

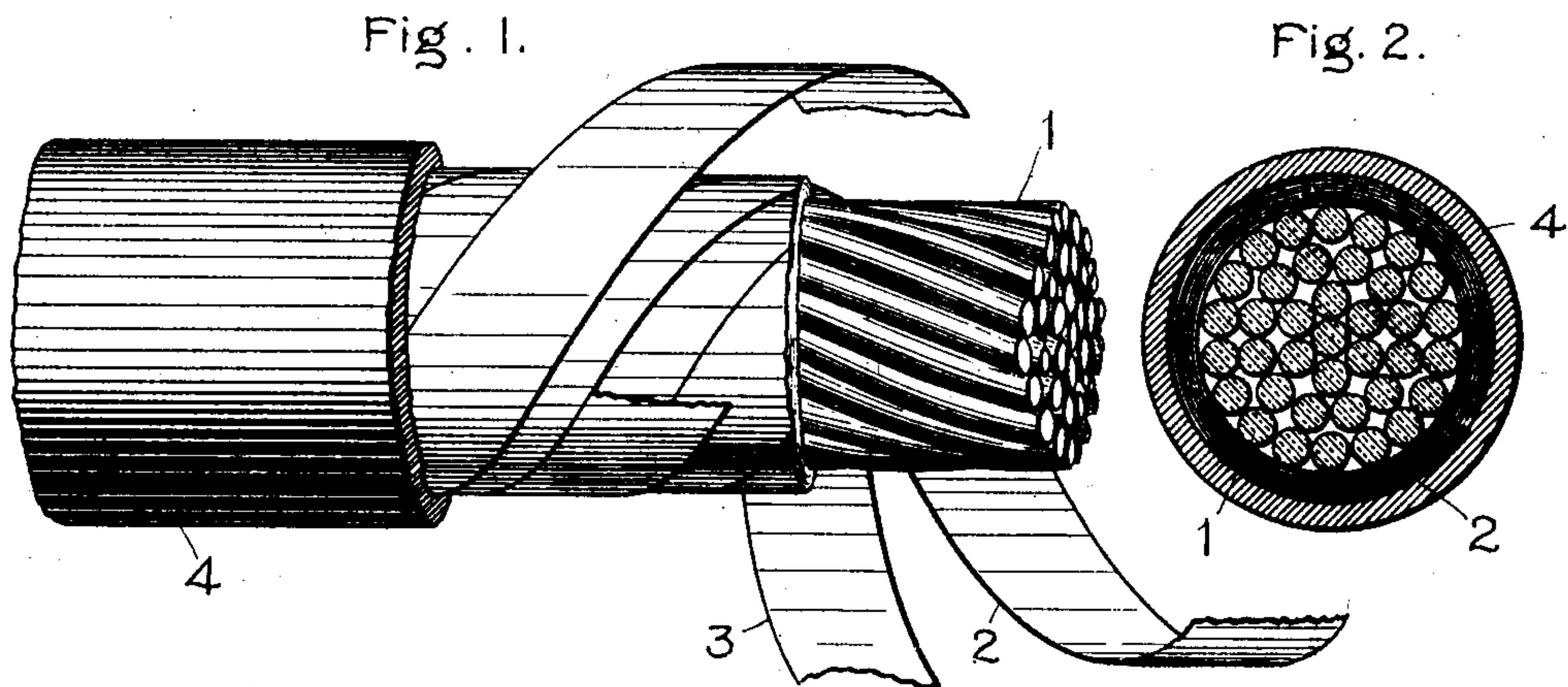
No. 666,003.

Patented Jan. 15, 1901.

W. L. R. EMMET.
INSULATED ELECTRIC CONDUCTOR.

(Application filed Aug. 19, 1899.)

(No Model.)



Witnesses.

Lewis D. Bell.

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Inventor.

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UNITED STATES PATENT OFFICE.

WILLIAM L. R. EMMET, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE
GENERAL ELECTRIC COMPANY, OF NEW YORK.

INSULATED ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 666,003, dated January 15, 1901.

Application filed August 19, 1899. Serial No. 727,742. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LE ROY EMMET, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Insulated Electric Conductors, (Case No. 1,058,) of which the following is a specification.

The object of my present invention is to provide a cheap and effective insulating covering for an electric conductor or cable having high insulating properties and proof against deterioration under the effects of heat and moisture.

In carrying out my invention I apply to the conductor a paper covering coated with gum or varnish containing an excess of oxidizable vegetable oil which may be applied in a state of solution or fusion and then dried or hardened. A plurality of such coverings are wound upon the conductor, so as to lap joints, the successive layers being treated with additional coatings of moisture-proof insulating material. Each layer of paper is preferably coated a number of times with the insulating compound, each coat being permitted to dry or harden before the next is applied.

The features of novelty of my invention will be particularly described hereinafter and will be definitely indicated in the claims.

In the accompanying drawings, which illustrate as a type of conductor an electric cable provided with my improvements, Figure 1 is a side elevation with parts broken away, showing the manner of insulating the cable. Fig. 2 is a sectional view of a completed cable.

1 represents a group of electric conductors which may be separately insulated or not, according to the ultimate object of the conductor. Upon this I wind a paper ribbon 2, coated with an insulating gum or varnish. The compound I prefer to employ is one containing boiled linseed-oil or other vegetable oxidizing-oil which in hardening will yield a dense tough insulator. I find excellent results from a moisture of about eighty parts of boiled linseed-oil and twenty of rosin, which may be thinned for application by a solvent, such as benzin, or may be applied hot. The ribbon may be carried through a

preliminary bath of the insulating material and then carried through a drying-box before being wound upon the conductor or may be wound and then coated a number of times, each coat being permitted to harden and oxidize before the next is applied. The paper may be wound in a close spiral, so as to practically cover the conductor throughout its length, and then coated as often as desired with the insulating material, so as to render the joints moisture-proof. A second serving of the coated paper 3 is then wound on the first layer, so as to lap over the joints between contiguous turns of the first serving, and this is subsequently similarly coated with a layer or layers of insulating material to render its joints moisture-proof. Any desired number of servings may thus be placed around the conductor or cable, and when a sufficient depth of insulation is secured it may be inclosed within an armor or tube 4 to protect it against wear and water. The varnished or coated paper effectively guards the conductor against the entrance of moisture from the air and in the process of drying fills the pores of the paper and displaces the air and any moisture it may carry, thus producing a fabric of greater resistance than the paper alone would possess and preserving it against deterioration by subsequent exposure in service.

Insulation of the kind described not only effectively protects the conductor against entrance of moisture at points where the armor is damaged, but also withstands heat well and does not deteriorate materially under prolonged exposure to moderately high temperatures. In fact, a conductor insulated as described will withstand temperatures which will not injure paper or other fabric used for the application of the compound, as the latter will not fuse down as do the compounds commonly applied to conductors.

My invention is not restricted to any particular type of insulating compound; but for the purpose of convenience in manufacture it should be such as will not melt down on increase of temperature and may be laid on in a liquid state, which not only permits uniform and thin coating, but facilitates infil-

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tration into the pores of the paper and a better resulting product and permits a smooth even coat to be applied over the previously-applied and oxidized coat.

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

1. An electric conductor or cable provided with two or more layers of non-conducting fabric, the several layers arranged to lap
10 joints, and provided each with a plurality of thin coatings of an insulating compound containing oxidized oil in excess.

2. An electric conductor or cable provided with a helical winding of paper coated with
15 a plurality of adherent layers of a vegetable oil, each layer being separately oxidized and hardened.

3. An electric conductor or cable, provided with a plurality of fibrous windings each hav-
20 ing a number of heat-refractory coats of in-

insulating compound containing oxidized oil in excess.

4. An electric conductor or cable provided with a plurality of layers of paper wound thereon so as to lap joints, the several layers
25 being coated with a number of layers of insulating material containing oxidized oil in excess, and a protective armor around the insulated conductor.

5. An electric conductor or cable covered
30 with fiber coated with a number of mutually adherent heat-refractory thin laminae of insulating compound containing oxidized oil in excess.

In witness whereof I have hereunto set my
35 hand this 17th day of August, 1899.

WILLIAM L. R. EMMET.

Witnesses:

BENJAMIN B. HULL,

EDWARD WILLIAMS, Jr.