

(No Model.)

A. H. HAMON.

APPARATUS FOR MAKING TELEGRAPH CABLES.

No. 288,795.

Patented Nov. 20, 1883.

FIG. 1.

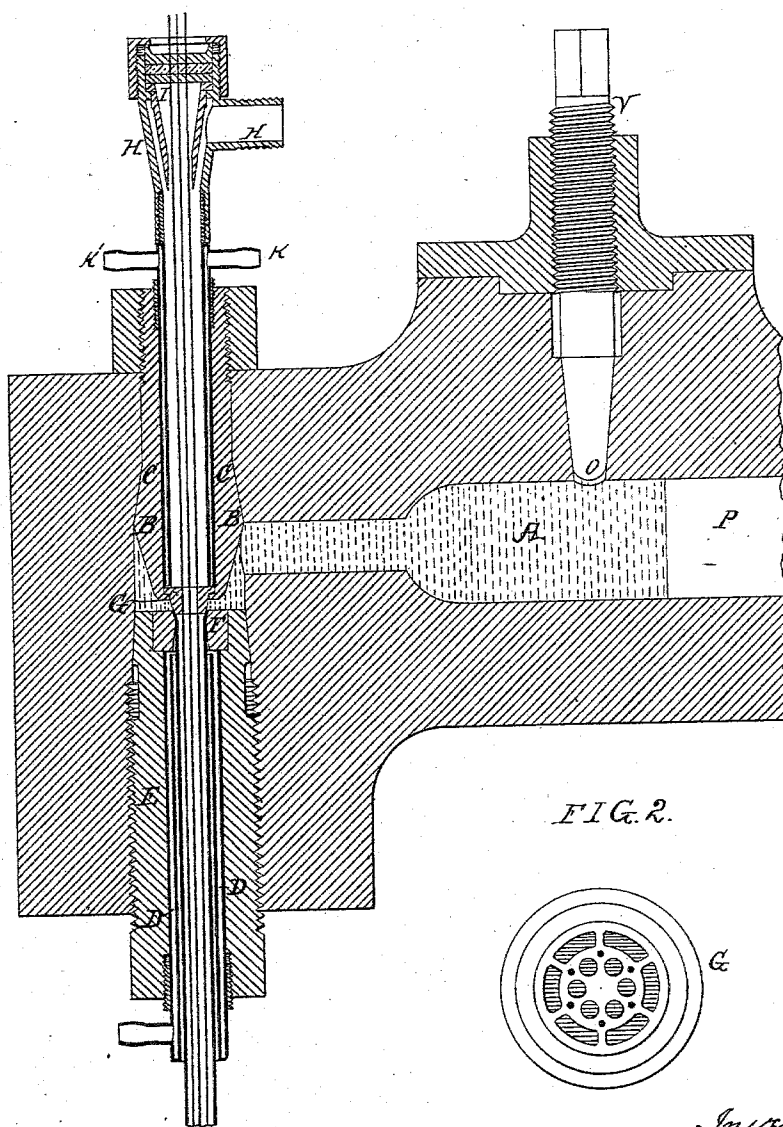
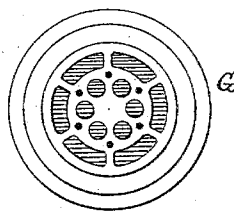


FIG. 2.



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AUGUSTIN H. HAMON, OF PARIS, FRANCE.

APPARATUS FOR MAKING TELEGRAPH-CABLES.

SPECIFICATION forming part of Letters Patent No. 288,795, dated November 20, 1883.

Application filed January 29, 1883. (No model.) Patented in France December 18, 1882.

To all whom it may concern:

Be it known that I, AUGUSTIN HENRY HAMON, a citizen of the Republic of France, and a resident of Paris, France, have invented an Apparatus for Making or Manufacturing Telegraph-Cables, of which the following is a specification.

My invention consists of certain improvements in the construction of apparatus for inclosing electrical wires or cables in lead tubes, as more fully described hereinafter.

In the accompanying drawings, Figure 1 is a vertical section of my improved apparatus; and Fig. 2 is an inverted plan view, drawn to an enlarged scale, of the perforated core or mandrel.

The cable is incased in lead in the following manner: Melted lead is first introduced into the interior, A, of a press-cylinder through an orifice, O, which is then closed by a screw-stopper, V. A plunger, P, worked by the piston of a hydraulic press, compresses this lead, which is maintained at a temperature of about 250° centigrade, and expels it through a passage formed between a hollow core or mandrel, G, and a die or molding orifice, F. The difference between the diameter of the core or mandrel and of the orifice in the die determines the thickness of the sides of the leaden tube or envelope. The core or mandrel G is secured to the end of the cylinder B, which is independent of the plunger P, and preferably at a right or other angle to the same. This cylinder contains in its interior two concentric tubes, C, presenting an annular space between them, in which a current of water or oil is caused to circulate, being maintained at the temperature necessary for the proper application of the insulating material employed in the manufacture of the cable, or with which the cable is already covered. The annular space is divided into two parts by a diametric partition, which, beginning at the upper part, extends to within a short distance from the bottom, but without touching the latter. The liquid enters at an orifice, K, flows along the semi-annular space, passing under the partition toward the core or mandrel G, and, after ascending in the other compartment, escapes through a pipe, K'. The cable is drawn through the center of the tubes C, and through the core or mandrel G, being

dragged along by the lead in proportion as the tube is formed. In order to keep the cable cool and prevent it from injury by overheating, water or other cooling liquid is caused to circulate in a pipe, D, situated in the support E of the die. This pipe, as well as the cable c, is formed by two concentric tubes, and the cold water, circulating in the annular space between the said tubes, is projected against the die, and flows over the surface of the newly-formed leaden envelope, and thus cools the cable which the latter contains.

The foregoing description relates to the manufacture of cables covered with braid or whipping and compressed between the sides of the lead pipe or envelope.

In manufacturing cables composed of wires insulated from each other and from the lead casing by suitable insulating material, but not covered or whipped round with silk or cotton, a mandrel or core, G, with separate holes for the wires, is substituted for the hollow core used for the covered cables, and the wires are brought through a device, H, which is provided at its upper part with a stopper or cover, presenting as many holes as there are conducting-wires in the cable. These copper wires descend into the tube C, and issue through the core or mandrel G, which is also provided with a perforated plate presenting a corresponding number of holes for the passage of the wires. Between these holes other and larger holes are provided for the passage of the insulating material. This arrangement of the core or mandrel is illustrated in Fig. 2. The apparatus being thus arranged, the insulating material is placed in a cylinder communicating with the pipe H through a cock, and the said material, being expelled by a piston working in the cylinder, is forced out round a cone, I, serving to protect the wires at this part. The insulating material thus descends in the center of the tube C, and, passing out along with the wires through the core or mandrel G, completely surrounds the wires and fills up the leaden tube or envelope as the latter is formed, drawing the wires with it. The water thrown from the tube D cools and solidifies the insulating material in which the wires are thus embedded, the said wires being retained throughout the entire length of the cable in the position in which they are arranged by

their passage through the holes in the core or mandrel.

In order to indicate the relative position of each wire in the cable, a mark may be made on the lead pipe or envelope by means of a suitable projection or notch in the die or molding-orifice.

I claim as my invention—

1. The combination of a cylinder, plunger, core, and die with a pipe, D, composed of two concentric tubes open adjacent to the die, to project water onto the material passing through the same, substantially as set forth.

2. The combination of a cylinder, B, perforated core, and die with a pipe, H, and cone I, to protect the entering wires.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUSTIN HENRY HAMON.

Witnesses:

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