J. L. COOPER & A. J. SWEET.

MICA INSULATION.

APPLICATION FILED OCT. 18, 1905.

985,399. Patented Feb. 28, 1911.

Fig. 1.

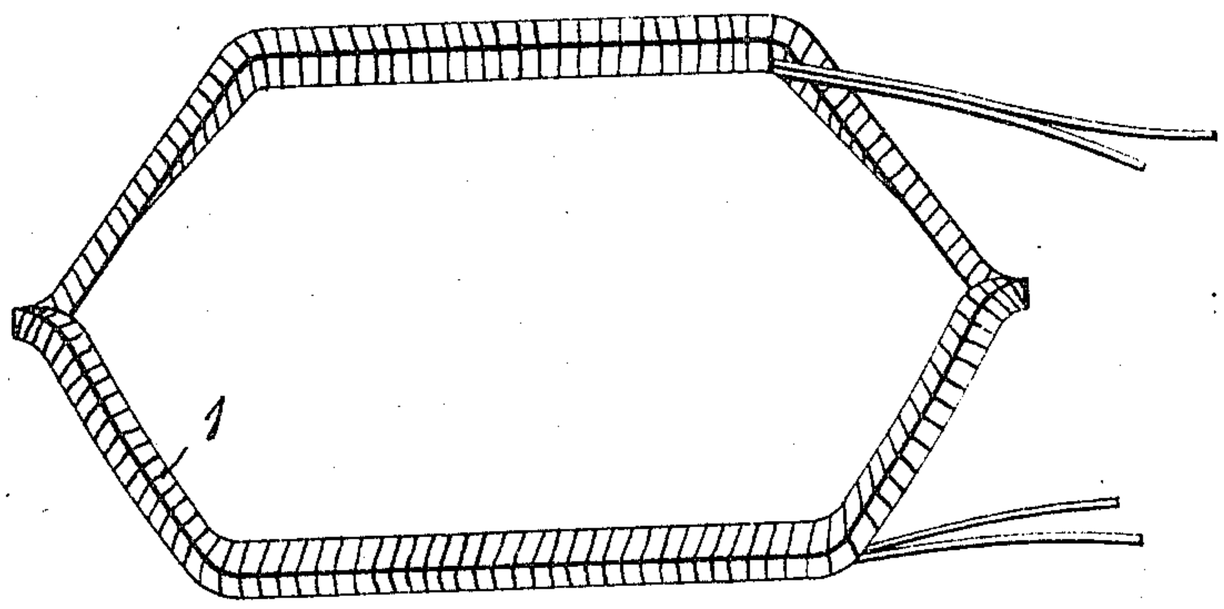
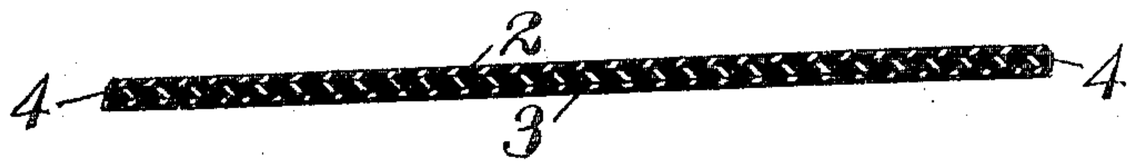


Fig. 2.



WITNESSES:

Fred. H. Miller

R. F. Clarkson

INVENTORS

John L. Cooper

Arthur J. Sweet

BY

Dickey & Elam

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN L. COOPER, OF WILKINSBURG, AND ARTHUR J. SWEET, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

MICA INSULATION.

985,399.

Specification of Letters Patent. **Patented Feb. 28, 1911.**

Application filed October 18, 1905. Serial No. 283,342.

To all whom it may concern:

Be it known that we, JOHN L. COOPER and ARTHUR J. SWEET, citizens of the United States, and residents, respectively, of Wilkinsburg and of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Mica Insulation, of which the following is a specification.

Our invention relates to sheet insulating material for electrical conductors, and it has for its object to provide a thin, tough and flexible insulating body that shall retain its insulating properties when subjected to relatively high temperatures.

In dynamo-electric machines, and particularly machines which are subjected to frequent overload conditions, such as railway motors, it is desirable to provide a coil-insulation that is both flexible and tough, so that it may be easily applied to the coils and may retain its insulating properties when subjected to high temperatures.

According to our invention, we provide an insulating sheet which is built up of two strips of thin paper between which sheet mica is assembled, the two substances adhering to each other by reason of a special insulating compound.

Our invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view of an armature coil insulated in accordance therewith and Fig. 2 is a cross-section, on an enlarged scale, of the insulation of Fig. 1.

Referring to the drawings, the insulating tape which is wrapped around a coil 1 of Fig. 1 and is shown in cross-section in Fig. 2, comprises two outer retaining strips 2 and 3 of very thin insulating material, such as Japanese paper, between which sheets of mica 4 are assembled. The mica 4 is made to adhere to the outer retaining strips by means of a special insulating binder, which also serves to toughen the assembled insulation and to add materially to its flexibility. This compound or binder comprises a mixture of mica-sticking varnish, wood alcohol from which the acetone has been removed and castor oil, which are preferably mixed in approximately the following proportions: Mica-sticking varnish, four parts, wood alcohol, three parts, castor oil, one part.

The material is constructed by distributing mica sheets over a sheet of thin paper to which a coating of the compound has been applied, a corresponding sheet of thin paper being placed on top of the mica when the desired thickness has been obtained and the sheets being finally cut into strips of the desired width.

In the prior art, insulation of this character which contained sheet mica has been applied for the insulation of coils, but it was necessary to subject such coils to a relatively expensive molding process before they could be wound in the armature slots, by reason of the nature of insulation, which was stiff and brittle and separated itself from the conductors around which it was wrapped.

The special compound of my invention makes the assembled insulation so tough and flexible that the strips may be closely wound about the coils without interfering with their admittance into the armature slots, thereby obviating the cost and labor of molding the coils after the insulation is in position.

We claim as our invention:

1. A flexible insulation comprising sheets of thin fabric, interposed sheet mica and a binder therefor that contains varnish, wood alcohol and castor oil.

2. A flexible insulation comprising two sheets of thin fabric, interposed sheet mica and a binder therefor that contains approximately four parts varnish, three parts wood alcohol and one part castor oil.

3. A flexible insulating tape comprising two strips of thin paper, interposed sheet mica and a binder therefor that comprises a mixture of varnish, wood alcohol and castor oil.

4. A flexible mica tape which maintains its insulating properties under high temperature, that comprises outer strips of thin paper, mica sheets assembled between said strips, and a binder that consists of a mixture of approximately four parts varnish, three parts wood alcohol from which the acetone has been removed and one part castor oil.

5. Sheet insulating material comprising two sheets of thin fabric, interposed sheet mica and a binding material between the

paper and the mica consisting of varnish, wood alcohol and castor oil.

6. A flexible insulation comprising sheets of thin fabric, interposed sheet mica and a binder therefor that contains varnish and castor oil.

In testimony whereof, we have hereunto subscribed our names this 10th day of October, 1905.

JNO. L. COOPER.
ARTHUR J. SWEET.

Witnesses:
R. J. DEARBORN,
BIRNEY HINES.