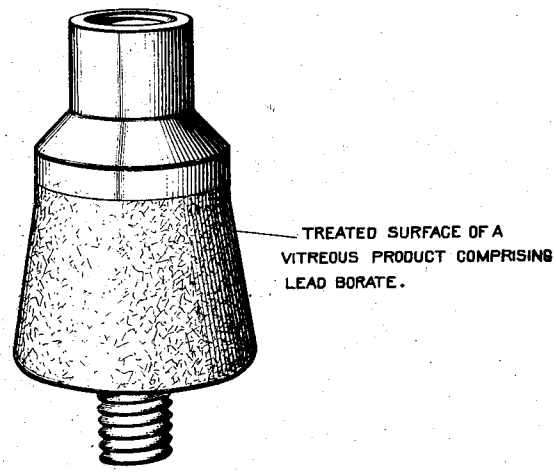
Nov. 17, 1931. G. W. BOWER 1,832,804

ELECTRICAL INSULATOR

Filed March 17, 1930



Inventor:
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UNITED STATES PATENT OFFICE

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ELECTRICAL INSULATOR

Application filed March 17, 1930. Serial No. 436,432.

This invention relates broadly to a process for treating electrical insulators to preserve their electrical resistance, and to the product produced by such treatment.

More specifically, this invention relates to a process for treating electrical insulators which are formed from a vitreous product of the character set forth in the reissue patent of P. B. Crossley, No. 15,727, dated December 4, 1923, for the purpose of preventing insulators so formed, when in use, from losing their electrical resistance due to the absorption of moisture.

In accordance with the present invention, the insulator, which may be of any chosen mechanical form and which is constructed of the material set forth in the above entitled patent, is subjected to a treatment with sulfuric acid for a certain period of time whereby certain chemical action takes place on the surfaces thereof and renders the same impervious to moisture, and preserves its electrical resistance.

In order that my invention may be better understood and practiced by those skilled in the art to which it pertains, I shall describe it more in detail and point out the invention in the appended claims.

In the accompanying drawing which forms a part of the present application the single figure is an elevational view illustrating a type of insulator treated in accordance with the present invention.

The insulator to be treated, as for example that shown in the drawing, comprises the material set forth in the above named patent, which material is, briefly, a product comprising mica and a substance such as lead borate. The insulator is first soaked in an aqueous solution of sulfuric acid. While the concentration of the solution may vary, I prefer to use a 10% aqueous solution of the acid. The temperature of soaking may vary from about 1 to 2 hours. This treatment produces a white deposit on the surfaces of the insulator which is easily removed therefrom either by repeated washings or by a tumbling process. If the metal portions of the insulator are of a ferrous metal these portions are preferably either painted or provided with a coating of a protective metal, such as zinc, in any known manner, as for example, by sherardizing, in order to protect these surfaces as the sulfuric acid treatment has a tendency to accelerate the corrosion of these surfaces.

While it is not definitely understood what happens in the treatment of the insulators with the sulfuric acid, it is probable that the acid reacts with the lead oxide present in the lead borate forming lead sulfate. Since the lead sulfate has a much larger volume than the materials out of which it is formed, it consequently fills up any small or microscopic crevices which might be present in the insulator.

It has been found that insulators treated as above outlined are extremely resistant to moisture absorption even when exposed in climates which are humid, and such treated insulators retain their insulation resistance. Insulators treated by means of the present process successfully withstand salt spray tests and do not become conductors, whereas insulators of the type specified which have not been treated in accordance with the present invention, if exposed to the salt spray test for any length of time, become conductors regardless of how much soaking and washing in clear water takes place thereafter, and their insulating value cannot be restored. Also, insulators not treated by the process of the present invention absorb moisture and in time lose their normal insulation resistance.

It is to be understood that the exact mechanical shape, form or size of the insulator treated by means of the process of the present invention is immaterial, the only requirement being that the insulator shall be constructed of a material falling within the scope of the above named patent.

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

1. A process for retaining the insulation resistance of electrical insulators constructed of a material comprising mica and lead borate which comprises treating said insulators with sulfuric acid.

2. A process for preventing absorption of moisture by an electrical insulator construct-

ed of a material comprising mica and lead borate which comprises soaking said insulator in sulfuric acid for about one to two hours.

3. A process for preventing the absorption of moisture by an electrical insulator constructed of material comprising mica and lead borate which consists in soaking said insulator in an aqueous solution of sulfuric acid of about 10% concentration for about one to two hours and subsequently removing the white deposit which forms on the surface of the insulator due to this acid treatment.

4. An electrical insulator constructed of a material comprising mica and lead borate the surfaces of which have been treated with sulfuric acid to prevent water absorption therein.

5. An electrical insulator constructed of a material comprising mica and lead borate, the surface of which is provided with lead sulfate.

6. An electrical insulator constructed of a material comprising mica and lead borate the surfaces of which have been provided with a water resistant coating produced by the treatment thereof with an aqueous solution of sulfuric acid.

In witness whereof, I have hereunto set my hand this 14th day of March, 1930.

GEORGE W. BOWER.