G. H. RUPLEY.

PROCESS OF INSULATING ELECTRIC CONDUCTORS.

APPLICATION FILED OCT. 14, 1907.

919,644. Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

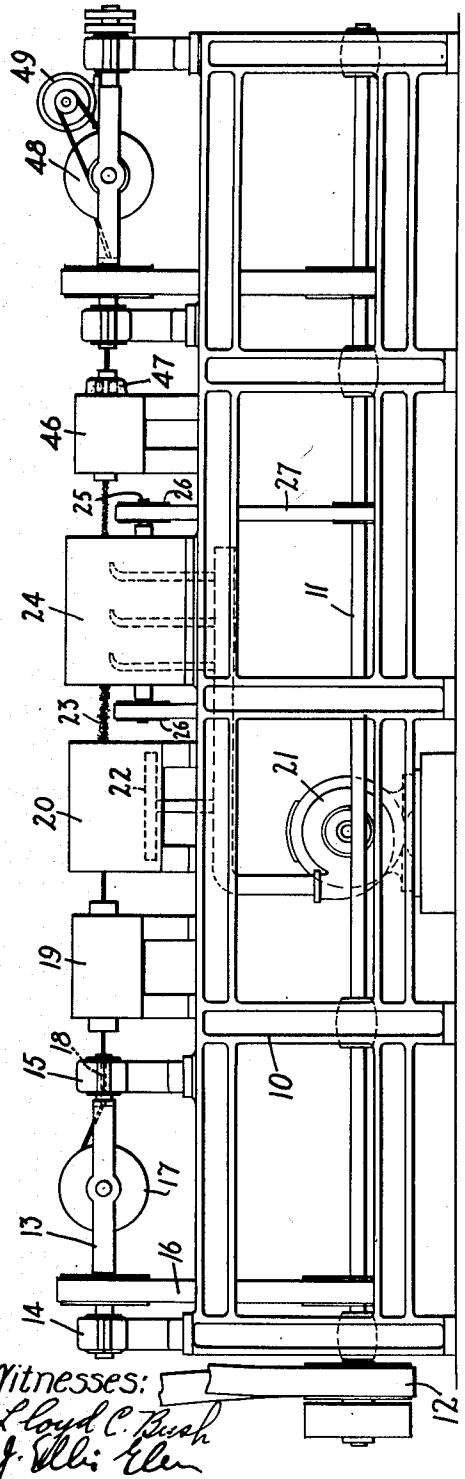


Fig. 1

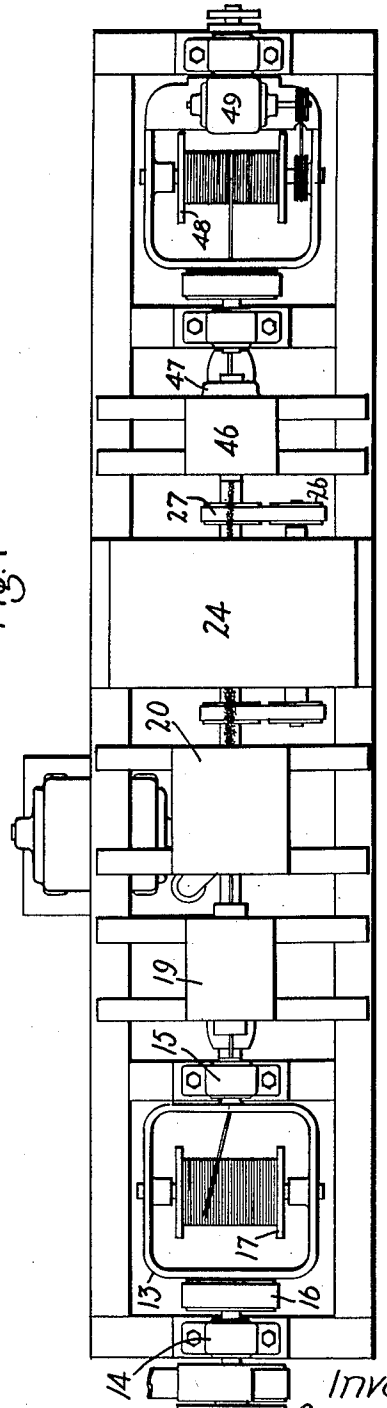


Fig. 2

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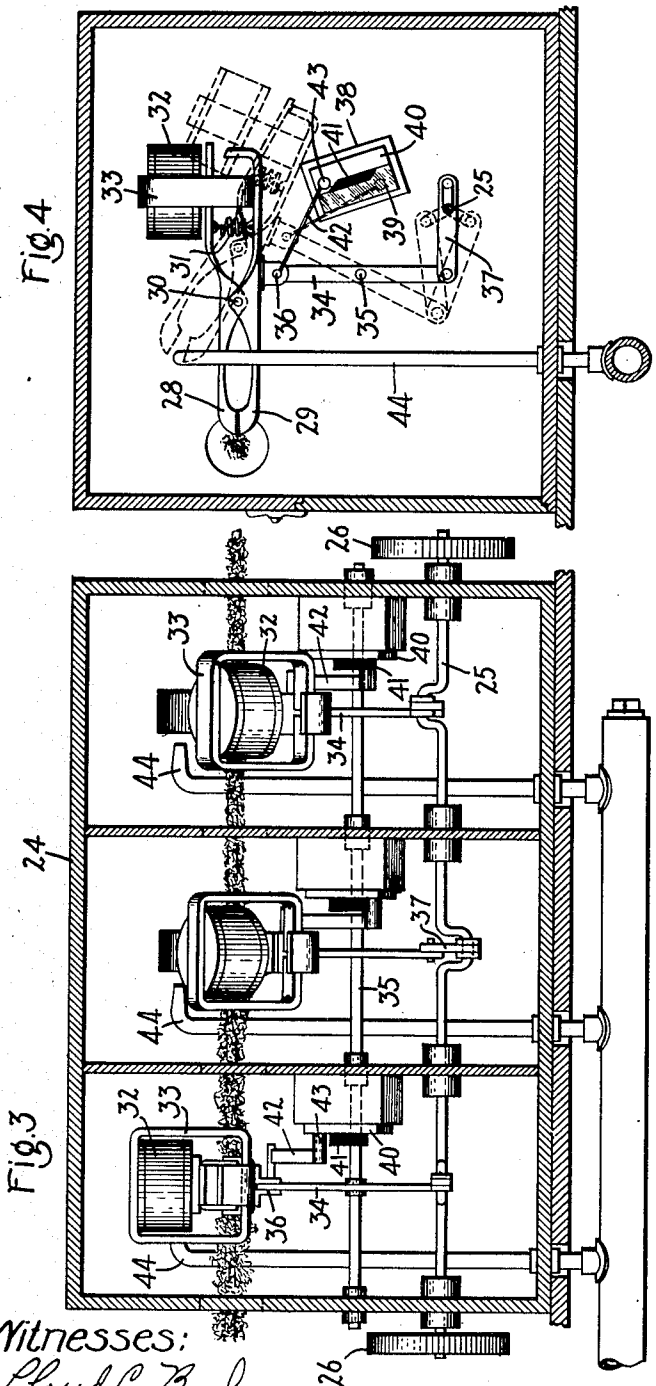
G. H. RUPLEY.

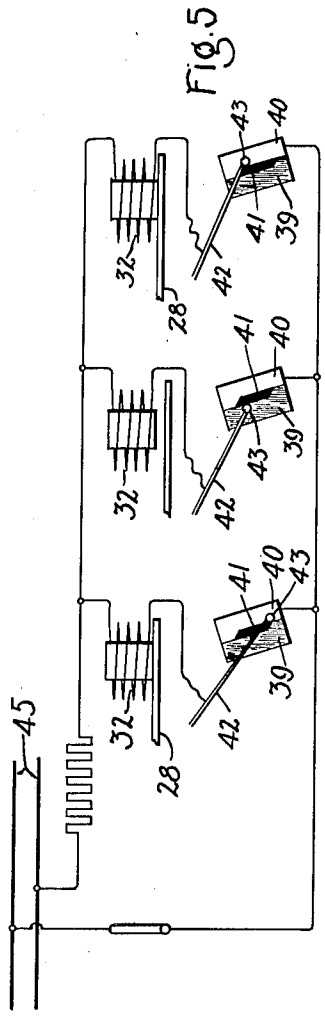
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Lloyd C. Bush
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Inventor:
George H. Rupley.
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UNITED STATES PATENT OFFICE.

GEORGE H. RUPLEY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

PROCESS OF INSULATING ELECTRIC CONDUCTORS.

No. 919,644. Specification of Letters Patent. Patented April 27, 1909.

Application filed October 14, 1907. Serial No. 397,314.

To all whom it may concern:

Be it known that I, GEORGE H. RUPLEY, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Processes of Insulating Electric Conductors, of which the following is a specification.

This invention relates to the insulating of electric conductors and has for its object the provision of means whereby a tough, durable, fireproof coating may be applied to a conductor in a simple and efficient manner.

My invention relates more specifically to the coating of conductors with the fireproof material in a flocculent condition, such for instance as asbestos.

In carrying out my invention I apply the asbestos to the wire by means of an adhesive. The asbestos is applied to the wire in such a manner that the fibers are felted together so that there will be no seams or grain to the coating. One very convenient method of applying asbestos in a loose or flocculent condition is to mechanically throw it on, as for instance by blowing it on to the wire. By this process an excess of asbestos is applied which must be removed before the coating can be rolled down and made smooth. I accomplish this result by picking the fiber from the wire, the result being analogous to that of picking it off with the fingers. In carrying out this process I find it convenient to revolve the wire so that the pickers which operate rapidly may be arranged on only one side of the wire. After the excess has been picked off so as to leave a uniform and relatively thin coating on the wire, the latter is passed through a polishing compound and then through rollers which make the surface hard and smooth.

In the accompanying drawings in which I have shown my invention embodied in a concrete mechanism, Figure 1 represents an elevation of my machine; Fig. 2 a plan view of the same; Fig. 3 a longitudinal section of the picking mechanism; Fig. 4 a cross-section of the same and Fig. 5 is a diagram of the circuit connections.

Referring to the drawings 10 represents a framework or bed upon which the operating mechanism is mounted. Mounted on the lower part of this bed and central thereof is a drive shaft 11 driven by a belt 12. A yoke 13 is mounted in bearings 14 and 15 and is rotated from the shaft 11 by means of a belt 16. This yoke 13 is adapted to receive the spool 17 upon which is wound the wire to be coated. The wire runs off of the spool 17 through a guide 18 in the bearing 15, and then through a tank 19 of adhesive coating material. The particular nature of this material forms no part of my invention, but it is essential that it be something of an adhesive nature, which will harden and which is preferably non-hydroscopic. For this purpose a shellac may be used, or if desired an enamel such for instance as the linseed oil enamel disclosed in the patent to Rupley, No. 806,574. After the conductor is coated with this adhesive, it passes through the box 20 where it is coated with asbestos. This box contains the asbestos in a loose or flocculent condition, and a blower 21 having a duct leading to the nozzle 22 blows the asbestos on the wire. This process applies more of the material than is necessary as shown at 23, in fact more than can be taken care of when the coating is smoothed down. In order to remove this excess, I have provided the picking box 24. In this box are provided a number of pickers. In this case I have shown three, all of which are operated by means of a longitudinal crank shaft 25 having pulleys 26 at opposite ends and driven from the shaft 11 by means of belts 27.

The particular form of pickers which I have shown are each arranged in a separate compartment and are electromagnetically operated. I do not, however, limit my invention to any particular form of picking mechanism but have shown the present form for purposes of illustration merely.

All of the pickers are identical in operation so that a description of one of them will suffice.

A pair of jaws 28 and 29 pivoted to each other at 30 are arranged as shown in proximity to the wire. These jaws are arranged like a pair of scissors and are spring-pressed to the open position by means of a spring 31. Mounted on the rear end of the lower member 29 is a magnet 32 which is secured by means of a yoke 33 so as to be in proximity to the rear end of the upper member 28. When the magnet 32 is energized, the rear end of member 28, which acts as an armature for the magnet 32, will be attracted and the jaws close and when the magnet is deënergized the spring 31 will open the

jaws. The jaws are supported by the member 34 pivoted to the shaft 35, the member 34 being pivoted to the lower member 29 at 36. The lower end of the member 34 is connected with the crank shaft 35 by means of the link or connecting rod 37 so that when the shaft 25 is turned, the member 34 will be vibrated back and forth in a well-known manner, the parts assuming the position shown in dotted lines in Fig. 4. In order to control the circuit of the magnet 32, I have provided a switch mechanism 38 which opens and closes the circuit of the magnet 32 as the mechanism is vibrated back and forth from the wire. The mechanism which I have shown consists of a base upon which is mounted an insulating surface 39 and a conducting surface 40 separated by a flange 41.

A spring contactor 42 is provided with a projecting finger 43 adapted to engage the rib or flange 41. When the parts are in the position shown in full lines, the finger 43 will be on the conducting portion and the magnet 32 will be energized so as to keep the jaws closed. As the jaws move backward to the position shown in dotted lines the finger 43 will move down along the flange 41 and will be pressed against the same by means of the spring arm 42. When the end of the flange is reached the finger will snap past the same and on to the insulation 39 shown in dotted lines. This will open the circuit of the magnet and the spring 31 will thereupon open the jaws. This operation will be continued at a rapid rate and the jaws in the beginning of each operation are cleared by means of a pipe 44 from the blower 21. The magnet 32 is energized from the source of electric energy 45, the circuit connections being as shown in Fig. 5. When the excess has been removed by means of these pickers the wire passes through the box 46 containing the polishing compound, such for instance as carnauba wax, and then passes through the roller 47 which makes the coating smooth and hard. The wire then passes to the spool 48, which is mounted similarly to the spool 17, the spool itself being rotated by means of a small motor 49.

It will be understood, of course, that the mechanism which I have shown for accomplishing my invention is for purposes of illustrating the steps of my process and that I do not regard my invention as limited to the mechanism herein shown and described. Various modifications both of the mechanism and the process itself will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. The process of insulating an electric conductor which consists in applying asbestos fiber thereto in a flocculent condition by means of an adhesive and then picking the excess fiber from the conductor.

2. The process of insulating an electric conductor which consists in applying asbestos fiber thereto in a flocculent condition by means of an adhesive and then picking the excess fiber from the conductor by means of vibrating pickers.

3. The process of insulating an electric conductor which consists in applying asbestos fiber thereto in a flocculent condition by means of an adhesive and then picking the excess fiber from the conductor by means of pickers vibrating toward and from the conductor.

4. The process of insulating an electric conductor which consists in revolving the conductor and applying asbestos fiber thereto by means of an adhesive and then picking the excess fiber from the conductor.

In witness whereof, I have hereunto set my hand this 5th day of October, 1907.

GEORGE H. RUPLEY.

Witnesses:
BENJAMIN B. HULL,
HELEN ORFORD.