

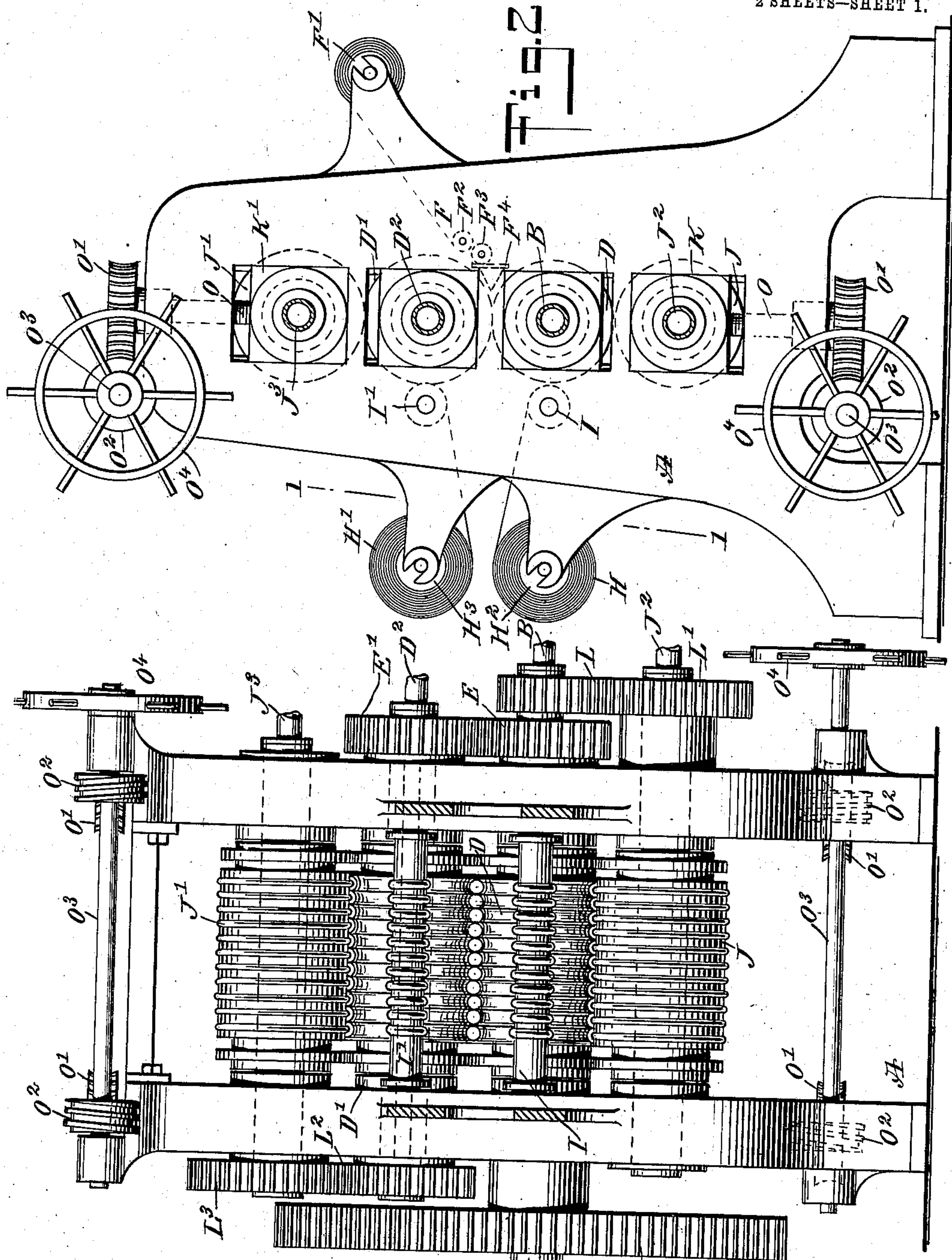
No. 894,790.

PATENTED JULY 28, 1908.

C. V. ACKERMAN.
MANUFACTURE OF COVERED WIRE.

APPLICATION FILED JUNE 11, 1906.

2 SHEETS—SHEET 1.



WITNESSES
John A. Beighouse
Rev. G. Hooker

Fig. 1

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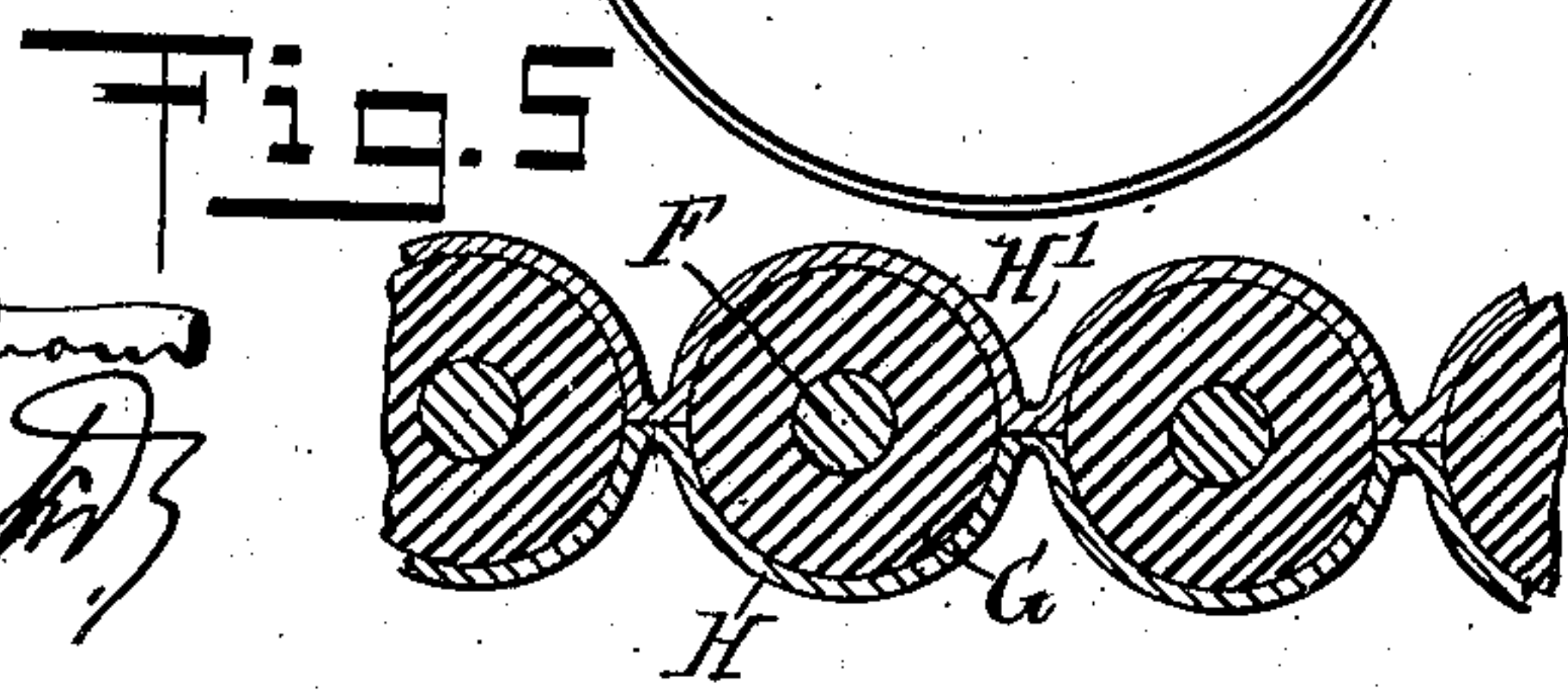
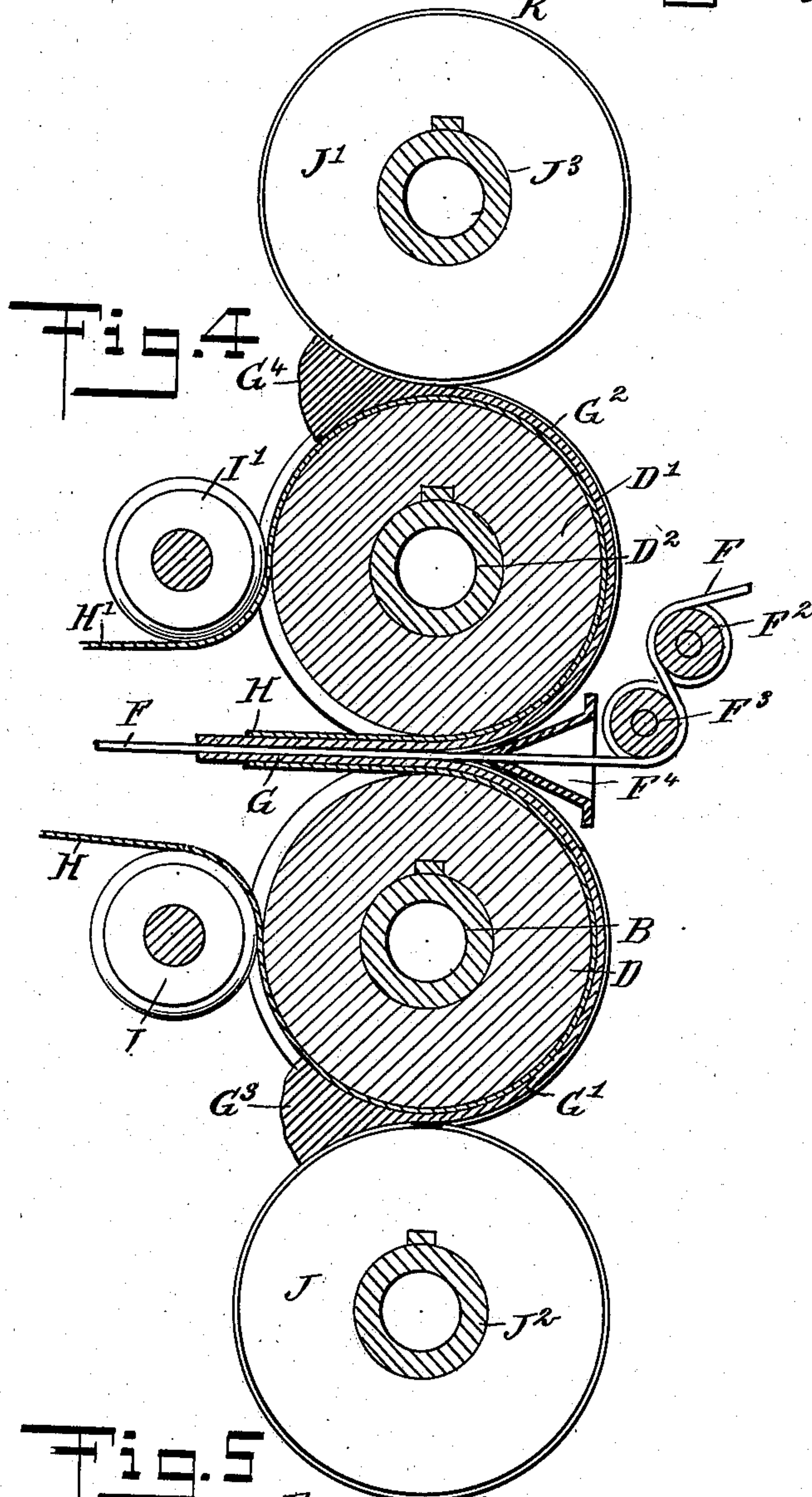
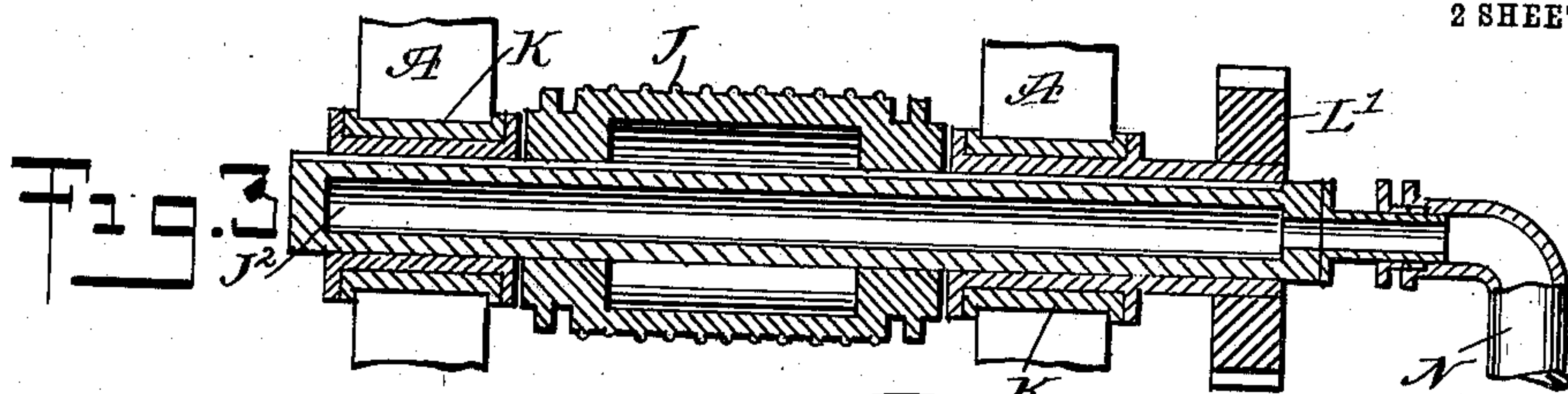
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UNITED STATES PATENT OFFICE.

CHARLES V. ACKERMAN, OF PASSAIC, NEW JERSEY.

MANUFACTURE OF COVERED WIRE.

No. 894,790.

Specification of Letters Patent.

Patented July 28, 1908.

Original application filed September 7, 1904, Serial No. 223,698. Divided and this application filed June 11, 1906.
Serial No. 321,198.

To all whom it may concern:

Be it known that I, CHARLES V. ACKERMAN, a citizen of the United States, and a resident of Passaic, in the county of Passaic and State of New Jersey, have invented new and useful Improvements in the Manufacture of Covered Wire, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in the manufacture of covered wire, whereby the wire is covered with an insulating plastic substance such as cement or the like, and this substance is inclosed in a wrapper formed of sheets, such as sheet tin or the like, the wrapper serving as a mold for the substance during the subsequent vulcanizing or other hardening process of the substance.

The invention consists of novel features and parts and combinations of the same, which will be more fully described herein-after and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a cross section of the wire covering machine, on the line 1—1 of Fig. 2; Fig. 2 is a side elevation of the same; Fig. 3 is a transverse section of one of the plastic substance feeding rollers; Fig. 4 is an enlarged sectional side elevation of the improvement; and Fig. 5 is an enlarged cross section of the covered wire.

In a suitably constructed frame A is journaled the main shaft B, carrying a gear wheel C, geared with other machinery for imparting a continuous rotary motion to the shaft B. On the latter is secured a drawing and pressing roll D, operating in conjunction with a like drawing and pressing roll D', having its shaft D² journaled in suitable bearings carried on the main frame A, the same as the shaft B. The shafts B and D² are connected with each other by gear wheels E and E', so that when the shaft B is rotated, the shaft D² rotates with it, to cause the rolls D and D' to rotate in unison with each other.

The rolls D and D' are formed on their peripheral faces with registering grooves, as plainly indicated in Fig. 1, and the said grooves are approximately semi-circular so that the grooves at the contacting points of the rolls form circular openings, through each

of which passes concentrically the wire F to be covered, as plainly indicated in Fig. 4. By having the rolls D and D' provided with a number of grooves a corresponding number of wires may be covered simultaneously, it being, however, understood that each wire F is covered by a substance G, such as unvulcanized rubber in a plastic state, cement or the like, and this plastic substance is inclosed in a wrapper formed of two parts H and H' of sheet material, such as sheet tin or the like. The wrapper acts as a mold for the plastic substance during the subsequent vulcanizing process and the wrapper is stripped off the vulcanized substance G after the vulcanizing process is finished. The wrapper may be left on the covered wire and separated by means of rotary knives.

The plastic material G is passed onto the wire F in two layers G' and G², superimposed on the parts H and H' forming the wrapper, as indicated in Fig. 4. The two parts G' and G² of the plastic substance are pressed together at their edges by the rolls D and D', so as to integrally unite the said two parts at their edges, thus completely inclosing or covering the wire F, as will be readily understood by reference to Fig. 5. The two parts H and H' of the wrapper are likewise pressed together at their adjacent edges so as to completely inclose the covering substance G (see Fig. 5).

The parts H and H' unwind from suitable rollers H² and H³ (see Fig. 2) and are fed onto and pressed in firm contact with the grooved surfaces of the rolls D and D' by feed rollers I and I', journaled in suitable bearings on the main frame and provided with ribs or beads, as plainly indicated in the drawings, the ribs or beads corresponding to the grooves in the corresponding rolls D and D', so that the ribs press the parts H and H' into the grooves, for the parts to conform to the shape of the grooves. The feed rollers I and I' are driven by suitable gearing, not shown, from the shafts B and D², so that the rollers I and I' rotate in unison with the rolls D and D'.

The plastic material for forming the layers G' and G² is placed in the form of lumps G³ and G⁴ onto the parts H and H', after the same are pressed in position on the peripheral surfaces of the rolls D and D', the said lumps G³, G⁴ being pressed and packed into uniform layers onto the parts H and H' by beaded feed rollers J and J', having their shafts J²

and J^3 journaled in suitable bearings K and K' adjustably mounted in the main frame A. The feed rollers J and J' rotate in unison with the rolls D and D', and for this purpose the shaft B is connected by gear wheels L and L' with the shaft J^2 , and the shaft D^2 is connected by gear wheels L^2 and L^3 with the shaft J^3 for the upper feed roller J'. The rollers J and J' are ribbed or beaded, similar to the rollers I and I', the only difference, however, being that the ribs or beads of the rollers J and J' are less in size than the beads or ribs on the rollers I and I' (see Fig. 1), and slightly less than the wires to be covered, to insure firm packing of the layers G' , G^2 around the wires.

By the arrangement described, the plastic material is pressed onto the parts H and H', and the layers G' and G^2 are grooved by the ribs or beads on the rollers J and J', so that when the layers G' and G^2 come in contact with the wire F they inclose the latter, as previously described, and at the same time the meeting edges of the two layers are pressed in firm contact with each other, to unite the layers integrally, as indicated in Fig. 5.

As the layers G' and G^2 are superimposed on the parts H and H', the latter act as carrying mediums for the layers, and the lumps G^3 and G^4 are separated into separate pairs of layers G' and G^2 by the sharp edges of the rolls D and D' coming in contact with the peripheral faces of the rollers J and J' (see Fig. 1), so that each wire F is covered by a pair of layers G' and G^2 , and the several pairs of united layers are inclosed in the uncut parts H and H' forming the wrapper, and which uncut parts are stripped off or separated by means of rotary knives, after the subsequent vulcanizing process is completed.

The rollers D, D', J and J' are preferably heated by steam, hot water or other suitable heating medium and are made interchangeable for different size wires, and for this purpose the corresponding shaft B, D^2 , J^2 or J^3 may be made hollow and connected by a suitable tube N with a source of steam or hot water supply, and each shaft has a spline engaging a corresponding groove in the wall of the bore of the corresponding roller and gear wheel, as plainly shown in Fig. 3, in which the roller J and its gear wheel L' are particularly shown. On removing the shafts B, D^2 , J^2 and J^3 the rollers D, D', J and J' can be taken out of the machine and others for different sized wires may be placed in position and the shafts returned to engage the new rollers.

The means employed for adjusting the bearings K and K' to bring the rollers J and J' in proper rolling contact with the rolls D and D' may be of any approved construction; for instance, as shown in Figs. 1 and 2, in each of the bearings K and K' screws a

screw rod O, journaled in the main frame and connected by a worm wheel O' and worm O² with a shaft O³, carrying a hand wheel O⁴, so that when the latter is turned, the corresponding bearings K or K' are moved upward or downward, according to the direction in which the wheel O⁴ is turned.

When the machine is in operation, the parts H and H' unwind from their rollers H² and H³, and the wire F unwinds from a roller F' and passes between tension rollers F² and F³ journaled on the main frame, to then pass through a funnel F⁴, concentrically through the corresponding circular aperture formed by registering grooves in the rolls D and D'. The roller F', as well as the tension rollers F² and F³ and the funnel F⁴ are arranged on the main frame A, as plainly indicated in Fig. 2.

The operation is as follows: When the main shaft B is rotated, the rolls D and D' and the rollers I and I', as well as the rollers J and J', rotate in unison with each other, so that each wire F is covered by a pair of united layers G' and G^2 of plastic material and the several pairs are inclosed in the sheet wrapper sections, brought in contact with each other between adjacent pairs of layers G' , G^2 by the rolls D and D', which also cause a constant feeding forward of the wire F, as the latter is firmly engaged by the plastic material G and its wrapper during the passage of the several parts between the rolls D and D'.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A wire covering machine comprising a pair of rolls between which pass the wire, the plastic wire covering substance and the sheet wrapping material, means for feeding the sheet wrapping material to the peripheral faces of the said rolls, and means for feeding the plastic wire covering substance onto the sheet wrapping material, and at the same time pressing the plastic substance into a uniform layer.

2. A wire covering machine comprising a pair of rolls between which pass the wire, the plastic wire covering substance, and the wrapping material in two-part sheet form, a feed roller for each roll, for feeding the wrapping material onto the peripheral face of the corresponding roll, and a feed roller for each of the rolls, for feeding the plastic substance onto the corresponding wrapping material, and at the same time pressing the plastic substance into a uniform layer.

3. A wire covering machine comprising a pair of rolls between which pass the wire, the wire covering substance and the wrapping material in two-part sheet form, a feed roller for each roll, for feeding the wrapping material onto the peripheral face of the corresponding roll, and a feed roller for each of the rolls, for feeding the plastic substance in a

uniform layer onto the corresponding wrapping material, the feed roller for the plastic substance coacting with the roll at a point on the periphery of the latter between the said feed roller for the sheet material and the entrance between the rolls.

4. A wire covering machine comprising a pair of rolls formed on their peripheral faces with registering grooves, a feed roller for each roll for feeding wrapping material onto the peripheral face of the corresponding roll, the said feed rollers being provided with ribs or beads corresponding to the grooves in the said rolls, and a feed roller for each of the rolls for feeding plastic substance in a uniform layer onto the corresponding wrapping material, the said feed rollers being also provided with ribs or beads.

5. A wire covering machine, comprising a pair of rolls between which pass the wire, the plastic wire covering substance, and the wrapping material, feed rollers for feeding the wrapping material to the peripheral faces of the said rolls, feed rollers for feeding the plastic substance onto the wrapping material, and means for heating the said pair of rolls and the feed rollers for the plastic substance.

6. A wire covering machine comprising a pair of rolls between which pass the wire, the plastic wire covering substance and the sheet wrapping material, and feeding devices for feeding the sheet wrapping material and the plastic wire covering substance between the rolls and simultaneously therewith forming the plastic material into a grooved layer.

7. A wire covering machine comprising a pair of rolls between which pass the wire, the plastic wire covering substance and the sheet wrapping material, a feeding device for feeding the sheet wrapping material to the said rolls, and a feeding device for feeding the plastic wire covering substance onto the sheet wrapping material.

8. A machine for covering a plurality of wires with a wire covering of unvulcanized

plastic substance, and inclosing the substance in a wrapper comprising means for forming the substance into pairs of layers and pressing the pairs of layers onto the wires, each pair inclosing one wire, and means for covering the several pairs of layers with a two-part removable wrapper acting as a mold for the subsequent vulcanizing of the substance.

9. A wire covering machine provided with rolls between which pass the wire, the plastic covering substance and the wrapping material, and means for superimposing the plastic substance upon the wrapping material and feeding it with the wrapping material between the said rolls.

10. A wire covering machine provided with rolls between which pass the wire, the plastic covering substance and the wrapping material, and means for spreading the plastic substance in a layer upon the wrapping material and feeding it with the wrapping material between the said rolls.

11. A wire covering machine comprising rolls between which pass the wire, the plastic covering substance and the sheet wrapping material, means for feeding the wrapping material between the rolls, and means for forming the plastic material into a grooved layer and feeding it between the said rolls.

12. A wire covering machine, provided with rolls between which pass the wire, the plastic covering substance and the wrapping material in two-part sheet form, and means for forming the sheets of plastic material with grooves and feeding them superimposed upon the sheets of wrapping material between the rolls.

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

CHARLES V. ACKERMAN.

Witnesses:

JOHN KENNEL, Jr.,
JOSEPH D. DAVID.