April 27, 1954 F. E. CLEARWATER 2,676,399

CABLE SLITTING TOOL

Filed May 9, 1950

Fig. 1.

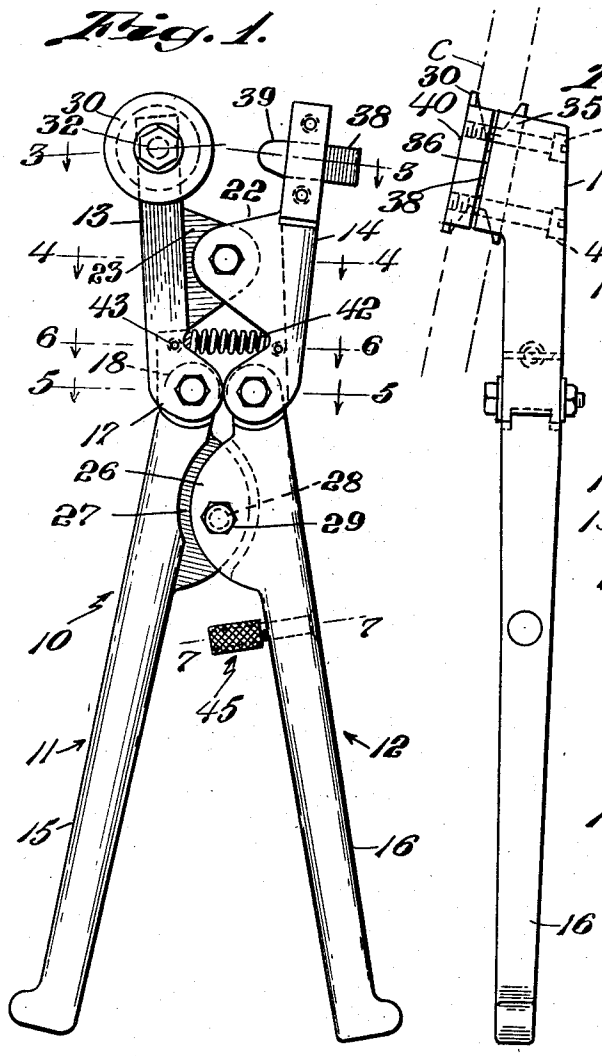



Fig. 2.




Fig. 4.

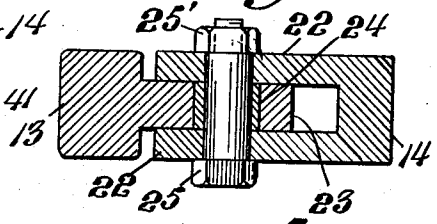



Fig. 5.

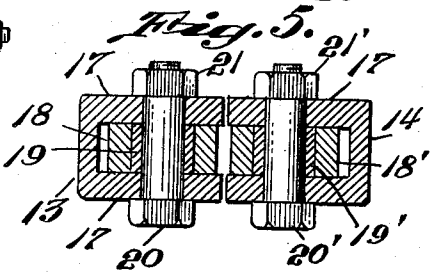



Fig. 6.

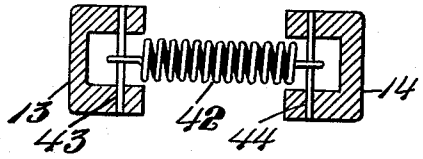



Fig. 3.

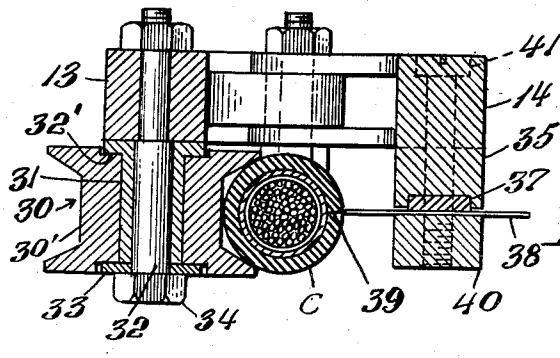
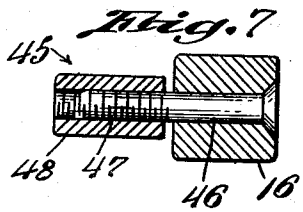



Fig. 7.




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## CABLE SLITTING TOOL

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3 Claims. (Cl. 30—91)

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This invention relates to a device or tool for slitting cable insulation.

An object of the invention is the provision of a tool of this character so constructed as to provide for the easy sliding thereof along the cable.

Another object of this invention is the provision of a tool of this character so constructed as to guide the cable clear of the hand when moving the tool along the cable.

Another object of this invention is the provision of a tool of this character so constructed as to present a fixed cutting edge to the insulation as the tool is moved along the cable.

Another object of this invention is the provision of a tool of this character so constructed as to multiply the manual force applied to the handle part of the tool to move the cutter into the cable insulation.

With these and other objects in view, the invention consists of certain novel features of construction as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is a side elevational view of a cable slitting tool embodying one form of the invention;

Fig. 2 is an edge elevational view of the tool shown in Fig. 1;

Figs. 3, 4, 5, 6 and 7 are sectional views taken substantially along lines 3—3, 4—4, 5—5, 6—6 and 7—7 of Fig. 1 respectively.

In carrying out my invention I provide two sections each of which comprises upper and lower members which are pivotally connected one to the other at their ends. The upper members are pivotally secured to each other intermedite their ends but nearer the free end thereof. On one of these upper members at a location adjacent the said free end, I mount a grooved wheel or roller, the edge of which provides a guideway for the cable. On the other of said upper member, I mount a cutter at a location opposite the roller pivot. The said lower members for handles and are also pivotally connected to each other intermediate their ends and at a location nearer to the pivotal connection of the said upper members, thus providing for the application of a multiple leverage force to move the cutter into the insulation of the guided cable to be slit.

I mount the cable guide roller and the cutter on the side of the said upper members preferably to extend at an acute angle to the longitudinal axes of the tool so as to guide the cable away from the tool and thereby permit freer movement of the tool along the cable operated upon.

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Referring to the drawings for a more detailed description of the invention, 10 designates generally a tool particularly adapted for slitting cable of the larger sizes. The tool is provided with adjustable means to adapt the same for use on cables of substantial differences in size. The body of the tool may be made of any of various suitable materials, preferably I make the same of an aluminum alloy having the required strength to withstand the usual uses and abuses to which tools of this character are subjected.

The body of the tool 10 comprises two sections 11 and 12, each of which has opposed upper members 13, 14 respectively, and opposed lower members 15, 16 respectively. The member 13 has spaced apertured lugs 17 formed at the lower end thereof and the member 15 has an ear 18 formed at the upper end thereof, and in which is provided a hardened bearing bushing 19. The ear 18 is received between the lugs 17 and a headed pivot stud pin 20 extends through the openings in the lugs 17 and bushing 19 to pivotally connect the said members 13 and 15 to each other in an end to end relation. A nut 21 threadedly engages the stud pin 20 to secure the same in place. The members 14 and 16 of section 12 are similarly pivotally connected one to the other by means of lugs 17' on member 14 between which is received ear 18' having a bearing bushing 19' therein. A headed pivot stud pin 20' extends through said lugs 17' and bushing 19' and is threadedly engaged by a nut 21'.

The upper members 13 and 14 are in turn connected one to the other by means of apertured spaced lugs 22 on member 14 between which is received an ear 23 extending from member 13 and also having an inserted hardened bushing 24 therein (see Fig. 4). A headed pivot stud pin 25 extends through the lugs 22 and bushing 24 and is secured in place by a nut 25'. The members 15 and 16 are also pivotally connected one to the other by means of spaced apertured lugs 26 on the part 16 between which is received an ear 27 extending from the member 15 and having a bearing bushing 28 therein. A pivot stud pin 29 extends through the lugs 26 and bushing 28. At the upper end of member 13 on one side thereof there is rotatably mounted a wheel or roller 30 having a groove to provide a guideway for the cable C to be acted upon. The roller 30 is mounted to have the plane of its cable engaging surface 30' positioned at an acute angle with respect to the longitudinal axis of said member 13 and is freely rotatable on a sleeve 31 which is secured to said member 13 by means of a bolt and nut fastening means 32. The sleeve 31 has a

shoulder 32' against which the inner side of the roller 30 engages and a washer 33 is positioned between the head 34 of the bolt 32 and the outer side of the said roller 30 so as to prevent lateral axial movement of the said roller.

The upper end of member 14 has a boss 35 which has a mounting surface 36 therein which is at an acute angle similar to the said acute angle of said guideway and this extends from said member 14 in a direction to be substantially midway of said guideway. The boss is provided with a steel insert plate 37 on which rests a cutter 38 which is in the form of a flat blade having a cutting edge 39. A strap 40 is placed over the cutter 38 and is drawn into tight engagement therewith by means of bolts 41 to secure the cutter in position. It will be apparent that by loosening the bolts 41 the blade may be adjustably moved toward or from the roller 30.

Referring to Fig. 1 it will be seen that the members 13 and 14 are pivoted to each other at a location nearer the roller 30 and the cutter 38 than to the pivoted connections of said members to the members 15 and 16. It will also be seen that the members 15 and 16 are pivotally connected to each other at a location substantially nearer to their point of pivoted connection to the said members 13, 14 than to the free ends thereof, thus providing for multiplying a force applied to the handle members 15, 16 to move the roller 30 and cutter 38 towards each other. A pull or tension spring 42 having one end thereof attached to member 13 by a pin 43 and the other end thereof similarly attached to the member 14 by a pin 44 tends to move the tool to the open position.

In order to limit the distance of the travel of the roller 30 and cutter 38 toward each other, a stop designated generally 45 is provided. The stop comprises a threaded member 46 which is secured to the member 16 with the threaded portion 47 thereof extending towards the member 15. A tubular member 48 is threadedly received on the portion 47 with the free end thereof engageable by the said member 15. Moving the member 48 inwardly of portion 47 will permit greater movement of the handle parts toward each other. Moving the member 48 in the other direction will decrease the amount of movement the handle parts may be moved toward each other, thereby controlling the depth of the cut of the cutter on a cable positioned on the guideway 30 of said roller. In the operation of the tool on a cable, the insulation of which is to be slit to facilitate the removal thereof to expose the wires, the tool is positioned in the cable to place the same between the guideway and the cutter (see Figs. 2 and 3). The handle members 15 and 16 are moved toward each other to move the cutter into the insulation to a depth preset by the manipulation of the stop 45 or the adjustment of the cutter 38 or both. The tool is next pulled along the cable the required distance. Several slits may be made depending upon the character of the insulation and other factors. It will be seen that in positioning the guideway and cutter at an angle from the longitudinal axis of the tool, the operator will not need to manually hold the cable away from the tool when pulling the same along the said cable.

I claim:

1. A cable slitting tool comprising two members pivotally connected together intermediate their ends and terminating at adjacent ends in jaws, handles secured to said members for moving said jaws toward each other, a peripherally grooved cable guide wheel mounted on one side of one of said jaws on an axis extending at an obtuse angle to the path of movement of said handles said wheel spaced from said handles at an acute angle to the direction of movement of said wheel along the cable, a flat cutter mounted on the other of said jaws to extend in a plane at right angles to the axis of rotation of said wheel and centrally of the groove therein, and a tension spring secured to said members on the side of the pivot distant from said jaws for moving said jaws to open position.



2. A cable slitting tool comprising two members pivotally connected together intermediate their ends and one end portion of said members terminating in jaws, a pair of handles pivotally connected together and to the other end portion of said members whereby a multiple leverage action may be applied through said handles to move said jaws toward each other, a stud pin projecting laterally at the side of one of said jaws and at an obtuse angle to the path of movement of the said handles, a peripherally grooved cable guide wheel mounted to rotate on said stud pin for guiding said tool along the cable, said wheel spaced from said handles at an acute angle to the direction of movement of said wheel along the cable, a flat cutter blade mounted on the wheel side of the other jaw, said cutter extending widthwise thereon in a plane at right angles to the axis of rotation of said wheel and centrally of the groove therein, and a tension spring secured to said members on the side of the pivot distant from said jaws for moving said jaws to open position.

3. In a cable slitting tool having a pair of pivoted jaws, a pair of handles for moving said jaws toward each other, a peripherally grooved cable guide wheel mounted to rotate on the side of one of said jaws on an axis extending at an obtuse angle to the path of movement of said handles, the other of said jaws having a projection thereon on the wheel thereof, said projection having the outer side thereon extending at right angles to the axis of rotation of said wheel, a clamp strap overlaying said outer side, a flat cutter positioned between said outer side and strap to extend widthwise thereof in a plane at right angles to the axis of rotation of said wheel, means for securing said strap to said projection to adjustably clamp said cutter between said strap and projection and resilient means for moving said jaws to open position.


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