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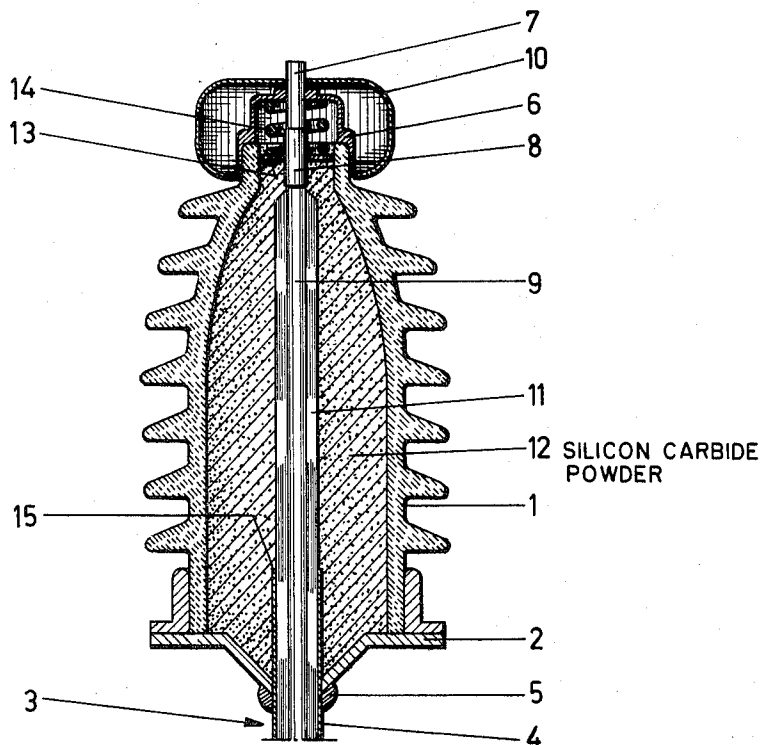
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[54] **ELECTRIC CABLE INSULATING HOUSING
 FILLED WITH HIGH-RESISTANCE MATERIAL
 4 Claims, 1 Drawing Fig.**

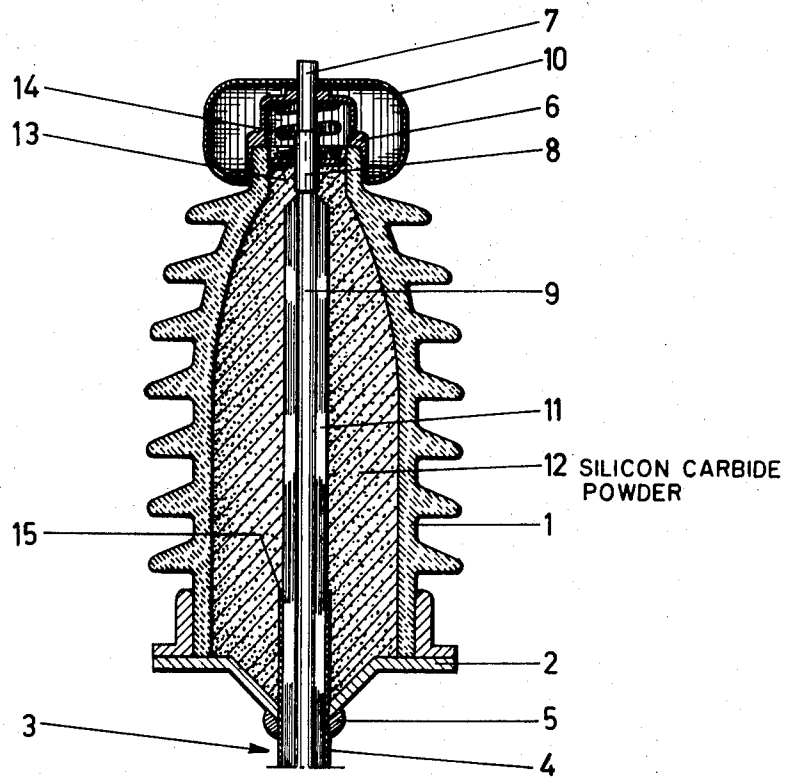
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ABSTRACT: An electric cable accessory having a housing filled with an insulating medium of a powdered material having a voltage-dependent resistance characteristic such that its specific resistance decreases with increasing voltage and wherein the insulating medium also has a field-controlling effect.



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ELECTRIC CABLE INSULATING HOUSING FILLED WITH HIGH-RESISTANCE MATERIAL

This invention relates to an electrical cable accessory which includes spaced-apart contact means for respectively making contact with the cable ground and conductor wires, the contact means being separated from each other by a porcelain body which in turn is filled with a powdered insulating medium.

Similar type cable accessories are known in which a liquid serves as the insulating medium. Such a known accessory in the form of a cable terminal is described in "Development of 150 KV and 380 KV Oil-Filled Cable and Accessories," by Dr. F. H. Kreuger issued by the N. V. Nederlandsche Kabelfabrieken, Delft, 1958, a Dutch version of which has been issued in the magazine "De Ingenieur," nr. 47, 1965, and nr. 48 of 1966.

The known cable terminal is provided with a porcelain casing, closed at the bottom by a metal grounding plate, through which the cable enters into the terminal. The metal grounding sheath of said cable is electrically connected to said grounding plate and the porcelain casing is closed at its top by a metal cover, through which extends a terminal member to which the conductor wire of the cable is connected.

In said known cable terminal the conductive sheath of the cable is stripped off partially and a so-called stress cone is connected to the cut edge of said conductive sheath having the function to decrease the voltage gradients at the cut edge. In the known terminal, the porcelain casing is filled with insulating oil.

While the known device is satisfactory, it is frequently necessary to fill it with oil at the installation site, this requiring some time because the oil is more or less solid at the ambient temperature so that it must be heated beforehand. Further, the application of the stress cone constitutes a complication, which until now has been inevitable.

An object of this invention is to eliminate these disadvantages and provide a terminal which is characterized in that the insulating medium is a powdered material having such a voltage-dependent resistance characteristic, that its specific resistance decreases with increasing voltage, so that the insulating medium has also a field-controlling effect.

In the apparatus according to the present invention, the insulating medium, because of its voltage-dependent resistance (VDR) character, becomes more conductive at a point at which the voltage gradient reaches a predetermined value, whereby the path of the electric field lines is changed and the voltage gradient is decreased.

If the novel insulating medium is used, the stress cone may be omitted completely or be substituted by a stress cone of more simple design than heretofore known. As a third alternative it is also possible to use the normal stress cone, in which case the advantage is achieved, that no oil filling operating is necessary anymore.

The inventive medium is preferably SiC powder. An alternative, boron oxide powder may be used, but this material is more expensive than SiC powder.

To prevent hollow spaces in the silicon carbide powder from occurring, the apparatus according to the invention is preferably provided with a pressure mechanism, with which the powder is kept under pressure.

The apparatus according to the present invention is suitable both for paper cable and for plastic cable.

The invention will now further be explained with reference

to the annexed drawing, illustrating a cross-sectional view of a cable terminal according to the invention.

The cable terminal as shown includes a porcelain casing 1, which at its bottom has a metal lead through grounding plate 2. The cable 3 enters the cable terminal through said lead-through plate 2 and the conductive sheath 4 of the cable 3 is connected to the grounding plate 2 at 5.

The other end or top of the porcelain casing 1 is closed by a cover 6, a terminal member 7 passing through said cover 6, which terminal member 7 makes contact with the conductor 9 of the cable through connector 8. A stress cap 10 is arranged about the cover 6 for preventing corona discharges at the top of the cable terminal. The insulation 11 of the cable 3 is cut away just beneath the connector 8. The terminal member 7 may be connected to a cable of an overhead high-voltage line or high-voltage station.

According to the invention, the porcelain casing 1 is filled with SiC powder 12, which is preferably kept under pressure by means of a press plate 13, which is biased downwardly with respect to the cover 6 by means of a pressure spring 14.

It is noted that no further means for decreasing the voltage gradient is present at the cut edge 15 of the grounding sheath 4 of the cable because the SiC powder, besides its insulating function, has also the function of a field control means.

It is to be noted that under particular conditions it may be more advantageous not to omit the field control means completely, but to use instead a more simple structure which, when using insulating oil, would not be sufficient.

Furthermore, it is to be noted that the invention is not restricted to cable terminals but may be applied to any accessory, in which there are a fluid-insulating medium and a field-control means, such as a cable joint or cable inlet.

What is claimed is:

1. A cable accessory comprising a housing of insulating material, lead-through means secured to said housing for introducing at least one cable having a conductive sheath into said housing, the conductive sheath of said cable being sealed against and electrically connected to said lead-through means, and a connector means connected to the conductor of said cable, said housing being filled with a high-resistance medium, wherein said high-resistance medium comprises a powdered material having a voltage-dependent resistance characteristic such that its specific resistance decreases with increasing voltage, whereby said medium has a field-controlling effect.

2. The accessory according to claim 1, characterized in that the insulating medium is SiC powder.

3. The accessory according to claim 1, further comprising means maintaining said powder in a compressed condition.

4. A cable accessory, comprising: a housing of an insulating material; lead-through means being secured to said housing for introducing at least one cable into said housing; said cable having a conductive sheath and a conductive member, said sheath being sealed against and electrically connected to said lead-through means; said housing having a connector extending externally of said housing; means electrically connecting said externally extending connector with said conductive member internally of said housing; a high-resistance medium surrounding said cable, said housing being filled with said high-resistance medium, wherein said high-resistance medium comprises a powdered material having a voltage-dependent resistance characteristic such that its specific resistance decreases with increasing voltage, whereby said medium has a field-controlling effect.

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