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WOUND CAPACITOR AND METHOD OF MANUFACTURE THEREOF

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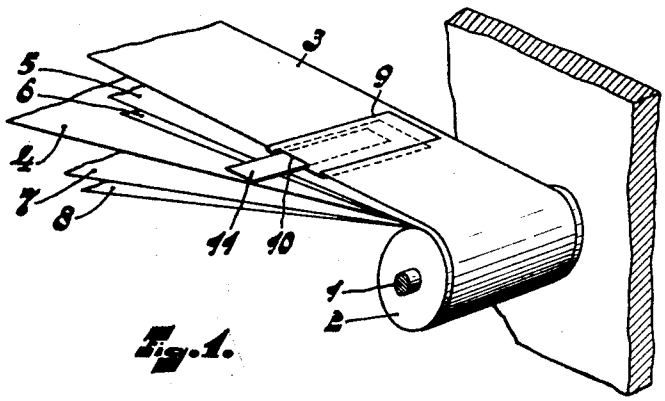


Fig. 1.



Fig. 2.

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WOUND CAPACITOR AND METHOD OF MANUFACTURE THEREOF

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6 Claims. (Cl. 317—260)

For the current supply to the coating of a wound capacitor use may be made of a strip-shaped connecting electrode which is inserted in the winding and projects therefrom at the top. It is known that, due to sharp edges of the strip the dielectric may break down at the area of the strip and it has therefore been suggested to reinforce the dielectric at that area.

The invention relates to a method of manufacturing a wound capacitor comprising one or more connecting electrodes inserted in the winding and projecting at the top and a dielectric which is reinforced at these areas.

According to the invention a folded strip of insulating material, together with a connecting electrode introduced through an aperture in the folded edge is put, by way of rider, on the edge of a portion of the coating which has not yet been wound up, during the winding of the capacitor, the connecting electrode thus coming into contact with the coating.

Thus not only the connecting electrode may be readily inserted but also the dielectric is reinforced at the area of the connecting electrode.

The connecting electrode is preferably stuck to one of the folded portions of the insulating strip. The folded strip portions may, moreover, have different lengths. If such a rider is moved transversely to the plane of the coating along the edge thereof, so that the longer of the folded portions is retained by the edge, the folded portions of the strip diverge from one another, which facilitates the introduction of the rider.

In order that the invention may be readily carried into effect, it will now be described in detail wtih reference to the accompanying drawing, in which:

Fig. 1 shows diagrammatically a wound capacitor during its manufacture according to the invention, and

Fig. 2 is part of an axial sectional view of a winding manufactured by the method according to the invention.

Referring to Fig. 1, reference numeral 1 designates a winding mandrel 1, on which a capacitor 2 is wound. The capacitor is obtained by winding up two thin strips of metal 3 and 4, for example, tin or aluminium foil, which are separated electrically from one another by two strips of dielectric material 5 and 6 and 7 and 8 respectively, wound together with the foils. The dielectric strips, which may, for example, be of paper, are slightly broader than the metal strips.

During the winding operation, a doubled dielectric strip 9 is put, by way of rider, on the edge of the coating 3. The folded edge of this strip has an aperture 10. A connecting strip 11 is introduced through this aperture, so that part of this strip is located between the parts of the strip 9, folded on one another. When arranging the rider on the edge of the coating 3, the two parts of the strip 9 being one on each side thereof, the part of the strip 11 inserted in the strip 9 comes into contact with the coating 3 and is pressed against it when the capacitor is wound up. Where the connecting strip is provided, the dielectric is reinforced on each side of the coating by the strip

9. Thus sharp edges of the connecting strip 11 are prevented from damaging the dielectric, so that concentrations of the electric field such that electrical break-down occurs are avoided.

If, as in the aforesaid case, the coatings are constituted by metal foils, it makes no difference on which side thereof the connecting strip 11 is located. If the coating is constituted by a thin metal layer on an insulating carrier, for example, a thin layer of zinc or aluminium applied by vaporisation on a strip of paper or polystyrene, provision must be made that the connecting strip is on that side of the carrier where the metal layer is provided. Before the rider is put on the coating, the connecting strip 11 may be stuck to one of the folded parts of the strip 9, so that in placing the folded strip in such a way on the carrier that the portion with the supply strip glued thereon is on the side of the coating, the desired electrical contact between the supply strip and the coating is ensured.

The proper arrangement of the folded insulating strip is facilitated and easily checked, if the doubled strip portions, as is shown in Figure 2, are of different length. For placing the insulating strip on an electrode foil or the carrier of a metallic coating in the manufacture of a condenser according to the invention the two portions of the doubled strip may be made to diverge on approach of the electrode by first letting only the part of the longer portion extending beyond the end of the shorter portion rest on the edge of the electrode foil or, as the case may be, the carrier of the coating, and thereupon slightly move the strip transversely to the plane of the electrode in the proper direction. The longer portion is held back, so that between the folded portions a space is created in which the edge of the electrode is easily inserted by proper movement of the doubled strip.

Fig. 2 shows part of the winding manufactured by the method described with reference to Fig. 1 in a sectional view taken on the connecting strip 11. The coating 3 and 4 are shown and the thicknesses of the various strips which are in direct contact with one another are shown on an exaggerated scale. The reinforcement of the dielectric, separating the two coatings 3 and 4 at the area of the connecting strip 11 is clearly shown.

What I claim is:

1. A method of manufacturing a wound capacitor comprising the steps of winding a plurality of metal strips on a mandrel, said strips being separated electrically from each other by strips of dielectric material, folding a separate strip of insulating material around one of said metal strips, said folded strip of insulating material being provided with an aperture through its folded edge, and placing a connecting electrode through said aperture and into intimate contact with an unwound portion of said one of said metal strips.

2. A method as set forth in claim 1 wherein said connecting electrode is adhered to one of the folded portions of said folded strip.

3. A method as set forth in claim 1 wherein one of said folded portions of said folded strip is longer than the other, the longer portion being caused to bear on the edge of said one of said metal strips before said connecting electrode is inserted in said aperture by moving said electrode in a direction transverse to the plane of said metal strips, and said two folded portions diverging from one another.

4. A wound capacitor comprising a plurality of thin metal strips, a plurality of dielectric strips disposed between said metal strips, all of said strips being wound into a cylindrical form, a separate strip of insulating material folded over one of said metal strips, said folded strip having an aperture therein, and a connecting electrode in said aperture having part thereof engaging said

one of said metal strips and part thereof projecting laterally from said wound capacitor.

5. A wound capacitor comprising a plurality of thin metal strips, a plurality of dielectric strips each having a greater width than said metal strips, said strips being disposed between said metal strips, all of said strips being wound into a cylindrical form, a separate strip of insulating material folded over one of said metal strips, said folded strip having an aperture therein, and a connecting electrode in said aperture having one surface thereof secured to a portion of said folded strip and another surface engaging said one of said metal strips.

6. A wound capacitor comprising a plurality of thin metal strips, a plurality of dielectric strips each having a greater width than said metal strips, said strips being disposed between said metal strips, all of said strips being wound into a cylindrical form, a separate strip of insulating material folded over one of said metal strips, said folded strip having an aperture therein and one leg longer than the other leg, and a connecting electrode in said aperture having part thereof engaging said one of said metal strips and part thereof projecting laterally from said wound capacitor.

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