

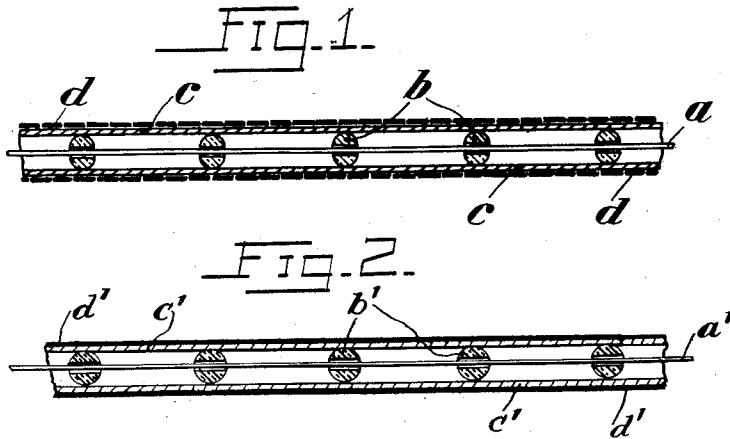
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CONDUCTING WIRE

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UNITED STATES PATENT OFFICE

1,939,552

CONDUCTING WIRE

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3 Claims. (Cl. 173—265)

The present invention relates to an insulated conducting wire with a conducting outer cover, said conducting outer cover being separated from the interior conductor by means of insulating distance pieces forming an air insulation between the inner and the outer conductors. In known arrangements of this kind, where the exterior or outer conductor is formed by a metallic tube, the latter has been placed directly on the distance pieces. This arrangement entails the danger that, especially when bending such a combined conductor the exterior conductor may come into contact with the interior conductor at certain points. This danger is increased if, instead of employing a more or less rigid tube for the exterior conductor such of a more pliable nature, or less rigid in themselves are used, as e. g. spiral wires, joint-ring construction, metallic net-work and the like.

In order to obviate this drawback in accordance with the invention, a special insulating cover, preferably such of fibrous material, is disposed between the air insulation and the exterior conductor, said special insulating cover being supported by the distance pieces. When employing a pliable insulating cover between the exterior conductor and the distance pieces for the interior conductor, the exterior conductor may be of any desired shape and kind and may also be quite loose and soft, or it may consist of extremely thin metal, without the least risk of a contact between the interior and exterior conductor. In contradistinction to arrangements also known, where the interior conductor is directly surrounded by a cover of a fibrous material, upon which the exterior conductor has been placed directly, the object of the present invention embodies the advantage, that in this case an essentially stouter or stronger insulating layer may be provided between the interior and the exterior conductor, than it would be economically possible in the known arrangement.

Two examples of execution of the object of the invention have been shown schematically in the accompanying drawing Fig. 1 showing a longitudinal section through a piece of the insulated conducting wire in accordance to the first example and Fig. 2 showing a corresponding sectional view for the second example.

In Fig. 1 of this drawing *a* indicates an interior conductor of very small cross section, e. g. .3 mm. On the latter beads *b* of wood, glass or the like have been strung up, having an external diameter of 4 mm. for example. Above the beads *b* the normal high quality insulation *c* for in-

stance of varnished or impregnated cotton, has been placed, whilst the latter is surrounded by the wire netting *d* forming the external conductor.

In Fig. 2 the parts *a'*, *b'* and *c'* perfectly correspond to the parts *a*, *b* and *c* of Fig. 1. *d'* is a thin, pliable metal coating on the flexible varnished tubular insulator *c'*, said thin metal coating being formed for example by a metal spraying process.

The employment of varnished fibrous tubings as insulating cover is particularly favourable. Wire wrappings or wire nettings will find a good seat thereon and nevertheless remain very easily pliable, such wire wrappings or the like at the same time forming a protection for the insulating cover. Instead of the wire wrappings, wire nettings or the like, the varnished fibrous tubings may also be metallized, e. g. by means of a metal spraying process, by galvanizing them or the like. Also other metal coatings of extreme thinness, such as metal films may be used for that purpose. The pliable insulating cover of varnished fibrous material, being supported by the distance pieces, affords increased security, even with stronger electric tensions, to the interior conductor against the exterior conductor also in any bendings and displacements which may take place.

The construction in accordance with the present invention allows of new possibilities of application, particularly where small dimensions are required in the construction of apparatus, and the exterior conductor may be employed for any desired purpose in connection therewith, e. g. for screening against the influence of external tensions and electro-magnetic fields. The conductivity of the screening cover does not always require to be a particularly perfect one; in certain circumstances even the lesser conductivity of semi-conductors or the like will suffice.

Having now particularly described and ascertained the nature of our said invention, we declare that what we claim is:—

1. A plural conductor comprising an interior flexible conducting wire, a concentric exterior flexible tubular conductor, insulating distance pieces on said interior wire for holding said concentric flexible exterior conductor at a distance from said interior wire, and a solid varnished fibrous tubular insulator between said distance pieces and said exterior conductor.

2. A plural conductor comprising an interior conducting wire, a concentric exterior tubular conductor formed of pliable wire netting, insulating distance pieces on said interior wire for

holding said concentric exterior conductor at a distance from said interior wire, and a solid varnished fibrous tubular insulator between said distance pieces and said exterior conductor.

- 5 3. A plural conductor comprising an interior flexible conducting wire, insulating distance pieces on said interior wire, a solid flexible var-

nished fibrous tubular insulator surrounding said distance pieces, and an exterior conductor consisting of a thin pliable metal coating on said flexible varnished tubular insulator.

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