No. 762,112. PATENTED JUNE 7, 1904.

V. G. APPLE.

ELECTRICALLY CONDUCTIVE COIL AND METHOD OF CONSTRUCTING SAME.

APPLICATION FILED SEPT. 21, 1903.

NO MODEL.

Fig. 1.

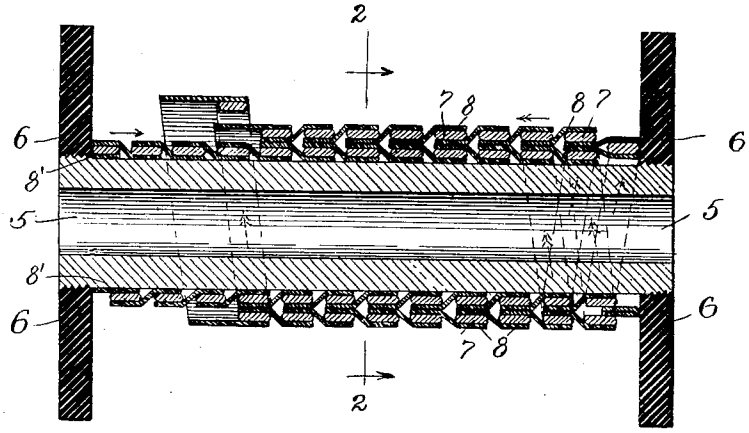


Fig. 3

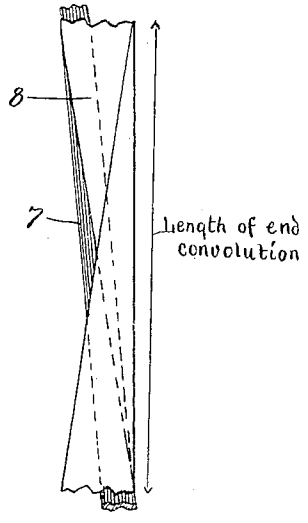
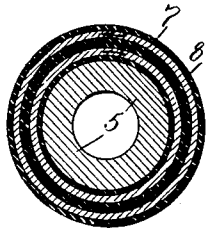


Fig. 2



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

No. 762,112. Patented June 7, 1904.

UNITED STATES PATENT OFFICE.

VINCENT G. APPLE, OF DAYTON, OHIO.

ELECTRICALLY-CONDUCTIVE COIL AND METHOD OF CONSTRUCTING SAME.

SPECIFICATION forming part of Letters Patent No. 762,112, dated June 7, 1904.

Application filed September 21, 1903. Serial No. 173,997. (No model.)

To all whom it may concern:

Be it known that I, VINCENT G. APPLE, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Electrically-Conductive Coils and Methods of Constructing the Same; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

My invention has for its object to produce an electrically-conductive coil wherein the convolutions of wire are insulated from each other by strips of flexible material, such as paper, and to provide a method of constructing the coils whereby the insulating-strip may be applied to the wire during the winding thereof upon its spool or support and in such manner that every convolution of wire is insulated from every other and the insulating-strip secured in position by the convolutions of wire themselves.

To these ends my invention consists in the features of construction and arrangement of the spool and the method of its construction hereinafter more fully described, as pointed out in the claims.

In the drawings I have illustrated in exaggerated fashion the method of construction of the spool and the resultant coil structure.

In such drawings, Figure 1 is a longitudinal vertical section of a partially-wound coil in the process of winding. Fig. 2 is a transverse vertical section on line 2 2 of Fig. 1. Fig. 3 is a fragmentary view of one convolution of the coil extended, illustrating the manner of folding the paper at the end of a layer of convolutions.

Throughout the drawings like numerals of reference refer to like parts.

5 indicates a supporting-spool provided with threaded ends.

6 6 indicate spool-heads of insulating material screwed thereon.

7 indicates generally a flat electrically-conductive wire wound upon the spool in layers of continuous convolutions, such layers commencing alternately at opposite ends in the usual manner.

8 indicates generally a flexible insulating-strip of paper or the like wound on the spool with the wire 7 and serving to insulate the various convolutions of wire from each other.

8′ indicates a fragment of insulation used as a "filler."

The paper strip 8 is preferably continuous and is longitudinally coextensive with the wire wound upon the spool. In width it is preferably somewhat more than double the width of the flat wire, the essential requirement being that its width be sufficient to pass over one convolution and under the next convolution to insulate them respectively from the corresponding convolutions of the superposed and subjacent layers.

In winding the coil a filler-strip 8′ of sufficient width to accommodate the first convolution of wire is placed upon the core, and the wire and flexible insulating-strip are then wound thereon from the end of the spool thus protected. The paper strip 8 is placed upon the side of the wire exterior to the support, with one edge flush with the corresponding edge of the wire and its other edge projecting beyond the wire-edge in the direction in which the wire is to be wound. When now the first convolution is completed and a second convolution started to be wound, such second-wound convolution will overlie the portion of the paper strip projecting from first-wound convolution, crushing said flexible strip in until it rests upon the subjacent support, as illustrated in the drawings. The winding thus proceeds until only the last convolution of the layer remains to be wound. At such point the paper strip 8 comes in contact with the end of the spool and is folded over upon itself. A fold is so taken that the relative positions of the top and bottom surfaces of the paper are exactly reversed in a distance corresponding with the length of the last-wound convolution of the layer. Consequently the folded edge of the paper contacts with the end of the spool throughout the entire extent of the fold, and at the point where the last

convolution of the wire is completed and the wire is bent back to begin the return winding the folding of the paper will have been completed, so that it again projects over the edge of the wire in the direction in which said wire is being wound.

It will thus be seen that my method generally consists in applying to the top surface of the wire being wound an insulating-strip of a width approximately double that of the wire and arranged upon the wire to project therefrom in the direction in which the wire is being wound and simultaneously winding the wire and the insulation-strip in laterally close turns so that the wire of each convolution overlies the projecting portion of the insulating-strip carried by the next preceding convolution.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The method of constructing electrically-conductive coils which consists in simultaneously winding upon a support a wire and a strip of insulating material, of approximately double the width of the wire, the insulating-strip being placed upon the portion of the wire exterior to the support, with one edge flush with the corresponding edge of the wire and its other edge projecting in the direction in which the wire is being wound, such wire being wound in laterally-close convolutions so that each convolution of wire overlies the projecting portion of the insulating-strip of the next preceding convolution.

2. An electrically-conductive coil comprising a support, an electrically-conductive wire wound thereon in laterally-close turns, and a strip of insulating material wound in a direction conforming with the wire winding, said strip being arranged with one edge of each of its convolutions overlying the corresponding convolution of wire and its opposite edge underlying the convolution next succeeding in the direction of winding.

3. An electrically-conductive coil comprising the following instrumentalities, viz: a support, a continuous electrical conductor, and a coextensive strip of flexible insulating material wider than the wire; the wire and insulating-strip being arranged on the support in corresponding convolutions, each convolution of the strip having one edge overlying the corresponding convolution of the wire and its other edge underlying the next succeeding convolution.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

VINCENT G. APPLE.

In presence of—
L. M. ARNOLD,
N. H. KELLEHER.