

UNITED STATES PATENT OFFICE.

WILLIAM ALFRED PHILLIPS AND FREDERICK HUTCHINS, OF LONDON, ENGLAND.

METHOD OF MAKING INSULATING-COVERINGS FOR ELECTRIC CONDUCTORS.

941,810.

Specification of Letters Patent.

Patented Nov. 30, 1909.

No Drawing.

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To all whom it may concern:

Be it known that we, WILLIAM ALFRED PHILLIPS and FREDERICK HUTCHINS, subjects of the King of England, and residing in London, have invented certain new and useful Improvements in Methods of Making Insulating-Coverings for Electric Conductors, of which the following is a specification.

This invention relates to improvements in the insulation of electric conductors and compounds therefor, and has particular reference to a compound which forms an enameled covering upon the conductor, such covering being hard, tough and flexible and having good insulating properties.

According to this invention an insulating covering of enamel is produced upon an electrical conductor, by first coating the conductor with a mixture comprising the material commonly known as "gilsonite" and castor oil with or without linseed oil, and the coated conductor is subsequently subjected to a heating process of a duration and intensity sufficient to drive off the volatile constituents of the compound and convert the coating into a hard tough and flexible enamel. The substance referred to as gilsonite is sometimes called gilsonite asphaltum or nintate, and although it belongs to the asphaltum group of mineral substances, an enamel coating of a gilsonite compound according to this invention is found to possess properties as an insulating covering superior to those of a covering made, say, from ordinary asphaltum or bitumen.

One method of preparing the compound for use according to this invention is as follows:—Two parts by weight of gilsonite are mixed with three of castor oil, and the mixture is heated until it is reduced by about 15 per cent. of its weight. This stage of the process is conveniently accelerated and facilitated by forcing air through the mixture during heating. If air be thus used the necessary reduction in weight can be effected in about three hours. The resulting compound when cool is mixed with a suitable quantity of paraffin oil or similar hydrocarbon so as to give a specific gravity of, say, 0.840 at 38° centigrade.

Another form of the compound may be made by mixing equal parts by weight of gilsonite, castor oil and linseed oil, and by preparing the mixture in the way above mentioned.

The wire to be enameled is passed through a bath of the mixture, the bath being kept at a temperature of about 38° centigrade. The wire is then drawn at a suitable speed varying, say, from 15 to 40 ft. per minute according to the size of the wire, through a heated tube or chamber, wherein the wire is subjected to a temperature sufficiently high to drive off the volatile constituents of the compound, leaving on the wire an enamel coating. This heated tube may be of any convenient length so that the wire in its passage through it is subjected to the proper temperature for a sufficiently long time. The process of coating may be repeated, the wire being passed several times through the bath and the heated tube before being wound on to a drum or otherwise prepared for storage.

It is to be understood that the proportions mentioned above are merely given by way of example, and that they may be varied, and further that the amount of the preliminary treatment, the specific gravity of the coating compound, the temperature of the heated tube and the speed of the wire may likewise be varied.

What we claim as our invention and desire to secure by Letters Patent is:—

1. The herein described method of making an insulating covering for electric conductors, which consists in mixing gilsonite and castor oil in the approximate proportions of two parts by weight of gilsonite to three parts of castor oil, heating the mixture until it is reduced by about 15% of its weight, allowing it to cool and mixing it with a hydrocarbon in such proportion as to give a specific gravity of approximately .840 at 38° C., substantially as set forth.

2. The herein described method of making an insulating covering for electric conductors, which consists in mixing gilsonite and castor oil in the approximate proportions of two parts by weight of gilsonite to three parts of castor oil, heating the mixture and forcing air through it until it is reduced by about 15% of its weight, allowing it to cool and mixing it with a hydrocarbon in such proportion as to give a specific gravity of approximately .840 at 38° C., substantially as described.

3. The herein described method of making an insulating covering for electric conductors, which consists in mixing approximately equal parts of gilsonite, castor oil and lin-

seed oil, heating the mixture until it is reduced by about 15% of its weight, allowing it to cool and mixing it with a hydrocarbon in such proportion as to give a specific gravity of approximately .840 at 38° C., substantially as set forth.

4. The herein described method of making an insulating covering for electric conductors, which consists in mixing approximately
10 equal parts of gilsonite, castor oil and linseed oil, heating the mixture and forcing air through it until it is reduced by about 15%

of its weight, allowing it to cool and mixing it with a hydrocarbon in such proportion as to give a specific gravity of approximately .840 at 38° C., substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM ALFRED PHILLIPS.
FREDERICK HUTCHINS.

Witnesses:

GEO. H. ELLIS,
M. E. PILLEY.