

UNITED STATES PATENT OFFICE.

GEORGE H. RUPLEY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

INSULATING MATERIAL.

No. 904,808.

Specification of Letters Patent.

Patented Nov. 24, 1908.

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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 Insulating Material, of which the following is a specification.

This invention relates to a process for treating fabrics for electrical uses and has for its object the production of a fabric which will be efficient as an insulating covering for coils and the like and which may be produced in a cheap and simple manner.

The present practice in the insulating of coils, such for instance as field coils for dynamo-electric machines, is to wind the coils with a fabric and then coat the fabric with varnish. This varnish is then hardened, as for instance by baking, and another coating of varnish is applied. These operations are continued until the desired insulation of the material is obtained. In the carrying out of this process it first takes several coatings sometimes as many as three or more to fill up the pores of the fabric and the remaining coats are then available as an insulating layer. I have found that this process can be greatly simplified and the cost of the same reduced by filling the pores of the fabric before it is varnished. This is preferably done before the fabric is applied to the coil. The properties of the filler must be such as to render the fabric flexible so that it can be readily applied to the coil and stretched in place. The material must also be such that it will not be destroyed by the baking process. The material should have the properties of rubber; that is, something that is soft and pliable for a long time after the impregnation but will be preferably non-adhesive. Ordinary rubber cannot be used since it will be destroyed by the temperature used in baking the varnish.

In the carrying out of my invention I take a fabric, which may be a cheap grade of cloth, cut it into wide strips, and apply a filler or sizing of some rubber-like substance. I have found that vegetable pitch which has some properties of rubber will serve the purpose. I have also found a very valuable material in combining 75 parts of vegetable oil, such as linseed oil, with 25 parts of

hydrocarbon black. These materials are boiled together with suitable driers, such as zinc oxid, until it reaches a stage in which it is as solid as can be and still be capable of being forced into the pores or applied by means of a solvent as by painting it on to the fabric. It may then be applied to the fabric by immersing the cloth in it or by means of calender rolls. After the impregnation, the fabric will be baked or not as found desirable. I have found that by impregnating the cloth with this material that it will remain flexible and can thus be applied in a very efficient manner; that is, it can be drawn taut and stretched around corners and irregular places. It can also be torn in strips so as to form tape and no selvage edge is necessary. The cloth thus impregnated is wound on the coil and a coating of varnish is then applied and hardened in some manner as by baking.

I have found that with an unimpregnated fabric six coats of varnish are necessary, while three coats with a baking after each coating will serve the same purpose with an impregnated fabric. This results in a great saving in the cost of production as well as in the saving of time since each varnishing operation must be followed by a drying and a baking operation. The essentials of the filled cloth are that it shall be flexible and somewhat yielding and also inoxidizable beyond the flexible state. It is preferable that the cloth shall not be adhesive as would be the case with ordinary rubber or adhesive tape, and to prevent adhesion I coat with talc or similar materials.

It will be understood, of course, that while I have described specific materials whereby my invention may be carried out, these materials are merely typical and may be varied as may also the manner of applying the same without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

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

1. An insulating material for electrical purposes comprising a fabric impregnated with an elastic heat resistance material and coated with a baked varnish.

2. An insulating material for electrical purposes comprising a fabric impregnated

with an elastic non-adhesive material and coated with a baked varnish.

3. An insulating material for electrical purposes comprising a fabric impregnated
5 with an elastic non-adhesive heat resistance material and coated with a baked varnish.

4. An insulating material for electrical purposes comprising a fabric impregnated

with a soft pliable non-adhesive material and coated with linseed oil varnish.

In witness whereof, I have hereunto set my hand this 3rd day of August, 1907.

GEORGE H. RUPLEY.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.