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ELECTRIC CUT-OUT

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Fig. 1.

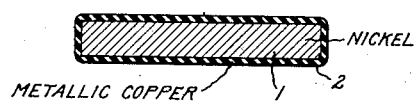
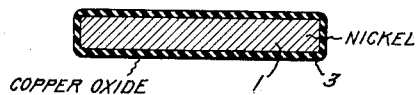


Fig. 2.



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UNITED STATES PATENT OFFICE

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ELECTRIC CUT-OUT

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6 Claims. (Cl. 200—118)

My invention relates to electric cut-outs, more particularly to insulating film cut-outs wherein the insulating film comprises an oxide, and to a method for making the same.

One object of my invention is to provide a cut-out having a predetermined thickness of oxide on its surface.

Another object of my invention is to provide an improved method for producing an oxide film having a predetermined thickness and breakdown strength.

For a better understanding of my invention, together with other and further objects thereof, reference is had to the following description, taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

In accordance with my invention, I use a suitable metal and deposit thereon electrolytically, or otherwise, a coating of another metal, this coating having a predetermined thickness. This metal coating I then oxidize without affecting the base metal and thereby obtain a predetermined thickness of oxide providing a breakdown strength of predetermined characteristics.

In the drawing, Fig. 1 is a sectional view of a contact illustrating a step used in carrying out my invention, and Fig. 2 is a sectional view of a finished contact.

By way of illustrating my invention, I have shown in the accompanying drawing, in Fig. 1, a cross section of a cut-out having as its base 1, a metal such as nickel. Other suitable metals may, of course, be used. Upon this metal I deposit electrolytically a film of metallic copper 2. This again is only one of the metals that can be used, but copper oxide has been found to be quite suitable for film cut-outs, and I am, therefore, selecting this metal to illustrate my invention. In the example selected the nickel disc is 12 mm. long, 2.5 mm. wide and 0.3 millimeter thick. The copper is preferably applied electrolytically but may be applied in any convenient manner.

After the copper is deposited upon the nickel, the copper is oxidized by heating the cut-out in air or in the presence of such oxygen releasing materials as copper oxide, manganese oxide or uranium oxide. This oxidation is continued until the deposited metallic layer is completely oxidized. The layer of deposited metal protects the base metal against oxidation and leaves its

electrical resistance unaffected. The breakdown voltage of the cut-outs made in this manner is, therefore, regulated by the thickness of the deposited metal coating. When the electrolytic method of depositing the layer of metal is used, the metal is uniformly deposited and the thickness of the layer may be expressed as a percentage, by weight, of the base metal or disc. Thus, for example, upon the disc, as above described, a deposit of 0.3 per cent of the weight of the disc produced an oxide coating having a breakdown voltage of 75 volts, a layer of 0.5 per cent by weight of 100 volts and a deposit of 1 per cent produced an oxide layer having a breakdown voltage of 125 volts.

Fig. 2 illustrates a cross section of the cut-out after the deposited metal is oxidized, the oxide coating being indicated at 3.

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

1. An electric cut-out comprising a metal base and a film of another metal substantially all of said film being oxidized.
2. An electric cut-out comprising a nickel base having a coating of copper oxide of predetermined thickness thereon.
3. The method of producing electric cut-outs which comprises depositing upon a metal base a layer of different metal having a predetermined thickness and thereafter completely oxidizing said metal layer, whereby an oxide layer having a predetermined breakdown voltage is obtained.
4. The method of producing electric cut-outs which comprises electrolytically depositing upon a metal base a predetermined amount of a different metal and thereafter oxidizing substantially all of said deposited metal to obtain an insulating film having a desired breakdown voltage.
5. The method of producing electric cut-outs which comprises depositing upon a metal base a layer of different metal and thereafter completely oxidizing said layer by heating said cutout in the presence of an oxide.
6. The method of producing electric cut-outs which comprises depositing upon a metal base such as nickel a layer of copper and thereafter oxidizing substantially all of said copper to form an insulating layer having a predetermined breakdown strength.

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