the lower end of the blade 16 through the insulation A2, when further downward movement is checked by the rotatable member 48 contacting the upper surface of the frame 2. The cable A is then grasped and withdrawn through the left end of the guide 8, during which operation the insulation A2 is slit longitudinally to the right hand end of the cable. The thumb screws 30 are now removed from the blade holder 12, and the latter, together with the blade 16, is lifted from the frame 2 and turned one-fourth of a revolution, then replaced in the frame 2 where the blade holder is secured by screwing the inner ends of the thumb screws 30 into a bore 53 extending through the blade holder and intersecting the bore 36. When replacing the blade holder 12, as stated, the blade is reinserted in the guide 10 through slots 42 and 44 and the cable A is adjusted longitudinally until the left end of the slit B is beneath the blade 16, which is then forced through the insulation A2, as above stated. If the cable is too long to conveniently rotate axially, my device is rotated around the cable until the insulation A2 has been cut circumferentially, so that when the cable is withdrawn from the guide the slit and cut portions B and C, respectively, may be readily removed with the fingers.

From the foregoing description it is apparent that I have provided a device which is well adapted for the purpose intended and while I have shown a preferred form of the invention I reserve all rights to such changes and modifications thereof as properly fall within the scope of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. An insulation cutter comprising a frame having guide means through which a cable incased in insulation can be drawn, a blade adapted to be moved into the path of the insulation to slit the latter longitudinally as the cable is drawn through said guide means, a blade holder operably mounted in the frame and carrying the blade, a manual lever operably connected to the frame, links pivotally connected at one end to the lever, and pivotal means extending through slots in opposite sides of the frame and connecting the links to the blade holder.

2. An insulation cutter comprising a frame provided with a recess and a bore which latter extends longitudinally through the frame, guide means secured in said bore and provided with an aperture registering with an aperture extending from the bore to the recess, a blade holder in said recess, and a blade carried by said blade holder adapted to project through said apertures into the path of insulation on a cable being drawn from said guide means.

3. An insulation cutter comprising a frame, guide means secured in the frame and through which a cable incased in insulation can be drawn, a blade extending into the path of the insulation through an aperture in the guide means and adapted to cut the insulation as the cable is drawn through said guide means, a blade holder operably mounted in the frame and carrying the blade, means associated with the frame and the blade holder and adapted to move the latter toward or away from the guide means, and means associated with the frame and the blade holder for checking the blade holder when the blade has entered the guide means to a predetermined point.

4. An insulation cutter comprising a frame, guide means secured in the frame and through which a cable incased in insulation can be drawn, a blade extending into the path of the insulation through an aperture in the guide means and adapted to cut the insulation as the cable is drawn through said guide means, a blade holder operably mounted in the frame and carrying the blade, means associated with the frame and the blade holder and adapted to move the latter toward or away from the guide means, a stem fixed to the blade holder, and a rotatable element adjustably mounted upon said stem adapted to contact the frame and thereby check the blade holder when the blade has entered the guide means to a predetermined point.

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