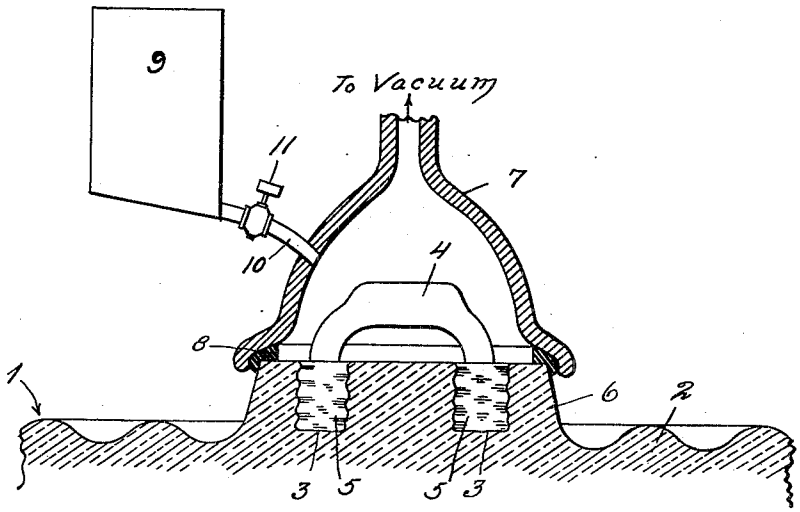
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MEANS FOR SEALING INSULATORS

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MEANS FOR SEALING INSULATORS

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The invention relates to methods of and means for treating insulators, particularly those of the Jeffrey-DeWitt type.

It is well known that insulators of the Jeffrey-DeWitt and analogous types comprise a porcelain body to the upper and lower sides of which are attached metal suspension or connecting elements which have terminal portions anchored to the insulator body as by means of type metal or other suitable alloy embedding the terminals, this material being poured, while molten, into holes provided in the porcelain body. Generally, the anchoring metal contains a large percentage of zinc and it has been found that after prolonged exposure to the air the metal oxidizes and consequently expands or acquires a coating. The increase in size causes excessive pressure to come upon the porcelain at the holes and this frequently results in chipping, cracking or breaking. It is also realized that when the molten metal is poured into the holes and subsequently solidifies, the consequent shrinkage of the metal causes a crack or space to occur between it and the walls of the holes. Air and moisture may then of course enter and the above mentioned oxidizing effect takes place. In addition to this, if water enters and subsequently freezes, as it will in cold weather, there is great danger of the insulator breaking. However, in view of the fact that the same swelling action of the metal takes place at the underside of the insulator as at the top it would appear that it is the oxidation that causes the damage rather than the entrance of water, as no appreciable amount of water could gain access to the underside.

It is with the above facts in view that extensive experiments have been carried out with the object of sealing and protecting the metal against air and moisture. The application of a coating of initially viscous material under ordinary methods is not practical for the reason that the material would not enter the crevices owing to the fact that they are naturally full of air. A thin film of viscous material would extend across the crevices or space but under the influence of temaperture changes such film would probably crack permitting air and moisture to gain access, the above mentioned destructive action resulting.

The object of the invention, more specifically stated, is to provide a method of and means for applying a viscous material to the insulator in such manner that it will be caused to enter the crevices and thereby positively form a seal which will exclude air as well as moisture.

An important object of the invention is to provide a vacuum process or method for withdrawing the air from the crevices, then applying viscous material, and subsequently breaking the vacuum so that when normal atmospheric pressure is restored the viscous or other sealing material will be sucked into the crevices so that they will be filled to a sufficient depth to form a seal.

Another object of the invention is to provide a method and means for the purpose mentioned which will be simple, inexpensive and yet highly efficient.

With the above and other objects and advantages in view, the invention preferably consists in the method and apparatus to be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

The figure is a cross section through an insulator equipped with suspension or connecting elements, the view also disclosing the means employed for carrying out the process.

Referring more particularly to the drawing the numeral 1 designates an insulator which may be of the Jeffrey-DeWitt type, including a porcelain body 2 formed with recesses 3 within which are embedded the ends of whatever suspension elements 4 are provided at either the top or the bottom of the insulator. The suspension means is secured by pouring molten metal into the recesses in embedding relation to the ends of the suspension elements. The metal is indicated on the drawing by the numeral 5. Insulators of this type are ordinarily provided at their upper surfaces with an upstanding somewhat reduced portion 6 which may be said to constitute a species of neck. It is immaterial what kind of metal is used for securing the

suspension elements, though ordinarily it contains quite a large percentage of zinc which, as is well known, will oxidize to an appreciable extent when exposed to the air for an extended period. When the molten metal poured into the recesses solidifies it is of course contracted and there is consequently a small space between the mass and the walls of the recesses. This space is of course full of air and oxidation of the metal takes place. Furthermore, especially at the top of the insulator, water may enter the crevices and freeze, this condition causing chipping and possible cracking of the porcelain. Regardless of whether it is the effect of air or the water, or both, the fact remains that oxidation does occur.

In carrying out the present invention I exhaust the air from the crevices, apply a viscous or other suitable sealing material and then permit normal atmospheric pressure to be restored. While it is readily conceivable that various means might be employed for this purpose I have illustrated and have conveniently employed the structure shown which may actually comprise a cup or shell member 7 adapted to be disposed over or upon the neck 6 or other portion of the insulator body, the large end of this cup member being equipped with some suitable gasket 8 which will fit snugly against the insulator body and form an air-tight joint. Any suitable pump or other vacuum producing means may be connected with this cup member for the purpose of exhausting the air therefrom and from the crevices about the metal masses 5. Use is also made of a container 9 within which is placed a suitable viscous or fluent material of such character as to be waterproof when set. The container 9 may be mounted adjacent or carried by the cup member 7, this detail being immaterial and leading from the container to the interior of the cup member at some convenient point thereon is an outlet tube or other conduit 10 within which is interposed a cut off valve 11.

In the operation of treating the insulator, the cup 7 is placed thereon in surrounding relation to the suspension element or connecting member 4 and the cup is pressed firmly so that the gasket 8 will make an air-tight joint against the porcelain body of the insulator. The air is then exhausted from the cup by whatever means is provided. Obviously, the air will be drawn out of the crevices about the metal masses 5. The valve 11 is then opened to permit the sealing material to flow into the cup member and onto the insulator. The vacuum is then relieved or broken so that the restoration of atmospheric conditions will cause the sealing material to enter the crevices, filling them, if not entirely, at least to a sufficient extent that when the insulator is subsequently used air and moisture will be excluded from around the metal masses, corrosion or oxidation thereof being consequently prevented. An insulator treated in this manner will have a much longer life than one untreated inasmuch as there will be no swelling or expansion of the metal masses as the result of corrosion and therefore no strain which would tend to break, chip or crack the porcelain.

While I have shown and described a certain means for carrying out the invention and a certain method in connection therewith, it should be understood that the disclosure is merely an exemplification of the principles involved, inasmuch as the right is reserved to make all such changes in the apparatus and method steps as will not depart from the spirit of the invention or the scope of the claims hereunto appended.

Having thus described the invention, I claim:

1. In an insulator treating system of the character described, means engageable upon a portion of an insulator of a type having an element secured thereto by metal cast thereabout and within a recess in the insulator, said means being adapted to have vacuum producing means connected therewith for withdrawing the air from the crevices about the cast metal mass, and means connected with said first mentioned means for introducing fluent sealing compound whereby upon the restoration of atmospheric pressure conditions the sealing material will be caused to enter the crevices.

2. Means for removing air from the crevices about the metallic anchoring elements in an insulator of the type including a porcelain body provided with a metallic suspension element having its ends embedded in a metal mass cast within a recess in the body, and filling said crevices with moisture-proof material, said means comprising a cup member having an open side provided with sealing means and adapted to be forcibly engaged upon an insulator to be treated whereby the cup member will surround the suspension element and cover that portion of the porcelain body in which the metallic elements are anchored, said cup member having a constricted portion adapted for connection with suction producing means, a receptacle for an impregnating material, and valved means connected with the receptacle and cup member at a point in the latter whereby to discharge a stream of impregnating material upon that portion of the porcelain body within the confines of the cup member.

In testimony whereof I affix my signature.

KENT A. HAWLEY.