No. 750,563. PATENTED JAN. 26, 1904.

J. C. ANDERSON.

PROCESS OF COVERING WIRE.

APPLICATION FILED APR. 30, 1903.

NO MODEL.

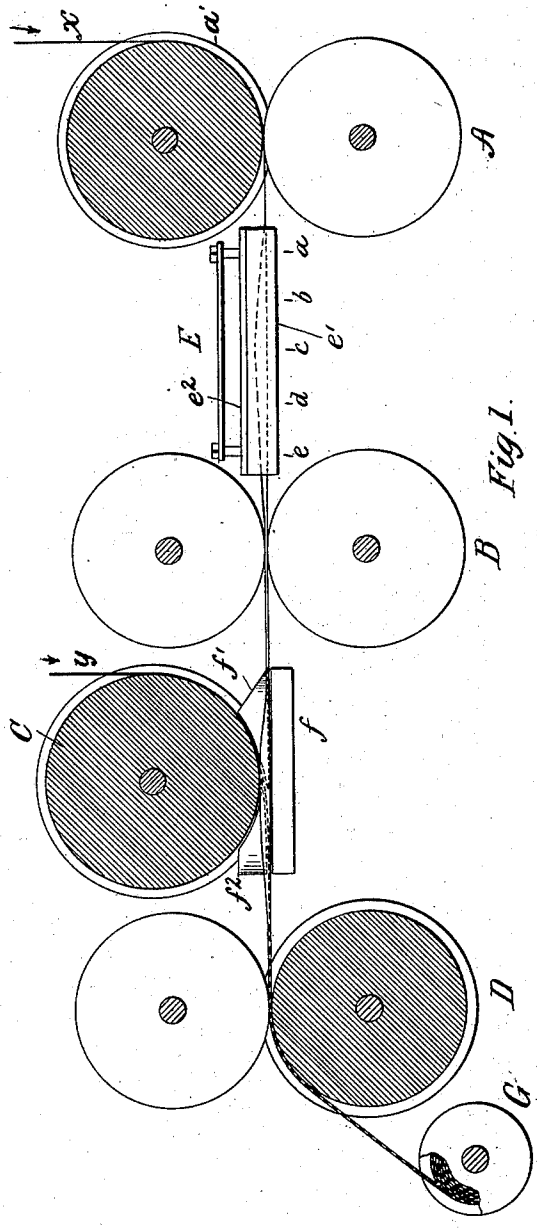


Fig. 1.

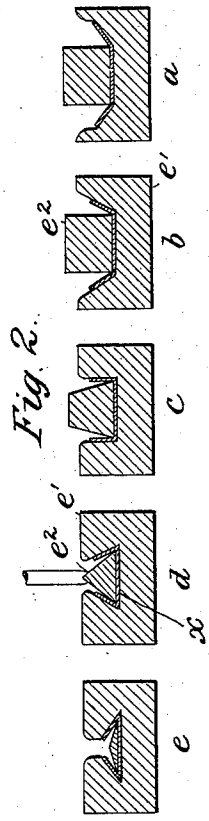


Fig. 2.

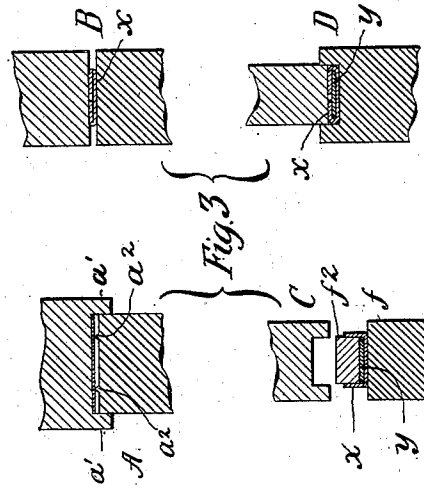


Fig. 3

Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 750,563. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

JAMES C. ANDERSON, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO VARLEY DUPLEX MAGNET COMPANY, A CORPORATION OF NEW JERSEY.

PROCESS OF COVERING WIRE.

SPECIFICATION forming part of Letters Patent No. 750,563, dated January 26, 1904.

Application filed April 30, 1903. Serial No. 154,922. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. ANDERSON, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Processes of Covering Wire, of which the following is a full, clear, and exact description.

This invention is an improved process of insulating electrical conductors, and has special reference to the application of insulating material to flat or ribbon wire.

The object of the invention is to provide a simple, cheap, and rapid process.

In accordance with my invention the insulation, in the form of a strip of paper or other suitable fabric, is applied to the wire longitudinally, its lateral edges being bent or hemmed around the lateral edges of the wire and brought together along one face of the wire, forming a longitudinal straight seam thereupon.

My invention also consists in first forming the paper strip into an envelop, then opening the same longitudinally and inserting the wire therein, and finally again closing the envelop around the wire.

For a more specific description of my invention reference is made to the accompanying drawings, in which—

Figure 1 indicates conventionally a series of rolls and dies, part in section and part in elevation, by which the entire process of insulation is carried out. Fig. 2 illustrates five cross-sectional views of the die for forming the insulating-strip into an envelop; and Fig. 3 illustrates four sectional views of abutting portions of the respective rolls, showing various stages of the process.

x indicates an insulating-strip, of paper or other suitable fabric, and y a flat copper wire. The paper strip is somewhat wider than the wire strip, being substantially twice the width thereof, so that it may nearly cover the metal when it is folded around it. Both strips are supposed to lead from a reel (not shown in the drawings) to the covering apparatus illustrated. The paper strip first passes between the peripheries of a pair of rolls A. The upper roll has a smooth surface of a width just sufficient to take in the paper strip and is flanked by flanges a'. The lower roll is provided with two annular V-shaped ridges a^2, separated from each other a distance about equal to the width of the wire to be covered. These rolls, while turning on their axes, are also supposed to be pressed together, so that the ridges mentioned will score the under side of the strip as it passes between the rolls. This scoring defines the lines on which the strip is afterward bent or folded and insures accurate folding, as well as preventing buckling during the folding process. From the rolls A the strip passes into a folding or hemming die E, consisting, essentially, of an elongated passage-way formed by the proximity of two parts e' and e^2. The strip of paper traverses the space between these parts, and the angles of the surfaces with which the paper runs in contact are gradually changed from one end to the other of the die, so that the lateral edges of the strip or those portions outside of the scorings are gradually turned upward and then over until they are folded nearly into contact with the upper face of the strip. The graduation in the shape of this die is illustrated in the sectional views of Fig. 2, the location of each section being indicated by the respective letters a, d, c, d, and e. When the strip emerges at the rear of the die E with its edges folded over, as indicated in the section e, it immediately passes between a pair of pressing-rolls B, which completes the formation of the envelop by pressing and setting the folds together. As the strip leaves the rolls B it is in the form of a closed envelop, and it becomes necessary to open it in order to insert the wire. The strip therefore leads over the plate or table f, immediately above which is a wedge-shaped nose f', which is adapted to enter the seam or space between the abutting edges of the strip and lift said edges into a position at right angles to the body portion of the strip. In this open condition, which is maintained by a similar nose f^2 of reverse wedge shape, the strip passes beneath a guide-roll C, around which the flat wire y leads. Between the pieces f' and f^2 and

immediately beneath the roll is an open space through which the wire passes and enters between the turned-up edges of the paper strip. The wire moves at the same speed as the paper and passes under the nose f^2, which being pointed at its extremity allows the edges of the paper to fall inward as it leaves the table f, and thus cover the wire. The covered wire then passes between two pressure-rollers D, which should be located as near as possible to the roll C in order to press the edges of the paper flap at once after leaving the table f. This final pressure of the covered wire recloses and "sets" the envelop. The operation is now complete and the insulated wire is coiled up upon a receiving-spool, as indicated at G.

Wire insulated in this manner is not intended to be handled very much as "wire," but is adapted for winding at once into electrical coils wherein one convolution resting upon another will hold the paper securely upon the wire.

It will be seen that the main difference between the herein-described process of insulating and those commonly employed is that the insulation is applied longitudinally to the wire instead of being wound around it. Hence the rapidity with which the work can be done is very much increased.

My invention is not confined in its broad sense to the specific steps of the process set forth. For instance, I may adopt a process whereby the wire is at once inserted in the paper at the time of folding the paper into an envelop; but I prefer to form the envelop and open it to admit the wire afterward, because the pressing or ironing which the paper receives in the rolls B causes it to more tightly hug the wire afterward.

Having described my invention, I claim—

1. The process of covering flat wire in single lengths which consists in making longitudinal scorings in a strip of covering material, then applying the wire lengthwise to said strip, folding the latter along the scorings to envelop the edges of the wire and finally creasing the folds to retain the covering on the wire.

2. The process of insulating wire which consists in forming an elongated envelop of insulating material, then opening the envelop longitudinally, inserting the wire and finally closing the envelop.

3. The process of insulating wire which consists in folding over the lateral edges of an elongated strip upon the body of the strip to form an envelop, then raising said folded edges and inserting a wire and finally folding the edges upon the wire.

4. The process of insulating flat wire which consists in folding over the lateral edges of an elongated strip upon the body of the strip, then pressing the folds, then raising said folded edges, then inserting the wire between the raised edges and finally folding the edges upon the wire.

5. A process of insulating flat wire which consists in first making longitudinal scorings in a strip of material, then folding said material along the scored lines, then raising the folds and inserting the wire and finally replacing the folds.

In witness whereof I subscribe my signature in presence of two witnesses.

JAMES C. ANDERSON.

Witnesses:
FRANK S. OBER,
WALDO M. CHAPIN.