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METHOD OF COATING MATERIALS.

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This invention relates to the coating of materials and more particularly to the provision of contact terminals and conducting surfaces for resistor or insulating materials.

Heretofore, it has been customary to provide contact members or conducting surfaces for resistor or insulating materials in a number of ways. One means was the provision of a plate of conducting material, such as copper, which was clamped or otherwise mechanicallly secured to the base material. However, this arrangement gave a relatively poor contact between the base and the plate, which had a high resistance and which induced sparking under certain conditions. The resistance of the contact was high, rendering it useless for many electrical purposes.

Another method, which has been commonly used, was the coating of the body with a metal by the spraying thereof in liquid form by a suitable apparatus, such as the Schoop spray pistol. The resulting contact was generally good and the metal adhered quite well to the body but the process was relatively expensive in that it was necessary to feed the metal into the pistol in the form of wire which was melted and atomized by heat and the flow of hot gases. The cost of the molten metal thus obtained was high, owing to the large percentage of loss in the spraying operation and the high cost of heating and atomizing the same. A considerable amount of apparatus was necessary in carrying this process into effect, adding to the expense thereof.

In some instances, electro-plating of the body with the metal was resorted to but the operation was relatively expensive in that an electrolytic equipment was necessary and it was also very difficult to adequately coat non-metallic material, such as glass or a carbonaceous composition. This process also caused the occlusion of gases in the material, which required a baking operation to remove the occluded gases therefrom. With porous material, the metal is deposited in the pores thereof which is undesirable in many applications, such as resistors.

My invention obviates the difficulties and disadvantages of prior methods, it being among the objects thereof to coat conducting and insulating materials in such manner as to obtain a closely adherent coating in a simple and inexpensive manner.

In carrying my invention into effect, I provide a suspension of very finely divided graphite or lampblack or the equivalent in a suitable vehicle. Preferably, I utilize a suspension of graphite in water, which is well known to the trade as "aquadag". The body or base to be coated is covered with a thin film of the suspension by any suitable means, such as by dipping the same or a part thereof into the graphite suspension, or brushing the portion of the body to be covered with the suspension. The body thus covered with a thin film of graphite suspension may be dried at room temperature in the open air or, preferably, it is baked at a relatively low temperature, generally above 100° C. and under 400° C. I have found that temperatures between 100° and 200° C. give excellent results. I thus obtain a film of graphite which is in intimate contact with the material coated.

My process is adapted for a relatively large number of uses, for instance the coating of glass to provide conducting surfaces thereon and the making of contact members for parts of evacuated tubes, such as the well known radio-receiving and sending tubes.

My invention is also well adapted for coating the end disks of the disk pile lightning arrester, which consists essentially of a series of disks of high resistance material held in slightly spaced relation by suitable means, such as interposed thin washers of mica. It has been found that the end disks which make contact with metal plates deteriorate very rapidly on discharge passing through the lightning arrester, and my invention is particularly adapted to provide very adherent films on the end disks to make excellent contact with the metal plates and thus avoid the deterioration of the end disks.

My invention results in a coating which is closely adherent and which may be used to rapidly coat various articles by a very simple procedure which does not require any expensive apparatus. At the most, all that

is necessary to use is a drying oven capable of maintaining a temperature of less than 400° C. My process does not introduce impurities into the material being coated and, therefore, such material may be safely used in evacuated tubes.

I claim as my invention:

1. A method of coating materials which comprises applying a film of a graphite suspension in water on said material and then baking the same at a temperature over 100° C.

2. A method of coating materials which comprises applying a film of a graphite suspension in water on said material and then baking the same at 100 to 400° C.

3. A method of coating materials which comprises applying a film of a graphite suspension on a plate of conducting material and then baking the same at a temperature over 100° C.

4. A coated article comprising a base and a baked coating of a graphite suspension thereon.

In testimony whereof, I have hereunto subscribed my name this 11th day of July, 1923.

EARL J. HAVERSTICK.