

(No Model.)

A. O. BENECKE.
WIRE STRIPPING TOOL.

No. 552,490.

Patented Dec. 31, 1895.

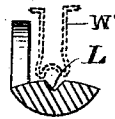
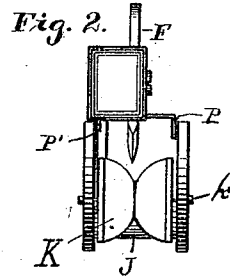
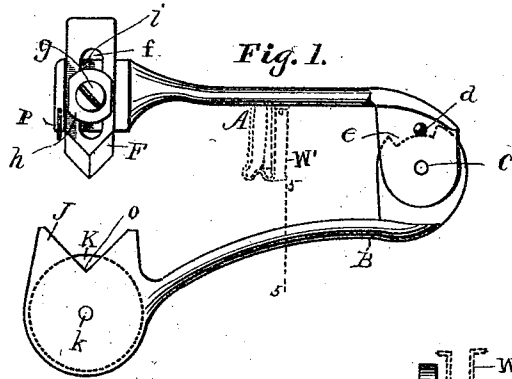
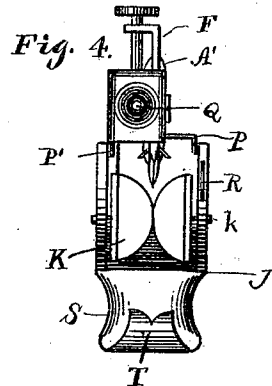
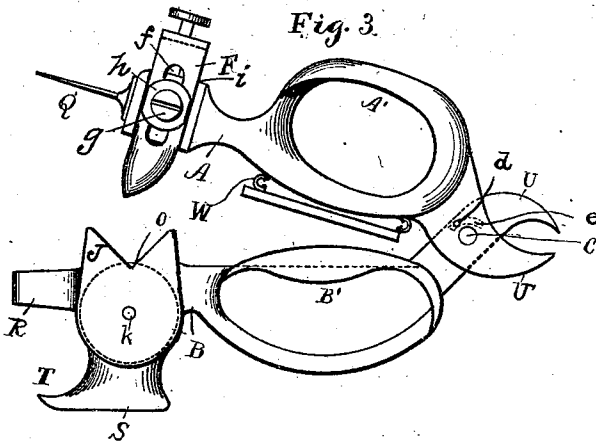


Fig. 5.



WITNESSES:

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WIRE-STRIPPING TOOL.

SPECIFICATION forming part of Letters Patent No. 552,490, dated December 31, 1895.

Application filed January 10, 1895. Serial No. 534,430. (No model.)

To all whom it may concern:

Be it known that I, ADELBERT OSWALD BENECKE, a subject of the Emperor of Germany, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Cutters or Strippers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present method of stripping the insulation from electric wires by whittling it off with a knife is a slow, tedious and difficult matter, and it is the object of the present invention to provide a device by the use of which the operation of removing the insulation shall be made very easy and expeditious.

By means of my novel apparatus the toughest insulation can be readily removed and even the cheaper insulating-wrappings can be laid open and cut away without serious difficulty. Moreover, my device can be utilized for removing long strips or lengths of insulating-covering, its utility being by no means confined to the laying bare of the ends of insulated wires, although, in practice, the latter service is most in demand.

I accomplish the results above set forth by means of a knife or cutting-edge combined with other appliances in such a manner as, first, to enable the said cutter to be pressed against the insulation and moved circumferentially around the same while the insulated wire is held in a guide or channel, and, secondly, to enable the said cutter to be brought to bear against the insulation and drawn along the same longitudinally, the wire being, as before, suitably held so as to insure that the knife shall travel in a straight line along the insulation, while being pressed always toward the center of the wire. From these two operations it results that the insulation is loosened from the wire itself and can be peeled off like the bark of a tree.

In carrying out my invention I have introduced details of construction which help forward the accomplishment of the results aimed at, and these details will be fully set forth in the present specification. Reference is here made respecting these details and also re-

specting the general features of the invention to the accompanying drawings, in which—

Figure 1 is a side elevation of a cutter or stripper embodying my invention. Fig. 2 is an end elevation of the same as it appears when in operation in making a longitudinal cut through the insulation surrounding a wire. Fig. 3 is a side elevation of a modified form of cutter or stripper, which form in some instances is preferable to that illustrated in Fig. 1. Fig. 4 is an end elevation similar to Fig. 2, but showing the modified apparatus illustrated in Fig. 3; and Fig. 5 is a section along line 5 5 in Fig. 1.

The tool as a whole consists of two members A and B hinged together at C and having broad bearing-surfaces at the point of union. Through one of these bearing-surfaces projects a small rod or stop *d*, its outer end being arranged to play within a slot *e* in the periphery of the other bearing-surface. This construction causes a hinge connection to exist between the members A and B, the movement of the members with relation to each other being limited by the play of the stop *d* between the ends of the slot *e*.

The member A carries at its outer end an adjustable knife or cutter F, the adjustment being secured by means of a longitudinal slot *f* in the knife and a screw *g* passing through the said slot into the body of the member A. I prefer to place a washer *h* between the head of the screw and the knife-body, as shown. When the user of the tool wishes to raise or lower the knife F, he simply loosens the screw a little, then moves the knife to the desired position and turns down the screw so as to hold the knife firmly. The knife is preferably located, as shown, within a countersink *i* in the side of the member A. At the outer end of the member B is formed a yoke J, between the arms of which is mounted a roller K. The said roller is supported upon a suitable shaft *k*. It will be observed that the sides of the said roller are somewhat convex in shape, the object of which will appear later on. On their upper sides the arms of the yoke J are notched, as shown at *o*, the walls of the said notches forming a rest or guide, across which a wire covered with insulation can be laid. Now the arrangement of the parts is

such that the point of the knife F, supported in the upper member A, is directly in line with or preferably a little outside the point of the notch o. By placing a covered wire across the yoke J and within the notches o, and then turning the tool completely around and at the same time pressing the two members together so as to bring the knife firmly to bear upon the covering, the insulation may be completely cut through all the way around the wire, leaving it free to be detached as soon as a longitudinal slit has been made between the said circumferential cut and the end of the wire. It will be understood that the knife is so adjusted vertically as that when firmly pressed down it shall just cut through the insulation without cutting the wire itself.

For making the longitudinal slit, the wire is laid in along the top of the lower member B, resting within a groove L in the said top and also resting upon the roller K. Naturally the point of the knife or cutter F is located directly above the middle of the said roller. The wire having been put in place, as already described, the knife is pressed down with a firm hand and the tool is drawn along the wire as far as it is desired to strip it, presumably to the end. With a very little practice, a lineman or other operator is able to use this tool effectively for the purposes herein described and to manipulate it with great ease.

It will be understood that the groove L may be dispensed with, and in some of the tools which I have made I have omitted the said groove.

By reason of the advantages which arise from being able to lay the wire in over the lower member, as described, I have hinged the two members together at one side in the manner set forth. In order, however, to avoid all unsteadiness in the movement of the two members with relation to each other, I have made the bearing-surfaces very broad. As a further safeguard, I have attached to the outer end of the upper member A guides P and P', which pass just inside the walls of the yoke J and steady the outer end of the member A in its relation to the member B. Thus any tendency of the knife to be deflected to one side or the other of the center of the wire is corrected.

The modification illustrated in Figs. 3 and 4 contain certain features of convenience which do not essentially affect the invention in its broader scope. I have illustrated in the figures referred to my cutter or stripper in a modified form and in combination with other tools, the whole making a combination-tool very convenient for linemen. Thus on the outer end of the member A, I show a bradawl Q, and on the outer end of the lower member B, I show a screwdriver R and a hammer S, with an extension T for drawing nails or tacks. At the rear end of the device I show jaws U U', constituting a wire-clipper for actually cutting off the wires which are handled by the operators. These are, so to

speak, extraneous features, lying outside the proper limits of my invention; but I show them in order to illustrate a handy tool, of which my invention is the central part. Some of the other details illustrated in Fig. 3 I can make use of in connection with my invention by itself—such, for example, as the scissors-handles A' and B' added to the members A and B, respectively. These handles give the operator a little more control over the tool, especially when he desires to separate the two members. Another feature of advantage is the spring W, supported underneath the upper member A and arranged just over the notch L in the lower member B. The spring itself is V-shaped or concave on its lower side, and when the members are pressed toward each other the spring and the groove form a channel through which the wire passes in operating the tool.

I have shown in dotted lines in Fig. 1 a skeleton spring W', the same being formed into a concave shape just above the lower member. Such a spring would serve the purposes of the spring W, but would present a much shorter surface to the wire while it was passing through the tool.

One of the main essential features of my invention is the roller K, without which it would be very difficult to draw the tool along a wire under the pressure of the knife. I find it of advantage to use a roller of the shape illustrated, particularly when the tool is used for stripping small wires. Such wires will be much more firmly held in place, or, to put it in another way, such wires will be less likely to be thrown out of alignment with the knife-edge than if the sides of the roller had straight or concave edges.

What I claim is—

1. An instrument for cutting through the insulation upon insulated electric wires, the same consisting of a pair of hinged members, one of which carries a roller, of varying diameter, at its outer end, the axis of the said roller being at right angles to the longitudinal dimensions of the said member, and the other of which carries a knife in line with the smallest portion of the roller, the plane of the knife being at right angles to the axis of the roller, the said members being so joined together as to leave a space for the wire to lie along the whole length of the tool between the members, as and for the purpose set forth.

2. A cutter or stripper for insulated wires, consisting of a pair of hinged members with a space between them for receiving the wire throughout their whole length, one of the said members carrying a knife at its outer end, and the other carrying a roller underneath the said knife, the sloping walls or sides of the said roller being convex and running to a narrow portion in line with which the knife is arranged, the plane of the said knife being in line with the length of the member to which it is attached, but at right angles to the axis of the said roller.

3. A cutter or stripper for insulated wires, the same consisting of a pair of members hinged to each other at one side, one of said members having a yoke at its outer end and being adapted to have the insulated wire rest upon it along its entire length, and the other member carrying a knife in line with the said wire and also carrying guides for maintaining the outer ends of the two members steady with relation to each other.

4. In a cutter or stripper for insulated wires, a pair of members, the lower one of which is longitudinally grooved and carries a suitable roller, while the upper one carries a knife or cutter, adjustably supported, the two members being hinged at one side to permit the laying in of a wire between them.

5. In a cutter or stripper for insulated wires, a pair of members, the lower one of which is longitudinally grooved and carries a suitable roller, while the upper member carries an adjustable knife or cutter and also carries a

notched or V-shaped spring arranged above the said groove, the two members being hinged at one side to permit the laying in of a wire between them.

6. A cutter or stripper for insulated wires, the same consisting of a pair of members hinged to each other at one side, the lower member having a yoke at its outer end with notches in the upper side of the yoke-arms, and a roller of varying diameter mounted between the said arms, the other member carrying a knife in line with the center or lowest portion of the said roller and a little beyond the point of the said notches.

In testimony whereof I have signed my name, in the presence of two witnesses, this 20th day of December, A. D. 1894.

ADELBERT OSWALD BENECKE.

Witnesses:

E. F. MACKUSICK,
R. C. MACKUSICK.