

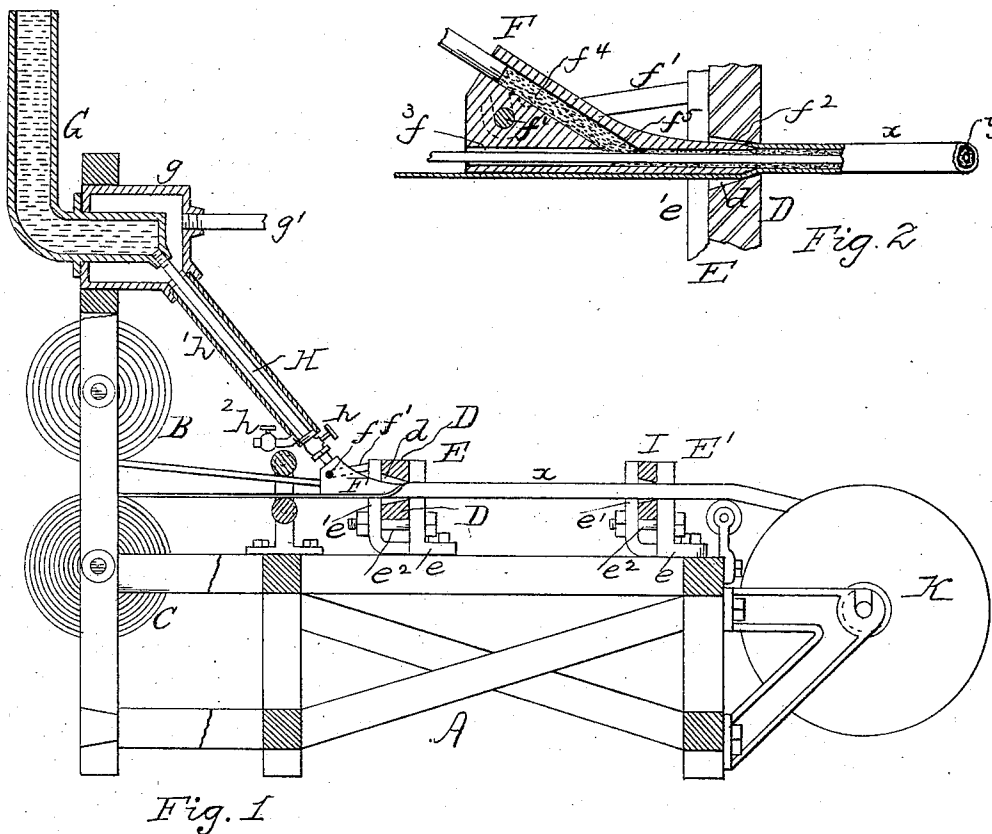
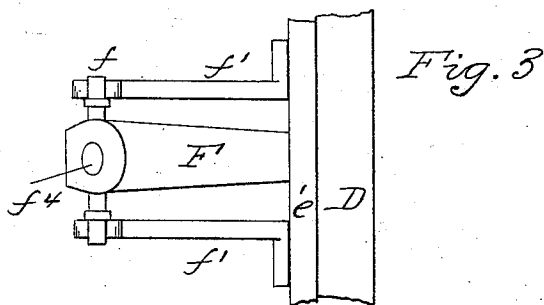
(No Model.)

W. J. PHILIPS & G. L. KITSON.

MACHINE FOR MANUFACTURING ELECTRIC CABLES.

No. 275,408.

Patented Apr. 10, 1883.



Witnesses:
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UNITED STATES PATENT OFFICE.

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MACHINE FOR MANUFACTURING ELECTRIC CABLES.

SPECIFICATION forming part of Letters Patent No. 275,408, dated April 10, 1883.

Application filed October 5, 1882. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM J. PHILIPS and GEORGE L. KITSON, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Manufacturing Electric Cables, of which the following is a specification, reference being had therein to the accompanying drawings, wherein—

Figure 1 is a longitudinal vertical section, partly in elevation, of a machine embodying our invention. Fig. 2 is a detail section, and Fig. 3 is a detail plan.

Our invention has relation to machines for manufacturing electric cables or conductors, being especially adapted for that class of cables wherein the wire or conductor is incased in cement or a plastic composition and surrounded with a metallic sheathing, and has for its object to provide a machine wherein such cables may be easily and expeditiously made at a slight cost.

Our invention accordingly consists of the novel construction, combination, and arrangement of parts as hereinafter set forth and claimed.

Referring to the accompanying drawings, A represents the frame of the machine, upon which are conveniently placed in suitable relation to each other a reel of wire, B, and a reel of sheet-lead, C, in the form of a long strip or a ribbon.

D represents a die having a tapering opening, d , held in a frame, E, which is composed of a stationary section, e , and a removable section, e' , connected to each other by bolts e^2 .

F represents a mandrel hinged or pivoted at f to bars or arms f' , secured to the frame E in any suitable manner. Said mandrel is thereby so placed that its end f^2 is centrally located within the opening d of die D, and it is formed with passages or openings f^3 and f^4 , which lead into each other at f^5 . The end f^2 of the mandrel is formed with a taper, as shown in Fig. 2.

G represents a tank or reservoir designed to hold rosin or other material, which is melted by steam entering the jacket g from pipe g' . The reservoir G is connected to passage f^4 of the mandrel by a pipe, H, having cock h .

Said pipe is surrounded by a steam-jacket, h' , to keep the rosin in a fluid condition as it passes from reservoir G to mandrel F. Said jacket has a petcock, h^2 , for drawing off the water of condensation.

I represents another die, located back of die D, and is secured in a frame, E' , of a construction corresponding to that of frame E; and K is a reel for the finished cable.

The operation is as follows: Steam is admitted through pipe g' to jackets g and h' to melt the rosin in reservoir G. The lead strip C is passed around or beneath the mandrel F and through die-opening d , while the wire B is conducted through the mandrel-opening f^3 . As the lead strip C is drawn through opening d it is folded together to form a tube, which incloses the wire B. The cock h being opened, the melted rosin flows from reservoir G through pipe H to passage f^4 , thence to passage f^3 around the wire B, filling up the space between said wire and the tube formed by the folding of strip C, as plainly illustrated in Fig. 2, to form a cable, x . (Shown in Fig. 1.) In the passage of the cable from dies D to I the rosin therein cools and contracts to leave a space between it and the lead casing; but as the latter passes through the die I it is thereby further folded or forced down on said rosin to take up such space, and when the joint y in said casing is soldered or lead-burned the cable is finished and wound upon the reel K. When the latter is full the cable is cut, whereupon said reel is removed and is ready for transportation, a new reel being substituted for the one removed, and the operation continued.

It will be seen that the die I is merely a finishing-die to set the lead down upon the cooled rosin.

The soldering of the joint in the tube or casing may be done by hand before the same is drawn through die I, and before it is wound on the reel K; or, if desired, any suitable mechanism may be interposed to effect such result or to lead-burn such joint.

The wire B may be a plain wire or consist of a wire covered with pitch and a covering of asbestos, as described in an application filed by us September 27, 1882.

We have shown and described the applica-

tion of steam for melting the rosin in reservoir G; but, if desired, gas, oil, or other heating media may be substituted therefor. So, too, we have shown the rosin as passing by gravity to mandrel F, and being forced into and around the passage f^3 by its hydrostatic pressure; but, if desired, a weight or plunger may be placed in reservoir G to accomplish such end, or a pump may be substituted therefor. By the use of the foregoing-described means we are able to rapidly and cheaply manufacture electric cables of any desired diameter and length.

We have described the reservoir G as being used to hold the rosin and melt it therein; but we do not confine ourselves to the use of rosin, as pitch or other like substance may be placed therein. Where more than one wire is placed in the cable the mandrel and die openings are enlarged to provide ample room for the passage therethrough of the different wires from their respective reels.

The mandrel F, being hinged or pivoted, is free to yield to accommodate itself to any irregularities in the wire fed therethrough; hence all friction between the mandrel and wire and chafing of the insulation of the latter is avoided.

What we claim as our invention is—

1. In a machine for making electric cables, the combination of a die, a mandrel, a reservoir, a reel of lead, and a reel of wire, substantially as shown and described.

2. In a machine for manufacturing electric cables, a die, a mandrel, a reservoir, and means for heating the same, and a reel of lead and of wire, substantially as shown and described.

3. In an organized machine for manufacturing cables for electricity, a die having a tapering opening, a mandrel with correspondingly-shaped end, a reservoir and means for heating

the same, and a reel of sheet-lead and of wire, substantially as shown and described.

4. The combination of die D, mandrel F, having tapered end f^2 and passages $f^3 f^5$, pipe H, reservoir G, with heating means, and a reel of wire, B, and of sheet-lead, C, substantially as shown and described.

5. In combination with the die D, having tapered opening d , the mandrel F, with conical end f^2 and passages $f^3 f^4$, substantially as shown and described.

6. In combination with the die D, having opening d , the mandrel F, hinged at f , and constructed substantially as shown and described.

7. In a machine for making electric cables, the combination of a forming-die, a finishing-die, a mandrel, a reservoir with heating means, and a reel of wire and of sheet-lead, substantially as shown and described.

8. In an organized machine for making electric cables, a die, a mandrel, a reservoir with heating means connected to said mandrel, a finishing-die, and bearings for supporting the wire and casing for the cable, substantially as shown and described.

9. In an organized machine for making electric wires or cables, the combination of a reel of sheet-lead, a reservoir for rosin or other non-conductor, means for heating and liquefying such non-conductor, a reel of wire or cable, and a die having a tapering opening with a pipe or connection communicating with said reservoir, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM J. PHILIPS.
GEORGE L. KITSON.

Witnesses:

S. J. VAN STAVOREN,
CHAS. F. VAN HORN.