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MACHINE FOR STRIPPING INSULATION FROM ELECTRIC WIRES

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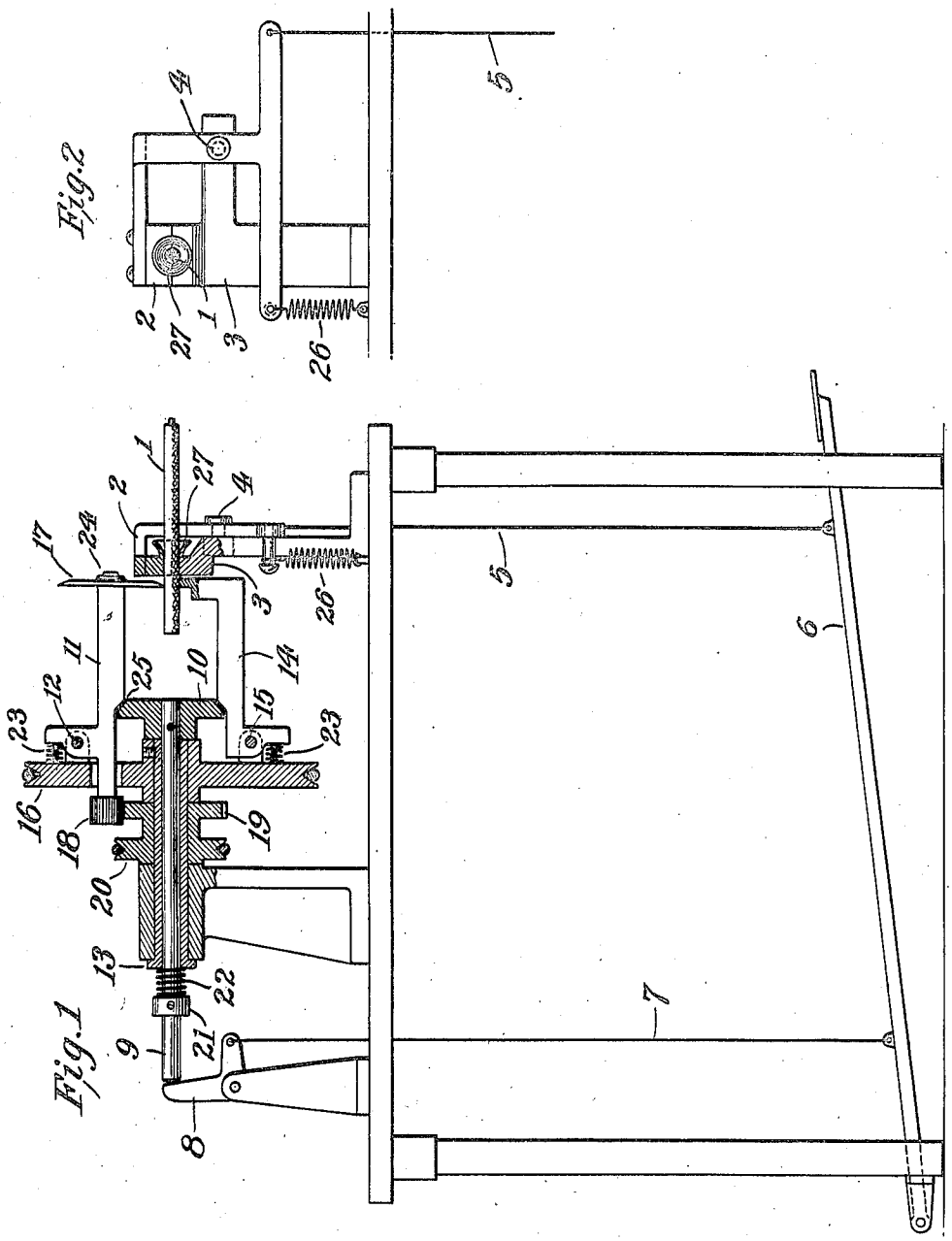

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MACHINE FOR STRIPPING INSULATION FROM ELECTRIC WIRES.

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To all whom it may concern:

Be it known that I, MINER P. WETMORE, a citizen of the United States of America, residing at Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Machines for Stripping Insulation from Electric Wires, of which the following is a specification.

My invention has for its object the rapid and convenient removal of short portions of the insulating sheaths from the ends of wires designed for conducting electric current. Numerous pieces of such wire, from two to ten feet in length, are used in wiring the lighting, ignition, and other circuits of a modern motor car, and the insulation must be stripped off from the inch or so of each end of each such piece of wire in order to permit the bared wire to make good contact with the binding posts through which current is to be conveyed. My present invention supplies a convenient apparatus for thus removing such portions of insulation rapidly and neatly. The best form of apparatus at present known to me embodying my invention is illustrated in the accompanying sheet of drawings in which

Fig. 1 is a side elevation of the machine, parts being shown in section, and

Fig. 2 is an end elevation, parts being broken away and others omitted.

Throughout the drawings like reference characters indicate like parts. 1 is the end of a piece of wire in process of having the sheath of insulating material removed from one end which has been introduced into the machine. 2 is a swinging member pivoted at 4, to the stationary member 3, which is mounted on the main frame of the machine. The abutting surfaces of the parts 2 and 3 are cut away to leave a cylindrical space in which the wire 1 may be firmly grasped, as in a clamp, when the part 2 is swung in a counter-clockwise direction on pivot 4 by spring 26, connected to one extremity of the said moving member. 5 is a wire or other link connecting the other extremity of the swinging member 2 and the treadle 6 so that when said treadle is depressed the said member will be swung in a clockwise direction and the clamping faces on 2 and 3 thereby separated so that the wire 1 may be placed between them. When the treadle 6 is released the spring 26 will force the clamping faces together on any wire placed between them and hold it in the position shown in the drawings.

7 is another wire or other link extending from treadle 6, to the horizontal arm of a bell-crank 8, the vertical arm of which bears against the end of the shaft 9, which is mounted in the rotatable sleeve 13, journaled in a housing on the main frame. The end of the shaft 9 is normally forced against the vertical arm of bell crank 8 by spring 22 confined between the end of sleeve 13 and a collar 21 fast on the shaft. The other end of shaft 9 carries the disc 10 which has a beveled edge. This beveled edge bears against correspondingly beveled shoulders 25, 25, one of which is formed on housing 11 pivoted at 12 to the side of pulley 16, and the other of which is formed on finger 14, also pivoted to pulley 16 at a point 15 opposite to the pivot 12.

Housing 11 serves as a pivoted journal bearing for shaft 24, which carries a disc cutter 17 on its outer end and a pinion 18 on its inner end, which pinion meshes with a gear wheel 19, which is concentric with the axis of the rotatable frame formed by the sleeve 13 and the pulley 16, which axis is in line with the axis of the wire 1 held in the clamp. This gear wheel 19 may be stationary, but preferably it is rotatable on sleeve 13 and connected to a pulley 20, or other means for giving it a positive rotation in a direction opposite to that in which the pulley 16 is rotated.

23, 23, are springs tending to swing housing 11 and finger 14 toward each other so that they bear on the edge of beveled disc 10. In this position the end of finger 14 and the edge of disc cutter 17 bear on the insulating covering of the wire 1 being held in the clamp.

27, 27, represent flaring lips formed on the clamp faces 2 and 3 which together form a bell-mouthed guide for the end of the wire being introduced into the clamp when said clamp has been slightly opened by pressure on treadle 6.

The mode of operation of the particular form of my invention above described is as follows: Normally the parts are in the position shown in Fig. 1, the gear wheel 19 being rotated in one direction and the rotatable frame formed by pulley 16 and sleeve 13 being rotated in the opposite direction. One spring 23 forces the end of finger 14 against wire 1 and prevents it bending away

from the cutting disc 17 which is being held against it by the other spring 23. Finger and cutter are being revolved about the wire by rotation of pulley 16 and the cutter is also being rapidly rotated on its axis by pinion 18 and gear wheel 19. This cutter 17 soon severs the part of the insulating sleeve on the end of the wire 1, projecting through the clamp, from the remaining insulation. The operator then pulls the wire out of the clamp. This strips the cut portion of insulation from the end of the wire, leaving the metallic strands thereof exposed and ready for attachment to the proper binding posts. The operator then presses treadle 6 downward, which both oscillates the swinging member 2 so as to open the clamp for introduction of the end of another wire, and moves disc 10 so that its bevelled edge wedges between bevelled surfaces 25, 25, swinging the disc cutter 17 and pressure finger 14 apart so that the end of the wire may also pass between them. On releasing treadle 6, spring 22 withdraws bevelled disc 10, so that springs 23, 23, swing the disc cutter and pressure finger back into position to operate, as before described on the wire, which is then held by closing of the clamp.

The slight necessary movement of housing 11 on pivot 12, is not sufficient to disengage pinion 18 from gear 19, so the disc cutter 17 is rotated continuously.

Having described my invention, I claim:

1. The combination, with means adapted for loosely holding and guiding the end of an insulated wire, but permitting motion of said wire along the line of its axis, of a revoluble frame journalled so that its axis of revolution will be in line with the axis of the wire so held, a rotary disc knife-edged cutter having a yielding journal bearing on said frame in a position such that the edge of the cutter may bear on the surface of the wire so held, means for swinging said bearing so that the cutter may approach or recede from the wire, and means for rotating both said frame and said cutter about their respective axes.

2. The combination with a hinged clamp adapted for holding the end of an insulated wire and yielding means normally holding said clamp closed, of a revoluble frame journalled so that its axis of revolution will be in line with the axis of the wire held in the clamp, a rotary disc cutter having a journal bearing flexibly mounted on the rotary frame so that said cutter may approach or recede from the wire held in the clamp, mechanism for rotating the frame and the cutter upon their respective axes, yielding means normally holding the edge of the rotary disc against the wire held by the clamp, and means for simultaneously opening the clamp and swinging the cutter out of the path of any wire being inserted in the clamp.

3. The combination with a rotary frame and means for rotating it, of a rotary cutting disc mounted on one end of a rotatable shaft, a journal bearing for the other end of said shaft hinged to the rotary frame so as to swing in the plane of the axis of said frame, a pressure finger similarly hinged to the rotary frame at a point opposite the cutter, spring means tending to swing the cutter and finger toward each other, means for rotating the frame and the cutting disc on their respective axes and mechanism adapted to be actuated by the operator for simultaneously swinging the cutter and finger away from each other.

4. A combination such as set forth in claim 3 in which the mechanism for swinging the cutter and finger comprises a beveled disc concentric with the axis of the rotary frame lying between the finger and the journal bearing for the cutter and cooperating with beveled surfaces on the latter, and means for shifting said beveled disc along the line of its axis.

5. The combination with a main frame, a clamp hinged thereon and adapted to grasp an insulated wire, and a spring normally holding said clamp in grasping position, of a rotatable frame journaled in the main frame with its axis of rotation in line with a wire held by the clamp, a rotatable cutting disc mounted on a shaft, a journal bearing for said shaft hinged to the rotatable frame so that the disc may swing toward or from a wire held in the clamp, a pinion on the other end of the shaft, a gear wheel having its axis in line with that of the rotatable frame and meshing with the pinion, a pressure finger hinged to the rotatable frame and opposite to the rotary cutter, springs tending to force the cutter and finger toward each other, a disc having a beveled edge mounted on a shaft concentric with the rotatable frame and wedged in between the finger and the hinged journal bearing for the cutting disc shaft, said beveled disc shaft being movable endwise, a spring tending to force this shaft in a direction to permit the cutter and finger to approach one another, a treadle operated mechanism adapted to push this shaft in the opposite direction and at the same time to swing the clamp out of grasping position, and means for revolving the rotatable frame positively, and also relatively to the above mentioned gear wheel.

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Witnesses:
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