No. 753,461. PATENTED MAR. 1, 1904.

J. C. ANDERSON.

ELECTRICAL CONDUCTOR AND COIL.

APPLICATION FILED APR. 30, 1903.

NO MODEL.

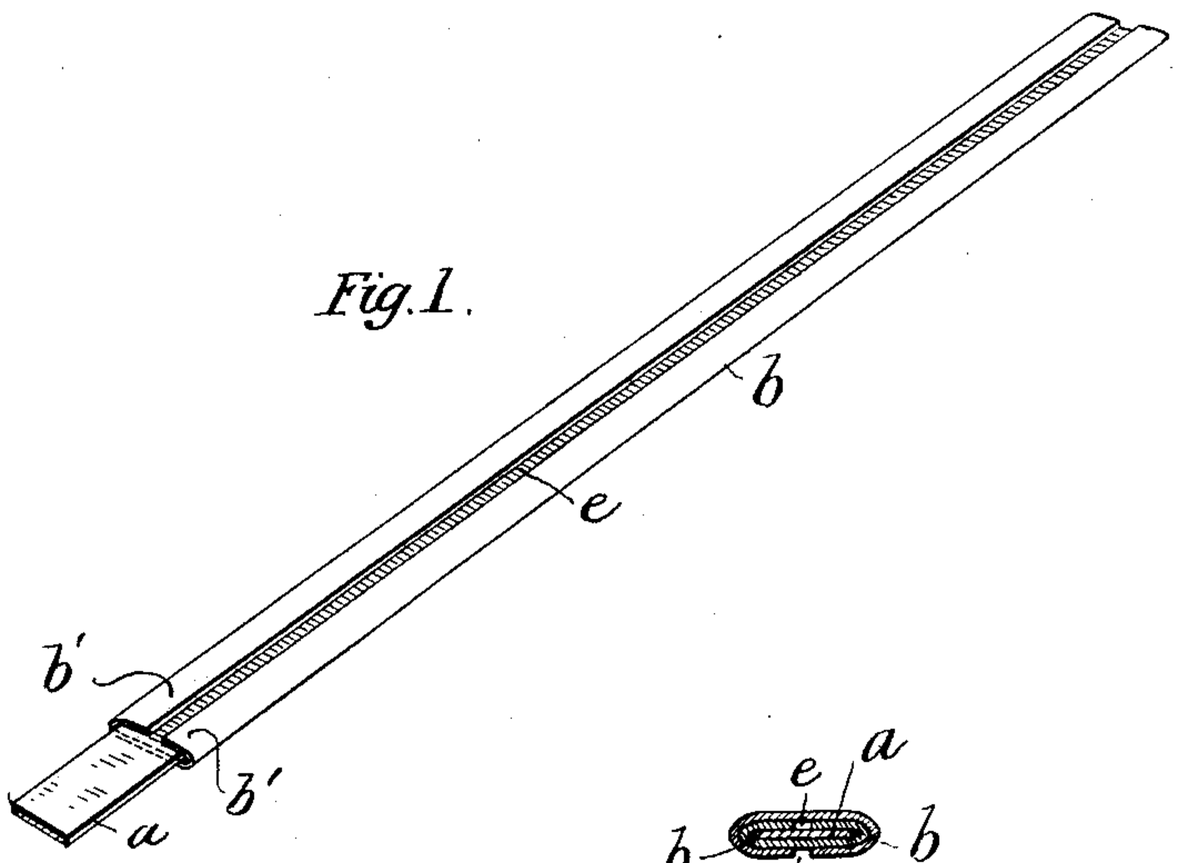

Fig. 1.

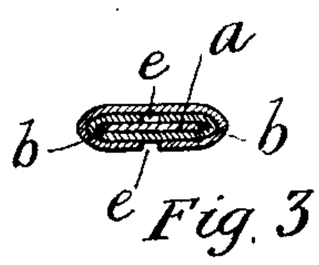

Fig. 3.

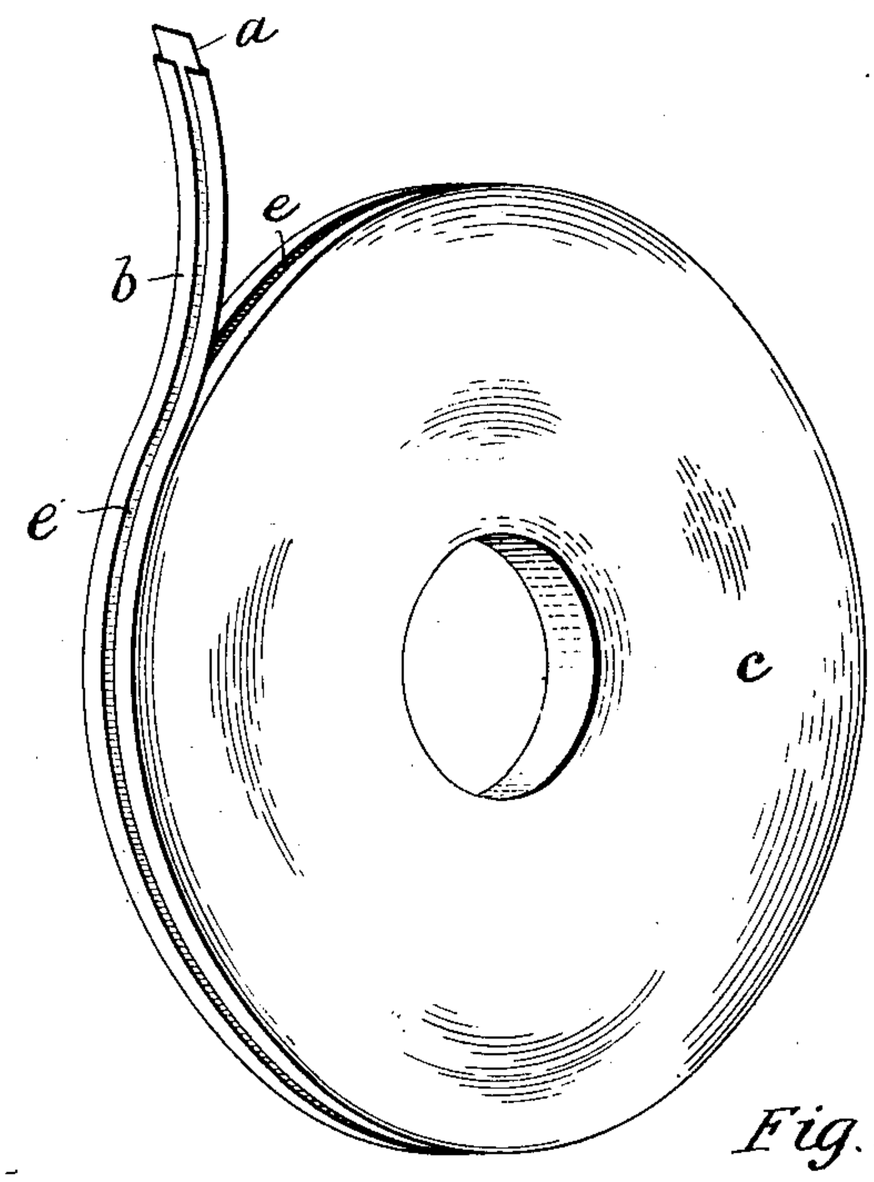

Fig. 2.

Witnesses
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No. 753,461. Patented March 1, 1904.

UNITED STATES PATENT OFFICE.

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

ELECTRICAL CONDUCTOR AND COIL.

SPECIFICATION forming part of Letters Patent No. 753,461, dated March 1, 1904.

Application filed April 30, 1903. Serial No. 154 920. (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 Electrical Conductors and Coils, of which the following is a full, clear, and exact description.

This invention is an improvement in insulated electrical conductors and electrical coils made up therefrom, the object being to produce a cheap and efficient form of insulated wire especially adapted to be wound into coils for electrical and electromagnetic purposes.

The invention relates more especially to the insulation of flat or ribbon wire, and it is contemplated using it in connection with wire of small cross-section—such, for instance, as flat wire three thirty-seconds of an inch, or thereabout, in width; but obviously the invention is not confined to such sizes or to any particular size of wire.

The invention consists of a flat insulated electrical conductor and coil of the character hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a piece of the insulated wire. Fig. 2 is a view of a coil of said wire. Fig. 3 is a cross-sectional view illustrating a modification.

The electrical conductor *a* is of copper or any of the metals commonly used for the purpose. It is insulated by an envelop of paper *b*, which is applied to the wire in the form of a longitudinal strip, having its lateral edges *b'* bent over the respective lateral edges of the wire and approaching each other more or less nearly and forming a longitudinal seam along one face of the wire. The process of applying this paper insulation is similar to a hemming or binding process in that it is folded over the longitudinal edges of the wire. By suitable creasing, folding, and pressing devices the paper may be caused to retain itself upon the wire sufficiently to enable it to be handled or to be passed through a winding-machine to coil it up for electrical coils. No adhesive material is used to secure the paper to the wire. The cheapness of this covering is apparent from the fact that it can be applied without a spiral winding or wrapping process, and therefore can be done very rapidly. Such wire can be wound into electrical coils in any desired manner; but the specific coil I have invented consists of a spiral the convolutions of which are all in the same plane at right angles to the axis. This spiral (indicated by *c*) is formed by winding the wire with the seam *e* of the insulation on the convex side, so that the curvature will draw the abutting edges of the insulation tightly against the face of the wire. This produces a smooth even winding, whereas if the wire is so wound that the seam comes on the concave side there will be a tendency of the paper to wrinkle or buckle and produce irregularities in the winding. The open space at the seam may vary in width, so long as the edges of the wire are well covered or lapped. The winding operation brings the continuous or closed portion of the insulating-cover of one convolution against the seam of the next, thus thoroughly insulating the two convolutions and mechanically securing the edges of the seam in place.

My invention is not limited to the use of paper, but includes any insulating fabric in the form of a strip with its edges hemmed or bent over longitudinally upon the conductor.

While I make no specific claim to the use of adhesive material to secure the insulation to the wire, it will be understood that insulation of the character described by me applied with cement or other adhesive material comes within the scope of my broad idea.

In Fig. 3 the wire is shown with two of the paper envelops applied to it, the seams occurring on opposite sides of the wire. By this arrangement the wire is fully covered even if the edges of the paper do not meet at the seams.

Having described my invention, I claim—

1. An electrical conductor consisting of a flat or ribbon wire having one face and its edges covered with insulating material and a continuous portion of its other face exposed.

2. The combination of an electrical conductor in the form of a ribbon and an insulating-

covering therefor consisting of a single strip applied longitudinally to the conductor and having its edges bent or hemmed around the edges of the conductor and open continuously along one face of the conductor.

3. The combination of an electrical conductor in the form of a ribbon, and an insulating-covering therefor consisting of a single strip applied longitudinally to the conductor having its edges bent or hemmed around the edges of the conductor, and forming an open envelop adapted to retain itself upon the conductor.

4. An electrical coil, consisting of a winding of flat wire, said wire being covered with insulating material in the form of a strip applied longitudinally to the wire and having its lateral edges bent or hemmed over the edges of the wire and forming a longitudinal seam along one face of the wire, the seam occurring on the convex side of the convolutions of the coil.

5. The combination of a flat electrical conductor and an insulating-cover therefor, consisting of two strips longitudinally applied to the conductor, each having its lateral edges bent around the lateral edges of the conductor and forming two straight longitudinal seams on the opposite faces of the conductor, the seam of one strip being covered by the other strip.

6. A coil of covered wire consisting of a winding or helix in which the convolutions are successively superposed upon each other, said wire being a flat ribbon and covered with insulating material in the form of a strip applied longitudinally to the wire and having its lateral edges bent or hemmed over the edges of the wire and forming a longitudinal seam along one face of the wire, said edges of one convolution being confined by the next adjacent convolution.

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

JAMES C. ANDERSON.

Witnesses:

FRANK S. OBER,

WALDO M. CHAPIN.