Nov. 6, 1934. J. A. PEDERSEN 1,979,487

CABLE CUTTING AND STRIPPING TOOL

Filed Oct. 21, 1932

Fig. 1.

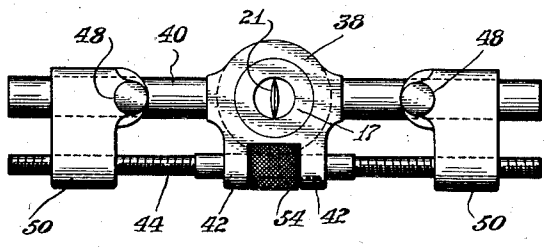


Fig. 4.

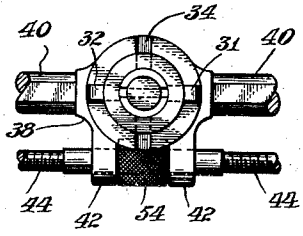


Fig. 2.

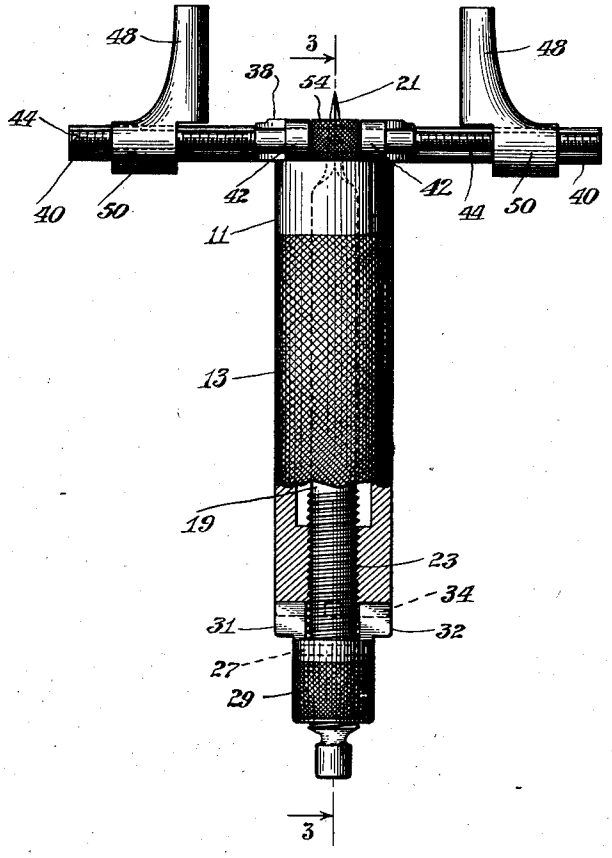
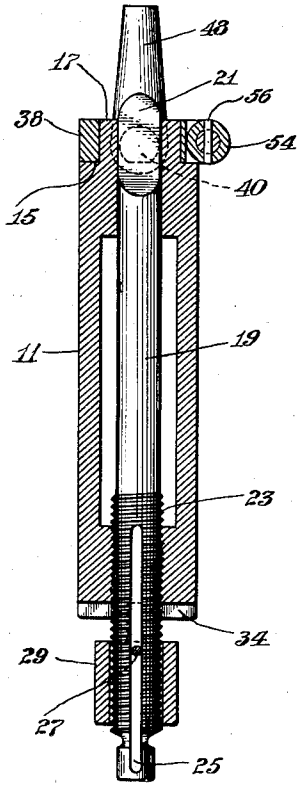


Fig. 3.



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CABLE CUTTING AND STRIPPING TOOL

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3 Claims. (Cl. 81—9.5)

The present invention relates to tools and more particularly to tools for skinning or cutting cable insulation for removal from the conductor, for example, where it is desired to make a cable connection.

An object of the invention is to provide a cutting tool for this purpose which provides centering guides with a knife or cutter therebetween, the guides being arranged for simultaneous adjustment, so as to maintain their position relatively to the cutter with different sizes of cables and so that where a longitudinal cut is to be made, the knife or cutter will make this cut not merely parallel to the cable axis, but in the plane of the cable axis or any other desired plane.

Another object is to provide in association with the guides a knife or cutter not only capable of cutting or slitting the cable insulation longitudinally of the cable, as above stated, but also one which may be adjusted for effecting a circumferential cut in the cable insulation, together with means for holding the knife or cutter in position by a short rectilinear or thrusting movement.

A further object of the invention is to provide means for adjusting the knife or cutter for effecting cuts of different depths, both for longitudinal cutting and circumferential cutting, the knife or cutter when adjusted for effecting a cut of desired depth being held in position by the rectilinear movement of the same thrust element that maintains the knife or cutter in position for effecting either longitudinal or circumferential insulation slitting.

Still further objects of the invention will appear from the following description, taken in connection with the accompanying drawing which illustrates, by way of example, a preferred embodiment of the invention and in which:

Figure 1 is an elevation of the cutting end of a tool constructed in accordance with the present invention;

Figure 2 is a side elevation of the tool shown in Figure 1;

Figure 3 is a longitudinal sectional view taken on the line 3—3 of Figure 2; and

Figure 4 is a fragmentary view showing in end elevation the handle end of the cutter.

Referring in detail to the accompanying drawing, a substantially cylindrical grip or handle 11 is provided with a knurled portion 13 and at one end with a shoulder 15 providing a substantially cylindrical reduced end 17. The handle 11 has a passage extending axially therethrough from end to end and in this passage is located the shank 19 having at one end the cutter or knife portion 21. The other end of the shank is threaded as shown at 23 for engagement with cooperating screw threads provided in the handle passage so that rotation of the shank 19 will cause the cutter or knife 21 to protrude more or less beyond the handle end for effecting cuts of different depths.

The threaded end of the cutter shank is provided with a slot 25 and movably located in this slot is a pin 27 which serves to prevent disengagement from the shank of a knurled thrust element 29. The thrust element 29 is non-rotatable with respect to the shank 19 but is movable longitudinally thereon within the limits of the pin and slot engagement. For this purpose the opening in the thrust element 29 in which the threaded part of the knife shank is located has a slightly greater diameter than the outside diameter of the threaded part of the shank.

In rigid relation to the thrust element 29 and projecting therefrom in diametrically opposite directions are a pair of holding lugs 31 and 32. These lugs extend toward the adjacent end of the handle 11 and are engageable in one pair at a time with pairs of slots or grooves 34 provided in the end face of the handle 11. As herein shown, four such slots or grooves may be provided, 90° apart and extending radially from the threaded shank opening in the end face of the handle 11.

The thickness of the lugs 32 and the width of slots 34 are so arranged that the lugs have a tight frictional fit in the slots, into either pair of which the lugs can be entered by rectilinear thrusting movement of thrust element 29 toward handle 11 when the lugs are aligned with the desired pair of slots. When the lugs are disengaged the knife shank 19 may be rotated by rotation of thrust element 29 to accomplish an increase or decrease in the amount by which the cutter 21 protrudes from the handle end. When this adjustment has been effected, the lugs are engaged in their slots and the adjustment is maintained thereby during a cutting operation.

It will be evident that the position of the knife 21 in the handle may be shifted so that it will be located at right angles to its relative position shown in Figure 2, and by reason of the arrangement of slots 34 as shown, the knife may be held either in the position of Figure 2 for effecting a longitudinal cut or in a position with respect to the handle 11 at right angles to its position in Figure 2 for the purpose of effecting a circumferential cut. In either case the amount by which the knife protrudes from the handle, and hence the depth of the cut, is regulated or adjusted as above described.

The invention provides means cooperating with the cutter to insure not only its effective action in making a circumferential cut, but also its cutting the insulation in the plane of the axis of the cable when making a longitudinal cut. For this purpose the invention embodies a pair of guides adapted to receive a cable snugly but relatively movably between them, these guides being adjustable toward and away from each other to suit cables of different overall diameters, and more than this, being cooperably adjustable in such a manner that each is always the same distance from the knife as the other, or in other words, in such a manner that the knife or cutter is always located exactly centrally between the positioning guides regardless of the diameter of the cable for which the tool may be adjusted.

For this purpose, as herein shown by way of illustration, shrunk or otherwise secured upon the reduced end 17 of handle 11 and abutting the shoulder 15 thereon, is a collar 38 in rigid relation with the handle. Extending radially from the collar 38 and diametrically opposite each other are a pair of fixed guide rods 40, and also a pair of parallel spaced apart bearing lugs 42. The bearing lugs 42 are provided with aligned openings in which is located a right and left hand threaded shaft 44 parallel to the fixed guide rods 40. Slidable toward and from each other on the guide rods 40 are two tool positioning guides 48, one being on each guide rod. The positioning guides 48 are adapted to receive between them a cable and be tangent to the cable periphery.

In accordance with the invention, each positioning guide 48 has in fixed relation therewith, a projecting portion 50 internally screw threaded, one being right and the other left hand for the reception respectively of the right and left hand screw threaded ends of threaded shaft 44. It is evident that rotation of the shaft 44 in one direction or the other will cause movement apart or movement toward each other of the positioning guides 48, and it is also evident that their proper relation with respect to the knife, namely that in which the knife is midway between them, once established, will remain established so long as the tool is not dismantled, the pitch of the right hand screw thread on shaft 44 being the same as the pitch of the threads on the left hand end of said shaft.

For the purpose of providing a convenient means for causing rotation of the threaded shaft 44 in either direction, the invention provides a knurled thumb-actuated collar 54 secured in fixed relation on the shaft 44 between the bearing lugs 42 by any convenient means, such as the pin 56, so that the lugs 42 prevent the movement of the collar or rotator 54 and shaft 44 longitudinally on rotation. It will be evident from the foregoing that the invention provides a cable insulation slitter having positioning guides so arranged that although they are adjustable for cables of different diameters, their adjustment is necessarily such that the cutting knife is always exactly midway between them. It is also evident that the knife may be quickly shifted into and out of position for either a longitudinal or circumferential cut as well as for effecting cuts of different depths and when adjusted for either purpose may be quickly locked in position by rectilinearly movable frictional holding means, unlockable when desired merely by similar but oppositely directed rectilinear motion.

What I claim is:

1. A cable insulation cutting tool comprising a handle, a pair of movable positioning guides, oppositely extending guide rods therefor carried by said handle, a cutter element having a knife edge therebetween and movable in the handle to vary the depth and direction of cut, means for moving said guides toward and from each other while maintaining them equally distant from the cutter element, said means comprising a single guide shifter associated with both of said guides, and bearing means for said guide shifter carried by said handle and offset from said cutter element to provide clearance for said knife edge.

2. A cable insulation cutting tool comprising a handle, a pair of movable positioning guides, oppositely extending guide rods therefor carried by said handle, a cutter element having a knife edge therebetween and movable in the handle to vary the depth and direction of cut, and means for moving said guides toward and from each other while maintaining them equally distant from the cutter element, said means comprising a rotatable shaft having right hand threaded engagement with one of said guides and left hand threaded engagement with the other of said guides, a thumb-actuated rotator for said shaft, means carried by the handle for preventing longitudinal movement of said rotator, and bearing means for said rotatable shaft carried by said handle and offset from said cutter element to provide clearance for said knife edge.

3. A cable insulation cutting tool comprising a handle, a pair of movable positioning guides, oppositely extending guide rods therefor carried by said handle, a cutter element having a knife edge therebetween and movable in the handle to vary the depth and direction of cut, said handle having a plurality of positioning notches, a holding member rectilinearly movable on the cutter element, means securing said holding member to said cutter element and preventing relative rotation between said cutter element and holding member, said holding member having lug means engageable in said positioning notches to hold the cutter element in adjusted position, means for moving said positioning guides toward and from each other while maintaining them equally distant from said cutter element, said means comprising a rotatable shaft having right hand threaded engagement with one of said guides and left hand threaded engagement with the other of said guides, a thumb-actuated rotator for said shaft and means carried by the handle for preventing longitudinal movement of said rotator, said means including spaced bearings for said rotatable shaft offset from said cutter element to provide clearance for said knife edge.

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