

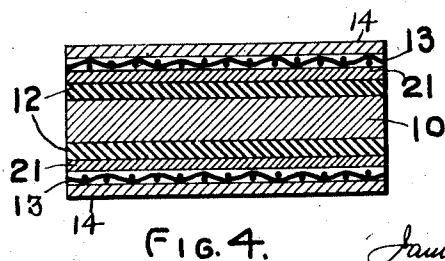
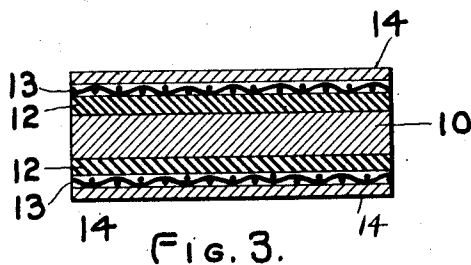
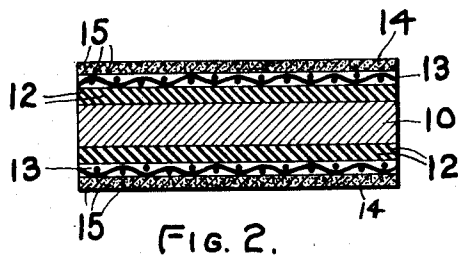
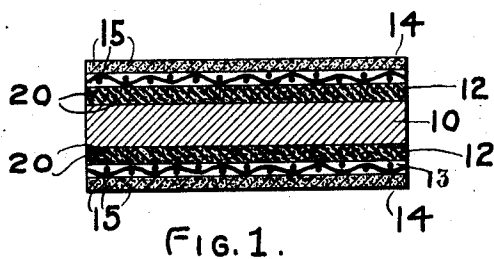
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J. H. YOUNG

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INSULATED ELECTRIC CONDUCTOR

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UNITED STATES PATENT OFFICE

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INSULATED ELECTRIC CONDUCTOR

Application filed December 24, 1929. Serial No. 416,267.

This invention relates to an electric wire or conductor and particularly to an electric wire or conductor having a colorless or light-colored exterior surface, and capable of being used in the wiring systems of buildings, houses, and like structures.

The present invention has for its object to produce a substantially odorless, flame-resisting and waterproof electric conductor or wire and particularly a substantially odorless and light-colored, flame-resisting and waterproof wire or conductor.

To this end I preferably employ as the base of the improved wire or conductor, a wire now commonly constructed and known to me and consisting of a metal wire or core having thereon a covering or tube of rubber or other insulating material and an outer covering of fibrous material, usually of cotton, which is braided upon the insulating covering, and provide the braided fibrous covering with a substantially odorless, flame-resisting and waterproof exterior layer or coating, preferably of chlorinated diphenyl or poly-phenyl, either alone or mixed with other bodies, as will be described, whereby a durable, substantially odorless, flame-resisting and waterproof wire or conductor of light or dark color may be obtained.

Additional flame-resisting properties may be imparted to the electric conductor, by associating with the rubber insulating body a flame-resisting material, which may be chlorinated diphenyl or poly-phenyl or stearin pitch.

These and other features of this invention will be pointed out in the claims at the end of this specification.

Fig. 1 is a longitudinal section on an enlarged scale of a piece of an electric conductor embodying this invention;

Figs. 2, 3 and 4, like sections of modified forms of electric conductor embodying the invention.

Referring to the drawing and particularly to Fig. 3, 10 represents a metal wire or core provided with a tube or covering 12 of rubber or other electrical insulating material, which is surrounded by a braided covering 113 of fibrous material, preferably cotton, but which

may be paper or other material commonly used on insulated electric conductors or wires.

An insulated electric conductor or wire comprising the metal wire 10, rubber insulation 12 and braided covering 13 constitutes one form of code wire, which is used in wiring buildings, houses, and the like but which is capable of readily carrying or spreading fire, owing to the inflammability of the braided covering 13 and the rubber insulation 12.

The present invention has for one of its objects to provide a flame and water resisting electric conductor or wire and particularly a durable and substantially odorless, flame and water resisting wire or conductor which is colorless or light-colored on its exterior surface, so that it can be readily distinguished from the dark-colored wires or conductors associated with it in the wiring system.

To this end the braided covering 13 is provided with a coating 14 of chlorinated diphenyl either alone or mixed with pigments or coloring matter to impart to the coating a white or other light color, such as green, blue, pink or the like, which serves to distinguish the code wire from the same construction of wire or conductor provided with a black, red or other dark color on its exterior surface, which dark color may be obtained by mixing with the chlorinated diphenyl asphalt or other appropriate dark pigments or coloring matter. The coloring matter, either light or dark, is represented by the stipple 15 in Figs. 1 and 2.

The coating 14 of chlorinated diphenyl may be used in sufficient quantity to not only form an exterior coating or layer on the braided covering 13 but also to saturate the latter.

An electric wire or conductor having the exterior coating or layer 14 of chlorinated diphenyl is capable of resisting the spread of a flame lengthwise of the wire or conductor, as it will burn in the fire zone only of the flame, and as a result, such electric conductors or wires are especially adapted for use in the wiring systems of buildings, houses, and the like, as in case of fire especially when the latter is due to a fault in the wiring, the spread of the flame lengthwise of the wire or con-

ductor is resisted by the chlorinated diphenyl coating 14.

Furthermore, the flame-resisting coating of chlorinated diphenyl is durable, waterproof and substantially odorless and therefore is not objectionable when used in dwelling houses.

The chlorinated diaphenyl coating may be used alone or it may be mixed with asphalts, waxes, resins, and the like, and may have incorporated in it any desired coloring matter.

When it is desired to produce a flame-resisting wire or conductor which is white or other light color, chlorinated diphenyl alone or mixed with paraffin or other colorless wax may be used and white or other light-colored pigments or coloring matter may be incorporated with or affixed to the outer surface of the colorless chlorinated diphenyl.

The proportions may be varied within limits and good results may be obtained by using seventy per cent. of the chlorinated diphenyl and thirty per cent. of the clear wax.

As stated above the white or light-colored pigments may be admixed with the colorless chlorinated diphenyl alone or mixed with clear waxes before the chlorinated diphenyl is applied to the braided covering 13, or the the wire after being provided with the chlorinated diphenyl coating may be drawn through a body of light-colored pigment and have the latter affixed thereto in sufficient quantity to impart the light color desired.

Additional fire-resisting properties may be imparted to the flame-resisting wire by associating with the insulating tube 12 a fire-resisting material which may be chlorinated diphenyl or stearin pitch, which may be mixed with the rubber composition, as represented in Fig. 1, wherein the additional fire-resisting material incorporated with the rubber or other insulating tube 12 is represented by the stipple 20, or said flame-resisting material may be associated with the insulating body 12 as a separate layer 21 on the outside thereof, as represented in Fig. 4.

The fire-resisting material incorporated in the rubber or other insulating material comprising the tube 12 may be from five to fifty per cent. of the rubber.

By the term "chlorinated diphenyl" as used in the claims, it is desired to include chlorinated poly-phenyls or mixtures of chlorinated diphenyl and poly-phenyls.

The term "poly-phenyl" as used herein is employed to designate those higher-boiling point products, which are produced when diphenyl is formed by passing benzol vapors over heated catalysts under pressure, and which are commonly known to the industry as "high boilers" of poly-phenyls, the exact composition of which is at present unknown, but which react with chlorine to form chlorinated products similar to chlorinated diphenyl.

The term "diphenyl" as used herein is employed to identify the organic compound or group in which two benzene nuclei are directly united together in contradistinction to those compounds in which the term diphenyl is used to indicate in the compound the presence of two phenyl groups (C_6H_5) attached to some nucleus other than benzene.

The chlorinated diphenyl is not only flame and water resisting but it is durable in that it does not evaporate readily and further is substantially odorless and therefore is not objectionable on account of odor.

What is claimed is:

1. A flame-resisting electric conductor comprising a metal core, an enveloping tube of insulating material on said core, a braided fibrous covering on said insulating tube, and a coating of chlorinated diphenyl on said braided covering.

2. A flame-resisting electric conductor comprising a metal core, an enveloping tube of insulating material on said core, a braided fibrous covering on said insulating tube, and a colored coating of chlorinated diphenyl on said braided covering.

3. A flame-resisting electric conductor comprising a metal core, an enveloping tube of insulating material on said core, a braided fibrous covering on said insulating tube, and a light-colored coating of chlorinated diphenyl on said braided covering.

4. A flame-resisting electric conductor comprising a metal core, an enveloping tube of insulating material and flame-resisting material, a braided covering of fibrous material on said tube, and a coating of chlorinated diphenyl on said braided covering.

5. An electric conductor having an insulated metallic core and an exterior surface of chlorinated diphenyl.

In testimony whereof, I have signed my name to this specification.

JAMES HOWARD YOUNG.