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WEATHERPROOF WIRE

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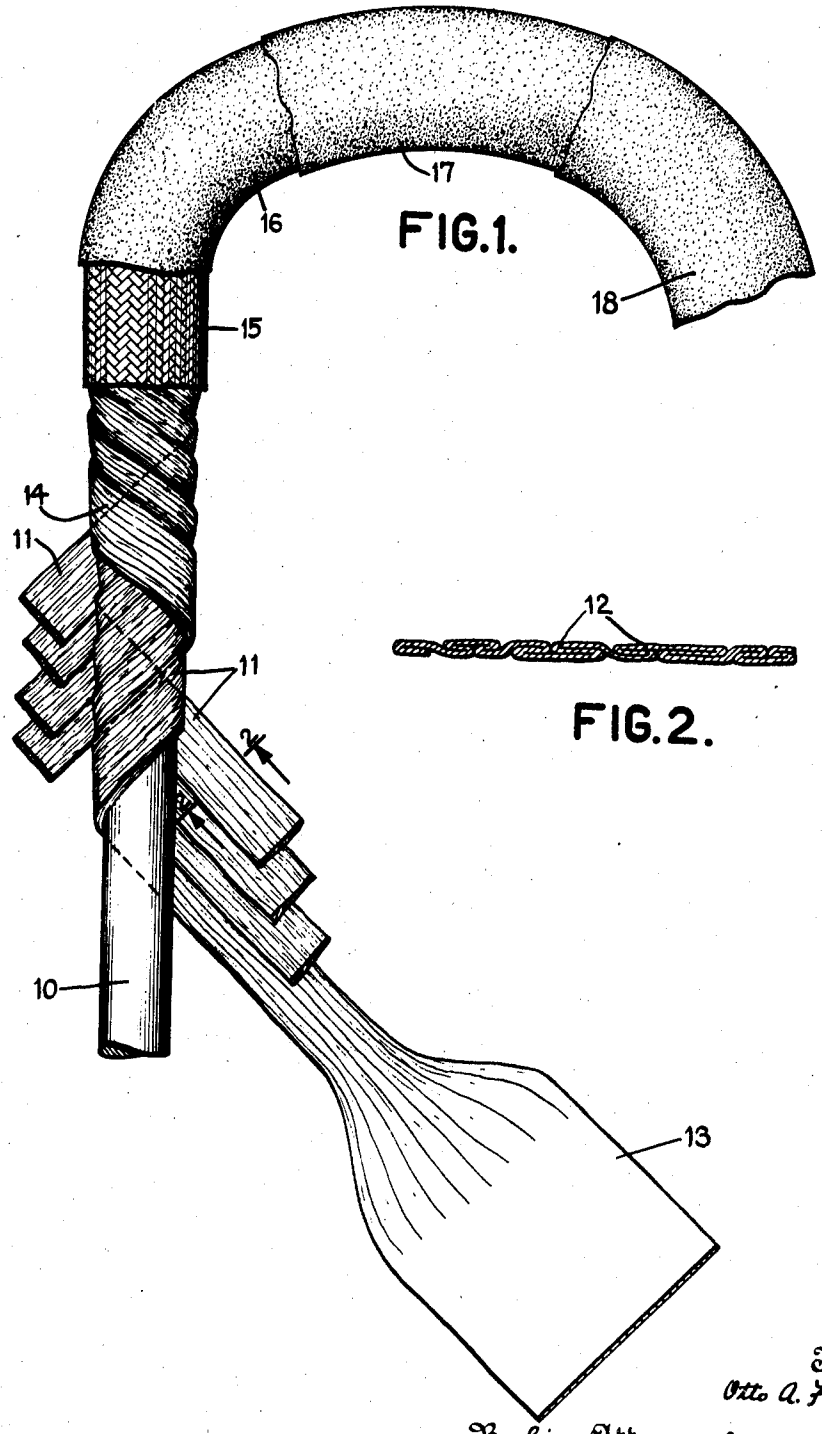


FIG. 1.

FIG. 2.

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UNITED STATES PATENT OFFICE

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WEATHERPROOF WIRE

Application filed February 7, 1930. Serial No. 426,492.

This invention relates to improvements in weather proof insulated wire.

The invention has for one of its objects the provision of an insulated wire which while having superior properties is cheaper to produce than insulated wires which have heretofore been available upon the market.

A further object of the present invention resides in the provision of an insulated wire which comprises servings of transversely crumpled paper suitably exteriorly impregnated.

Further and other objects of the present invention will be hereinafter set forth in the accompanying specification and claims and shown in the drawing, which by way of illustration show what I now consider to be a preferred embodiment of the invention.

In the drawing:

Figure 1 shows a wire incorporating my improvements; and

Fig. 2 is a detailed sectional view of one of the paper servings, the section being taken substantially on line 2—2 of Fig. 1.

Referring to Fig. 1 of the drawing, 10 represents the central conductor. In the manufacture of insulated wire there is first applied over the conductor, servings or wrappings 11. Each wrapping or serving is comprised of transversely crumpled and crinkled paper, for example, kraft paper. Fig. 2 shows the transverse crumpled configuration of the paper. The crumpled portions 12 are indiscriminately disposed as shown and are provided by transversely compacting a relatively wider strip of paper 13 (Fig. 1) into a relatively narrower but thicker wrapping. The wrappings are preferably also disposed upon the wire in two layers, one layer of wrappings 14 overlying the lower layer of wrappings 11. The wrappings of one layer also preferably extend in reversed and opposite direction with respect to the wrappings of the other layer. Preferably also the edges of adjacent wrappings in each layer overlap one another as is clearly shown in Fig. 1 with reference to the wrappings 14. It will be understood that the adjacent servings or wrappings in the lower layer similarly overlap.

After the paper servings are applied, a covering of fibrous material such as a braid 15 is applied. This braid 15 is preferably of cotton, but it may be of any fibrous material such as jute or the like. After the braid is applied in the usual braiding machine the product is ready for impregnation. 16 represents the impregnating compound.

Before impregnating, the partially fabricated product with the braid in place is placed in the drying room and thoroughly dried out in order that every particle of moisture will be withdrawn therefrom. The material is then removed from the drying room and placed in saturating tanks where it is thoroughly impregnated with an asphaltic saturant. Care is taken to prevent re-absorption of moisture after the drying operation. By preliminarily thoroughly drying the material it is possible to cause the asphaltic saturant in the saturating tanks to impregnate through the braid and also to impregnate thoroughly into the paper servings.

After the asphaltic impregnation is complete, the material is removed from the saturating tanks and run through a bath of stearine pitch to apply the stearine pitch coating 17. Finally a thin coat of wax-like material 18, preferably paraffine wax, is applied to provide an anti-stick coating. The material is then ready for use.

The final product will comprise the central conductor which is covered with the transversely crumpled paper servings thereon disposed in overlying layers with each wrapping of each layer marginally overlying an adjacent wrapping in the same layer. The wrappings will be covered with a braid and both the braid and both of the wrappings will be thoroughly impregnated with asphaltic saturating material. Over the asphaltic saturating material the stearine pitch coating will provide the desired fire retardent and flame proof properties and the insulated wire upon its exterior will have desirable anti-stick qualities.

The present application constitutes a continuation in part of my copending application Serial No. 331,694, filed January 10, 1929.

I claim:

1. An insulated wire comprising a central conductor, servings of transversely crumpled and compacted paper disposed around said conductor, said paper being substantially free of complete twists, and a braided covering without and around the paper servings, both the braid and the servings being impregnated with an asphaltic saturant.

2. The invention set forth in claim 1 in which a stearine pitch coating is applied over the asphaltic saturated braid and in which an anti-stick coating is applied over the stearine pitch for the purpose described.

3. The invention set forth in claim 1 in which the servings of transversely crumpled and compacted paper are disposed in a multiplicity of layers with the serving of one layer reversely and oppositely disposed with respect to the servings in the underlying layer.

4. The invention set forth in claim 1 in which each serving of transversely crumpled and compacted paper marginally overlaps at the edge of an adjacent serving.

5. An insulated wire comprising a central conductor with an insulation therefor which comprises servings of transversely crumpled and compacted crinkled kraft paper, substantially free of complete twists, with the crumpled portions indiscriminately disposed with respect to one another and with a braiding around and without the paper servings and including an asphaltic saturant which exteriorly impregnates through the braiding thoroughly into the paper servings.

6. A weather proof wire having a central conductor and a multiplicity of coverings therefor, the outer covering comprising a braided fabric covering and the inner coverings comprising convolutions of compacted crinkled transversely crumpled paper substantially free of complete twists, impregnating material in said coverings, and a further covering of pitch like material over said outer braided fabric covering, said pitch like material having a relatively higher melting point than the melting point of the interior impregnating compounds for the purpose described.

7. A weather proof insulated wire having a multiplicity of layers of wrappings thereon, each of said wrappings comprising compacted crinkled paper substantially free of complete twists, said wrappings being also impregnated with an impregnating compound, and a covering for such layers comprising stearin pitch which has a relatively high melting point.

8. A weather proof insulated wire having an insulation comprised of a multiplicity of layers which are impregnated with an asphaltic impregnating compound having a melting point of substantially 150° F., certain of said layers comprising convolutions of compacted crinkled paper substantially free of complete twists, and a further outer covering of stearin pitch which has a melting point of 200° F. to resist external heat and to retain in the inner covering the asphaltic impregnating compound.

9. A weather proof wire comprising a central conductor, a wrapping therefor comprising convolutions of crinkled compacted paper substantially free of complete twists, each convolution overlapping an adjacent convolution, another like wrapping over the first also comprised of convolutions of crinkled compacted paper material and with the convolutions laid reversely to the convolutions of the first mentioned wrapping, a braided covering over the aforesaid wrapping to protect the same and retain the same in position, and means in said wrappings and braided covering to impregnate the same.

10. A weather proof insulated wire comprising a central conductor, an insulation therearound comprising an impregnated paper wrapping formed of crinkled compacted paper substantially free of complete twists and having adjacent convolutions overlapping each other at the edges, an impregnated braid covering said paper wrapping and having a coating of stearin pitch thereover for the purpose described.

11. A weather proof insulated wire comprising a central conductor having disposed therearound a layer of convolutions of crinkled compacted paper with adjacent convolutions overlapping each other at the edges, a second insulating layer over the aforesaid layer also comprised of convolutions of crinkled compacted paper with adjacent convolutions overlapping each other at the edges, a braided covering over the aforesaid paper insulating layers, an asphaltic saturant impregnating said paper layers and braided covering, and a stearin pitch coating over the outer impregnated braiding for the purpose described.

12. A weather proof insulated wire having a central conductor and an outer braided covering of braid coated with stearin pitch, said insulated wire having within the aforesaid braided covering and serving with it as the sole insulation of the central conductor an asphaltically impregnated covering wrapping, said wrapping comprising convolutions of crinkled compacted paper substantially free of complete twists, to provide flexibility of the wrapping upon bending and to provide for thorough saturation of the wrapping by the asphalt.

13. A weather proof wire in which there is a central conductor and in which the insulation of said conductor is comprised solely of multiple layers of impregnated paper wrappings of compacted crinkled paper disposed next adjacent the central conductor and in which the insulation also comprises an outer

impregnated braid, said paper being substantially free of complete twists, and said braid serving to keep both of the paper wrappings in both layers in place and about the conductor.

14. A weather proof insulated wire having a central conductor and an outer braided covering of braid coated with stearin pitch, said insulated wire having within it convolutions of asphaltically impregnated crinkled compacted paper which serve with the coated braid to comprise the sole insulation of the wire, said paper being substantially free of complete twists.

15. A weather proof wire comprising in combination with the central conductor and an insulating and weather proof covering therefor comprising a fibrous wrapping of crinkled compacted paper about said conductor saturated with asphaltic impregnating material, another crinkled compacted paper wrapping about the first mentioned wrapping also saturated with asphaltic impregnating material, said paper being substantially free of complete twists, a braiding about said wrappings likewise saturated with asphaltic material and serving to hold the crinkled compacted paper wrappings in place and a further outer pitch like covering comprised of a stearine pitch composition which has a relatively higher melting point than that of the asphaltic material for the purpose described.

In testimony whereof I hereto affix my signature.

OTTO A. FREDERICKSON.