

UNITED STATES PATENT OFFICE.

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PROCESS OF INSULATING ELECTRIC CONDUCTORS.

No. 806,576.

Specification of Letters Patent.

Patented Dec. 5, 1905.

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To all whom it may concern:

Be it known that I, GEORGE H. RUPLEY, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Processes of Insulating Electric Conductors, of which the following is a specification.

This invention relates to electric conductors; and its object is to provide them with a coating of insulating enamel composed of a baked solution of the residuum resulting from the destructive distillation of a vegetable oil. While the process of obtaining this enamel does not form the subject-matter of this application, it may be briefly stated to consist in mixing metallic oxids with linseed-oil or the like, boiling the mixture almost to the point of insolubility, fluxing it with a refractory solvent, as rosin-oil, reboiling until it again approaches insolubility, dissolving this residuum in rosin-oil, turpentine, coal-tar oil, or some other volatile solvent, coating the conductor with a thin film of the solution, and baking at a high temperature to harden this film. The film is then applied to the conductor in the manner described in the patent to Clark and Rupley, No. 687,517, November 26, 1901. The wires are then run up through the hardening-ovens. If more than one layer is applied, the wires are brought down to be again coated and then pass up through the oven. As each successive coating necessitates another hardening, it is evident that the first layer is subjected to a longer baking than the second, while this in turn is baked longer than the third, and so on. The natural result of this would be a film whose inner layer or layers are harder than the outer layer or layers. It is desirable to prevent this undue hardening of the first coat caused by the subsequent baking in applying multiple coats, and it is the object of my present invention to effect this result by producing a tough and elastic insulating coating which is homogeneous when hardened.

In practicing my process the wire is first coated with a solution made as above set forth, but having added to it a large proportion of a fixed oil, such as heavy rosin-oil, amounting to, say, twenty-five per cent., by volume, of the enamel. Instead of the rosin-oil I may use about fifty per cent. of linseed-oil, cotton-seed oil, or the like, preferably

thickened by boiling without the addition of oxids. This large proportion of oil retards the hardening of the first layer, so that the wire may receive a plurality of bakings. The subsequent layers, applied successively after the several bakings, consist, preferably, of the usual enamel solution, though the inner layers may, if desired, be made to harden less rapidly by adding more or less oil to the enamel, the proportion being reduced for each successive layer.

This process produces an enameled conductor whose insulating-film is composed of layers of which the inner are slightly softer and more flexible than the outer, the latter being hard and glazed and durable, affording a good protection to the layers underneath.

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

1. The process of insulating an electric conductor which consists in applying thereto successive layers of enamel having different rates of hardening to produce a homogeneous insulation.

2. The process of insulating an electric conductor which consists in alternately coating the same with flexible enamel and hardening the coating, said coatings having different rates of hardening whereby a homogeneous insulation is produced.

3. The process of insulating an electric conductor which consists in coating it with a flexible enamel, baking said coating, applying an outer layer of enamel having a more rapid rate of hardening, and subjecting the coating to another baking.

4. The process of insulating an electric conductor which consists in mixing a liquid enamel with a fixed oil to retard its rate of hardening, applying a layer of the mixture to the conductor, baking said layer, applying a layer of unmixed enamel, and again baking.

5. The process of insulating an electric conductor which consists in providing a liquid enamel having a given rate of hardening under heat, mixing with said enamel a liquid having a lower rate of hardening, applying a film of the mixture to the conductor, baking said film, applying a film of unmixed enamel, and again baking.

6. The process of insulating an electric conductor which consists in providing a liquid enamel composed of a solution of a distillate residuum of a vegetable oil in a suitable sol-

vent, mixing therewith a percentage of fixed oil, coating a conductor with the mixture, hardening said coating, applying a coating of unmixed enamel, and again hardening.

- 5 7. The process of insulating an electric conductor which consists in providing a liquid enamel composed of a solution of a distillate residuum of linseed-oil in a refractory solvent, mixing therewith a percentage of fixed

oil, coating a conductor with the mixture, 10 hardening said coating, applying a coating of unmixed enamel, and again hardening.

In witness whereof I have hereunto set my hand this 25th day of February, 1905.

GEORGE H. RUPLEY.

Witnesses:

BENJAMIN B. HULL,

HELEN ORFORD.