

UNITED STATES PATENT OFFICE.

FRANK A. PERRET, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE
ELEKTRON MANUFACTURING COMPANY, OF SAME PLACE.

ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 461,272, dated October 13, 1891.

Application filed May 21, 1889. Serial No. 311,590. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. PERRET, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electrical Conductors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to a novel form of insulated electrical conductor, and is especially designed for use as insulated wire for winding magnets, but is also applicable to a great number of other purposes.

Briefly, the invention consists in a metallic conductor coated with collodion, with an admixture of collodion in admixture with glycerine, or glycerine and a natural gum.

I have discovered that collodion when dry has an exceedingly high resistance, and is comparatively hard while being very flexible and free from any material which could oxidize the metallic conductor to which it is to be applied, and in carrying my invention into effect I take, preferably, a copper wire, whether the same be naked or covered with cotton yarn, silk fiber, or other analogous material of a fibrous or cellular construction, and first dry the same thoroughly and then pass it through a bath of collodion containing a small percentage of glycerine with or without a natural gum soluble in the collodion, or otherwise coat the wire with solution in any suitable manner. The collodion has the property of immediately spreading through the fibers and penetrating the interstices in the covering of a wire, if a covering be used, and quickly drying, so as to constitute a filling as well as a protective covering for the material with which the wire may have been already covered. The collodion dries to a smooth finish, and by reason of its remarkable property of contraction lays down all the projecting fine fibers which may be observed on any ordinary cotton or silk covered wire, and the result is a very fine smooth insulation, actually smaller when coated than when uncoated. The wire may

be bent repeatedly at the same place without rupturing the film formed by the collodion, and if the wire be an already-covered wire—such as ordinary cotton-wound magnet-wire—the collodion has sufficient tenacity and elasticity to prevent the formation of open spaces on the outside of a bend in the wire, which is a frequent source of trouble and annoyance in the construction of magnets or armature-coils. The thin skin thus formed on the outside of a cotton-covered wire renders the cotton far less inflammable than when used alone, so that with a wire covered in this manner—used in the armature of a dynamo-electric machine, for instance—there is less liability of the covering to become charred by the heat developed in the armature than in the machine in which the ordinary cotton-covered wire is used.

As stated, a small percentage of glycerine is added to the collodion before the latter is applied to the wire, with the advantage of increasing the flexibility of the coating.

Several of the natural gums—such as shellac, gutta-percha, &c.—I have found to be soluble in the collodion, and in some cases I find it an advantage to use the mixture, and in that case also the application of a small quantity of glycerine will be found advantageous.

I claim as my invention—

1. As an article of manufacture, an electrical conductor coated with collodion and glycerine.

2. As an article of manufacture, an electrical conductor coated with a solution of a natural gum and glycerine in collodion.

3. As an article of manufacture, an electrical conductor having a fibrous insulating covering treated with collodion and glycerine.

4. As an article of manufacture, an electrical conductor having a fibrous insulating covering and treated with a solution of a natural gum in collodion.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK A. PERRET.

Witnesses:

JOHN F. O'BRIEN,
S. VAN WYNN.