

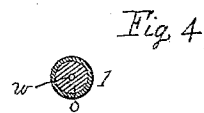
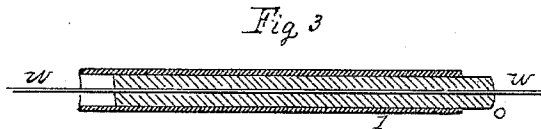
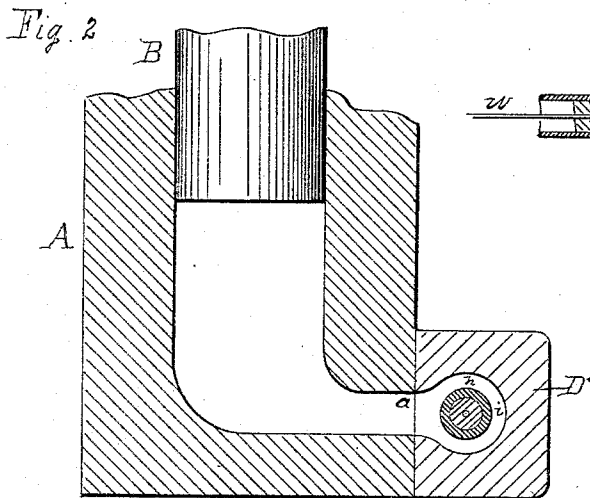
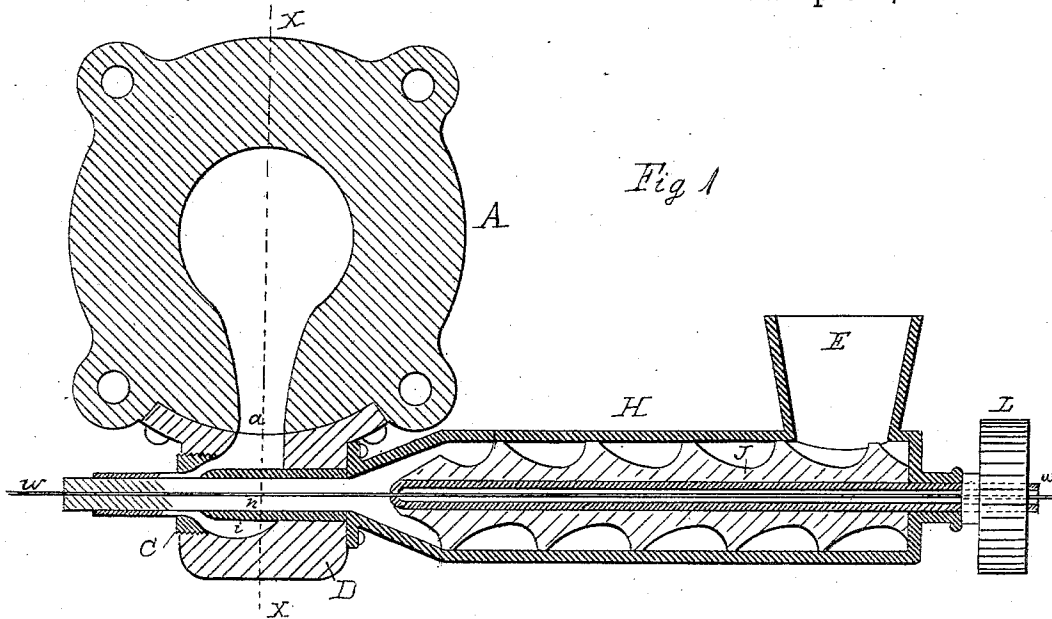
(No Model.)

J. T. VAN GESTEL.

MACHINE FOR COVERING WIRE WITH LAYERS OF DIFFERENT MATERIALS.

No. 380,610.

Patented Apr. 3, 1888.



WITNESSES:

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MACHINE FOR COVERING WIRE WITH LAYERS OF DIFFERENT MATERIALS.

SPECIFICATION forming part of Letters Patent No. 380,610, dated April 3, 1888.

Application filed September 10, 1887. Serial No. 249,320. (No model.)

To all whom it may concern:

Be it known that I, JEAN T. VAN GESTEL, a subject of the King of the Netherlands, residing at New York, in the county and State of New York, have invented a new and useful Machine for Covering Wire with Layers of Two Different Materials, of which the following is a specification.

The object of my invention is to place around a wire a layer of a plastic material, and at the same time cover the whole with a continuous coating of lead or similar material, and I accomplish this object by the mechanism shown in the accompanying drawings, wherein—

Figure 1 is a vertical section of the whole machine. Fig. 2 is a transverse section through line *x x* in Fig. 1. Fig. 3 is a longitudinal section of the product of the machine, and Fig. 4 is a cross-section of the same.

Similar letters refer to similar parts in all the figures.

The cylinder A is similar to those used in all lead-presses, and is fitted with a ram or plunger, B, operated by hydraulic power, which forces the lead into a lateral chamber, *i*, formed in a heavy block, D, which is secured to the lower part of the cylinder A, and is connected with the interior of A by the passage *a*. A circular die, C, is adjustably fixed in one of the walls of the block D, and on the opposite side of D is fixed a cylinder, H, from which a tubular nozzle or die, *h*, of smaller diameter than C, extends through the side of D and the chamber *i* to a point just within the die C and concentric with it. Within the cylinder H is a strong propelling-screw, J, which is operated by the gear L upon its shaft, and both the shaft and the screw are pierced longitudinally by a hole, through which the wire, *w*, to be covered passes.

The operation of my improved machine is as follows: The cylinder A is charged with lead, the plastic mixture is fed into the hopper E, and the wire which is to receive the covering is run through the hole in the screw J, and passes through the die *h* and out through C. The gear L is now started and the screw J pushes the plastic mixture forward, and as it passes through the tubular nozzle *h* it is formed into a compact layer around the wire. As the wire thus covered emerges from *h* into the die

C, the plunger B of the lead-press is started and the lead is forced into the chamber *i*, where it flows around the die *h*, and then as a thin tube it passes out through the die C, which closes it securely upon the first layer as they move forward. The ram B and the screw J are operated at such speeds that the two layers of covering materials will travel at the same rate of speed as they pass through the die C, so that there may be no sliding of one upon the other. After the operation is once started the wire *w* is carried along by the adhesion of the moving coverings. The tubular nozzle *h* not only acts as a die to shape the plastic materials upon the wire, but also forms a core or inner die, between which and the external die, *c*, the lead covering is drawn.

Figs. 3 and 4 show sections of the covered wire, *l* being the lead cover, *o* the layer of plastic material, and *w* the wire.

The advantages of placing the dies in the block D outside of the cylinder A are that they are more readily accessible, as the block can be easily detached from A, and also that if it is desired to heat the lead or the plastic material it may be applied around the block D, thus warming or melting the materials as they enter the chamber *i* without affecting the other parts of the machinery. The screw J keeps the material fed to it well mixed, as is usually necessary with insulating and other materials. This method of covering wires may be employed for making lead-coated insulated wires, or in other cases where it is desired to envelop a wire with other plastic material and to secure and protect the same by an outer covering of lead, as for preparing material for constructing plates for a secondary electric battery, as described in Letters Patent No. 358,092, granted to me February 22, 1887. In this case an oxide of lead or other material suitable for the purpose is mixed into a thick paste with some liquid, and the wire is first enveloped in a layer, *o*, of this material, which is secured in place by the outer coating of lead, *l*.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a lead-press having a lateral chamber connecting with the lower end of the cylinder, in one of the walls of which

chamber is a circular die, with a second cylinder containing a propelling-screw, which delivers its contents by a tubular nozzle just within the inner opening of the die and concentric with it, the whole operating to place two concentric layers of different materials around a wire which passes through the propelling-screw and the die.

2. The combination of the cylinder A and ram B of a lead-press, and the cylinder H and propelling-screw J, working therein, with a lateral chamber, *i*, in which are arranged the dies *c* and *h*.

3. The combination of the cylinder H and propelling-screw J, working therein, and perforated longitudinally to admit of the passage of a wire, and the tubular die *h*, with the cylinder A of a lead-press having the lateral chamber *i*, and the die C, all operating as and for the purposes herein set forth.

JEAN T. VAN GESTEL.

Witnesses:

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