

(No Model.)

C. KLOTZBACH.
MACHINE FOR COVERING CONDUCTORS.

No. 463,809.

Patented Nov. 24, 1891.

Fig. 1.

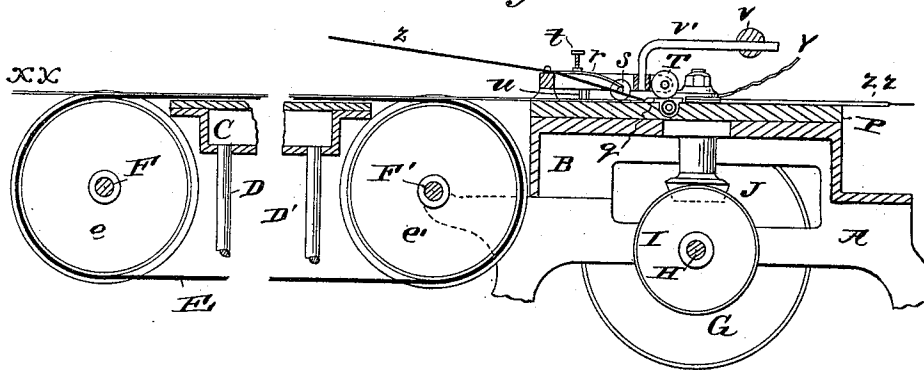


Fig. 2.

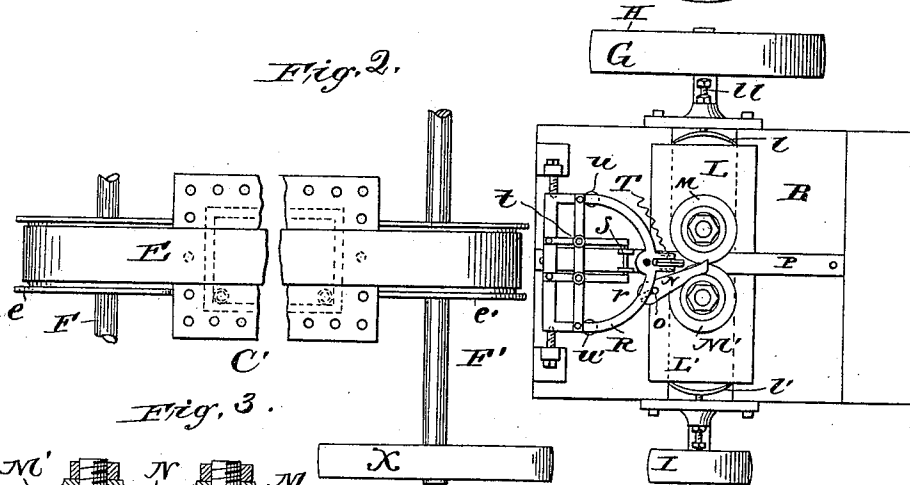


Fig. 3.

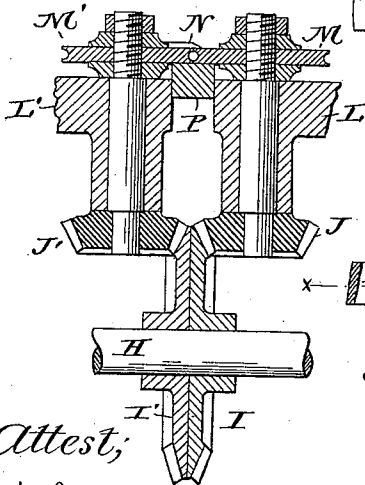
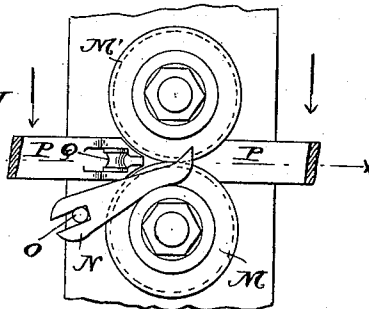


Fig. 4.



Attest;

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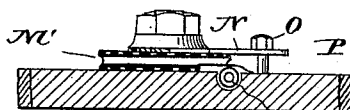


Fig. 5.

UNITED STATES PATENT OFFICE.

CHRISTOPHE KLOTZBACH, OF PASSAIC, NEW JERSEY.

MACHINE FOR COVERING CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 463,809, dated November 24, 1891.

Application filed August 1, 1891. Serial No. 401,363. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHE KLOTZBACH, a citizen of the United States, residing at Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Machines for Covering Conductors; 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.

This invention relates to machines for covering electric conductors with insulating material, the object of the invention being to cover the conductor uniformly with a protective layer of insulating material in a more convenient and efficient manner than has heretofore been done.

The invention embodies an improvement in the covering-rolls by which the layer or web of insulating material is pressed around the conductor. It embodies, also, improved means for cutting off the projecting edge of the web at the seam. It embodies, also, improvements in means for feeding the covering-web to the conductor continuously in a suitable condition to make it readily operated upon by the feeding devices and covering-rolls, and to prevent its rupture and insure uniformity of contour. It embodies, also, features of detail which will be hereinafter particularly described in the specification, and definitely indicated in the appended claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section of a machine embodying my improvements, portions of the machine not necessary to an understanding of the mode of operation being omitted for convenience of illustration, and the steam-table being broken to bring the illustration within the field of the drawings. Fig. 2 is a plan view of the machine illustrated in Fig. 1. Fig. 3 is a detail view in cross-section of the covering-rolls and the gear-wheels which operate them. Fig. 4 is a plan view of these rolls and the cutting-knife; and Fig. 5 is a detail sectional view taken between the covering-rolls.

Similar reference-letters refer to similar parts throughout the drawings.

$\alpha \alpha$ represents a strip or film of insulating

compound suitable for vulcanization, which may be used alone or in combination with a sheet of metal foil upon which it can be laid, such a metal covering being often used temporarily to facilitate vulcanization of the compound, after which it is stripped off. This material is fed upon an endless web or apron E of cloth or any suitable material which is not injured by heat and is sufficiently flexible to pass over the pulleys F F', which impart movement thereto. I prefer, however, to use for this belt galvanized sheet-iron. The strip of insulating compound is received by one end of the belt and is conveyed by it to the table B of the covering-machine. Beneath the belt is a chest or box of cast-iron, heated by steam supplied by an induction-pipe D, the exhaust-steam being carried through an eduction-pipe D'. Continuous movement is imparted to the apron by means of pulley F, to which motion is imparted by a belt driven by the main shaft H, operated by pulley G. The pulleys are of proper size to produce the proper rapidity of feed to the sheet of insulating compound. This compound in its transit over the steam-chest has heat communicated to it through the metallic apron upon which it rests, and is fed to the covering-machine in a softened condition suitable for being pressed closely about the wire z to be covered, so as to exclude all bubbles of air and make a tight-fitting envelope for the wire. The endless apron E might in some cases be dispensed with when a backing of cloth or metal or some other suitable material is used with the covering compound and the material be carried directly over the steam-plate, which would then act to soften the compound by radiant heat. Such an arrangement is described more particularly and particularly claimed in another application filed by me contemporaneously herewith, Serial No. 401,364, filed August 1, 1891. The wire z is led to the covering-machine, as shown in the drawings, passes under a grooved roller T, mounted in the end of a pivoted frame or yoke R, held down by a weight v on the end of a supporting-rod v' . Stops $u u'$ may be used to adjust the position of this roller. The roller guides the wire accurately between two covering wheels or rolls M M', each of

which has a circumferential groove which covers an arc of about one hundred and eighty degrees, so that the two wheels M M' will completely embrace the wire and its covering. The wire and web of insulating material are guided by a double roller S, mounted upon springs *r r*, secured on the rear part of the yoke, and the pressure of which may be regulated by adjusting-screws *t*. Beneath the roller T is another roller Q, mounted in a box set in a recess in the table, and in front of this roller are guide-strips *q*, which give a slight curl to the edges of the strip of compound before it reaches the grooved roller Q. The wire is fed beneath the roller S and to the roller T. The insulating compound rests on the roller Q, which prevents it from tearing by giving it a rolling surface, over which it is fed to the covering-rolls. The roller Q is mounted, as shown in the drawings, so as to lift the web slightly away from the table before it is carried to the covering-rolls, and thus avoids the friction which, acting against the feed of the rolls, would tend to tear the web. As it continues in its forward movement, it passes into the circular channel formed between the two grooved wheels M M', which are forced together by the pressure of springs *ll'* upon adjustable bearings *LL'*, in which the covering-rolls are mounted, the degree of pressure being regulated by adjusting-screws *ll*. These wheels are preferably milled on their edges, as illustrated in Fig. 5, which produces a grip on the compound and draws the wire and compound between the rolls, as described in my other application aforesaid. Over the covering-wheels is a stationary knife N, which cuts off the excess of insulating material at the seam or joint. This knife is provided with a slot at its rear end, through which a pin or set-screw projects. The wire, after being covered, passes from the guide-bar P, when it may be reeled or coiled for vulcanization.

Y represents the shaving or insulating compound removed by the cutting-knife. By means of this structure the insulating material is free from liability of tearing during the covering operation. It passes easily and freely over the grooved wheel Q, which thus feeds it to the covering-wheels M M' and takes the strain from the weakest part—namely, that part where it has been pressed around the conductor.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In a machine for covering a conductor with an insulating compound, the combination, with rolls for pressing the compound around the conductor, of an endless belt by which the compound may be conveyed to the rolls.

2. In a machine for covering a conductor with an insulating compound, the combination, with rolls for covering the wire with the compound, of a heating-surface over which the compound is led to the rolls.

3. In a machine for covering a conductor with an insulating compound, the combination, with rolls for covering the wire with the insulating compound, of a heating-surface and an endless metallic apron upon which the compound is fed, said apron passing over the heating-surface and delivering the compound to the rolls.

4. In a machine for covering a conductor with an insulating compound, the combination, with a supporting-surface, of means for feeding a web of insulating compound over the same to the wire to be covered, the covering-wheels for pressing the compound around the wire, and a wheel Q in the path of the web and beneath the same, said wheel being in front of the covering-wheels and serving to raise the web from the surface.

5. In a machine for covering a conductor with an insulating compound, the combination, with the covering-rolls, of stationary knife N, having its cutting-edge adjacent to the line of contact of the rolls lying transversely to the line of feed, so as to produce a shearing cut.

6. In a machine for covering a conductor with an insulating compound, the combination of the elastically-supported guide-wheel S for leading the wire to the covering-wheels, wheel Q for feeding the web of insulating compound to the covering-rolls, said wheel being mounted in a table over which the web is fed and adapted to raise the latter away from the table, covering-rolls M M', and a cutter for removing the excess of compound after the conductor is covered.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHE KLOTZBACH.

Witnesses:

E. C. GRIGG,
STEPHEN L. COLES.