

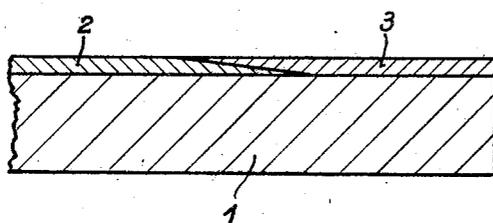
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METALLIZED CONDENSER PAPER

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METALLIZED CONDENSER PAPER

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6 Claims. (Cl. 117-37)

When using metal paper for manufacturing condensers in which the faulty points in the dielectric become innocuous by the burning out of the metal coating around the faulty points, it is necessary to ensure that the energy liberated on burning out in the event of a puncture is not too large, since otherwise mechanical destruction can occur in the winding. The results of experiments have shown that by using metals with fairly large conductivity, it is possible to make the metal layers so thin, for instance 0.1 μ , that the burning out process requires a particularly small energy. Very good results are obtained with silver or copper. Still better suited are aluminum or magnesium since these metals, with reference to the units of weight, have the smallest specific resistance of all metals which are still sufficiently stable. It is thus especially advantageous to use aluminum or magnesium as a metal coating in manufacturing condensers of the said type. Zinc and cadmium are also suitable.

However, an obstacle to the use of these metals is their extraordinary tendency to oxidation, whereby difficulties arise in the production of the electrical connections.

An object of the present invention is to provide a metallized dielectric material of the type described, in which the advantages of oxidisable metals such as aluminum, magnesium, zinc or cadmium can be realised without the accompanying disadvantage of the said metals becoming oxidized.

In the manufacture of condensers, according to the present invention a metallized paper is used having a coating of a base metal in electrically conductive connexion with an adjacent coating of noble metal, that is to say, having a relatively high resistance to oxidation, e. g. silver or copper.

By this means a layer of a more noble metal is disposed along the edge of the paper band which later serves for the connexion. Copper is especially to be recommended on account of its good conductivity, its fairly noble properties and low cost.

It is of advantage to vaporise this copper layer on in vacuo directly after the application of the aluminum or magnesium without the bands being previously brought into contact with the air. The magnesium or aluminum has then not yet become coated with a film of oxide and combines very readily with the copper to form a magnesium bronze or aluminum bronze. It is suitable to allow the layer of the base metal to terminate

gradually at the point of combination with the noble metal and to allow the copper layer to commence gradually, so that the resulting metal thickness also remains approximately constant at the transition layer. By "gradually" is intended to be understood in this process a width of transition of at least 1 mm. It is appropriate to provide the vaporising point for the copper directly behind that for the aluminum, the vaporising nozzles being appropriately allowed to run at an acute angle at the point of the transition layer.

In the drawing, the edge part of a paper band metallized according to the process just described is illustrated in a greatly enlarged section perpendicular to the edge and to the surface. The paper band is shown by 1, the base metal coating by 2 and the nobler metal coating by 3.

I declare that what I claim is:

1. In an electrostatic condenser, a metallized paper comprising a paper layer carrying an adherent metallic coating of substantially uniform thickness comprising a strip of metal highly resistant to oxidation selected from the group consisting of silver, and copper, lying parallel to a margin of the paper layer, and a strip of base metal selected from the group consisting of magnesium, aluminum, cadmium, and zinc, lying next to the highly resistant metal strip on the side away from said margin of the paper, said highly resistant and base metal strips having their meeting edges in continuous conductive connection with each other.

2. In an electrostatic condenser, a metallized paper comprising a paper layer carrying an adherent metallic coating of substantially uniform thickness comprising a strip of silver lying parallel to a margin of the paper layer, and a strip of zinc lying next to the noble metal strip on the side away from said margin of the paper, said silver and zinc strips having their meeting edges in continuous conductive connection with each other.

3. In an electrostatic condenser, a metallized paper comprising a paper layer carrying an adherent metallic coating of substantially uniform thickness comprising a strip of copper lying parallel to a margin of the paper layer, and a strip of zinc lying next to the noble metal strip on the side away from said margin of the paper, said copper and zinc strips having their meeting edges in continuous conductive connection with each other.

4. In an electrostatic condenser, a metallized paper comprising a paper layer carrying an ad-

herent metallic coating of substantially uniform thickness comprising a strip of copper lying parallel to a margin of the paper layer, and a strip of base metal selected from the group consisting of aluminum, magnesium, cadmium, and zinc, lying next to the copper strip on the side away from said margin of the paper, said copper and base metal strips having their meeting edges in continuous conductive connection with each other.

5. In an electrostatic condenser, a metallized band of flexible dielectric material carrying an adherent metallic coating of substantially uniform thickness comprising a strip of base metal selected from the group consisting of magnesium, aluminum, cadmium, and zinc, and a strip of metal relatively highly resistant to oxidation selected from the group consisting of silver, and copper, said highly resistant metal strip form-

ing a narrow bounding strip located between said base metal strip and at least one longitudinal edge of the band, said strips having their adjacent margins united by metal consisting of an alloy of the adjacent highly resistant and base metals along a slope the plane of which meets the surface of said band in an acute angle.

6. In an electrostatic condenser, a metallized band of flexible dielectric material carrying an adherent metallic coating of substantially uniform thickness comprising a strip of zinc and a strip of copper forming a narrow bounding strip located between said zinc strip and at least one longitudinal edge of the band, said strips having their adjacent margins united by metal consisting of an alloy of the adjacent copper and zinc metals along a slope the plane of which meets the surface of said band in an acute angle.

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