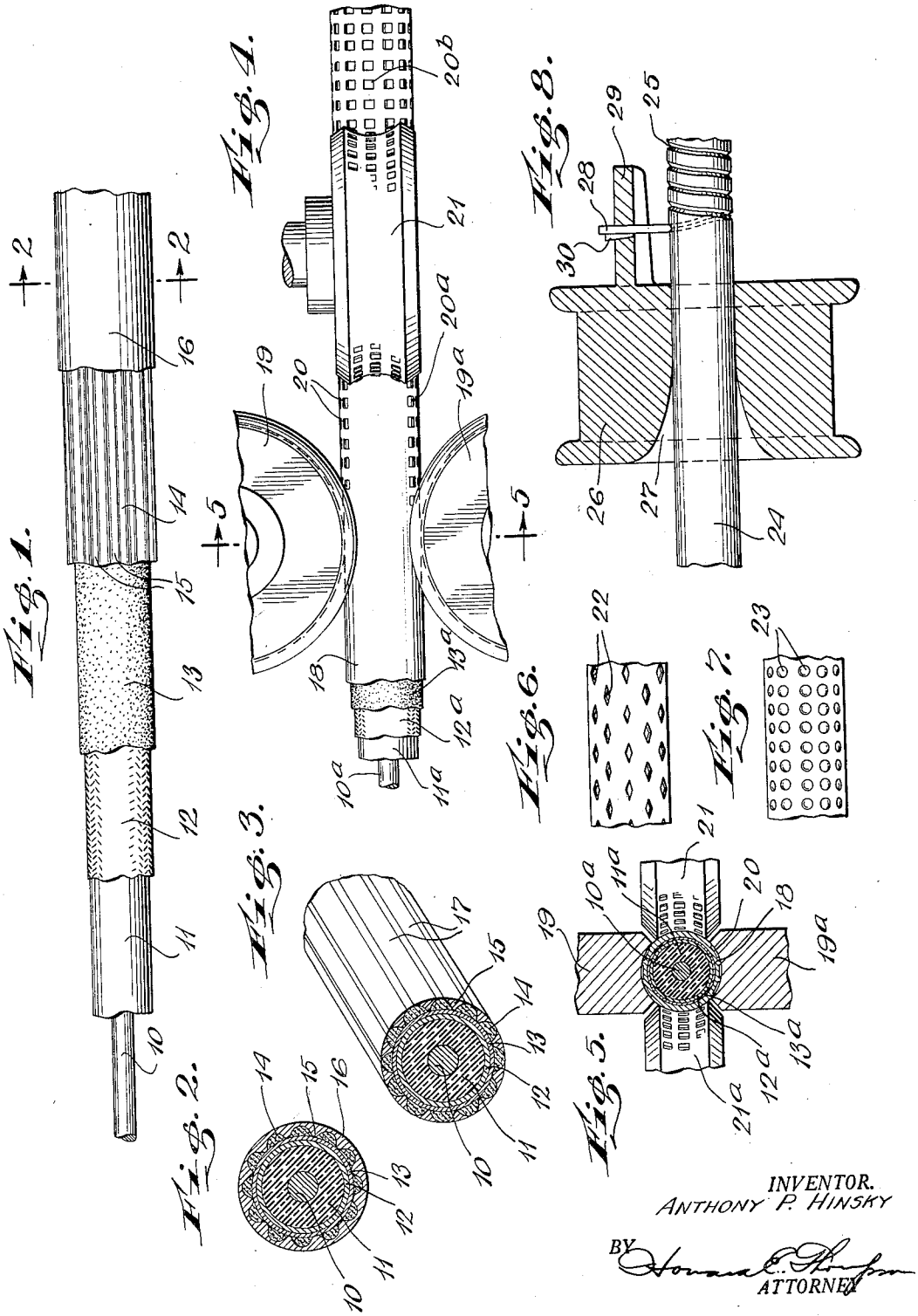
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METHOD OF PRODUCING ELECTRIC CONDUCTORS

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METHOD OF PRODUCING ELECTRIC CONDUCTORS

Anthony P. Hinsky, Brooklyn, N. Y., assignor, by mesne assignments, to Pyro Products Corporation, Brooklyn, N. Y., a corporation of New York

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10 Claims. (Cl. 18—13)

This invention relates to novel means of coating electric conductors or other strand bodies to produce predetermined designs or ornamental effects therein in addition to equalizing the distribution of a coating to the strand body as well as in the method of applying and treating the coating; and the object of the invention is to provide a simple, practical and effective method of applying and treating a coating of the class described so as to produce predetermined ornamental effects therein, and at the same time, to equalize the distribution of the coating on the strand body; a further object being to provide an insulating conductor with a coating deposit arranged thereon so as to produce different or contrasting designs or appearance so as to distinguish one conductor from the other or to distinguish the product of one manufacturer from the other; a still further object being to provide an insulated conductor wherein the coating is so applied as to form recesses or channels between the deposits of the coating on the conductor, which recesses or channels may be exposed to an undercoating or layer of insulation on the conductor to facilitate the arrangement of other coatings thereon; and still further, so as to produce different color effects in the finished product in addition to the different ornamental designs; and with these and other objects in view, the invention consists in an electric conductor or other strand produced as hereinafter more fully described and claimed.

The invention described and claimed herein is a division of a prior application filed by me May 3, 1932, and bearing Serial Number 608,933, and is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which

Fig. 1 is a diagrammatic view of an electric conductor showing one method of applying a coating thereto.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a sectional and perspective view of a modified form of coating which I employ.

Fig. 4 is a view similar to Fig. 1 showing another form of coating and method of applying the same.

Fig. 5 is a partial section on the line 5—5 of Fig. 4.

Figs. 6 and 7 are side views of modified designs which may be formed in the coating; and,

Fig. 8 illustrates diagrammatically another method of characterizing the coating.

While it has been customary in this art to apply various types of coating material to insulated conductors and other strand bodies, such for example as fire repellant and waterproofing coatings or colored coatings, to give predetermined color value to the product, in which uses, paints, compounds, lacquers and other materials have been employed, these coatings have been applied by dipping or submerging the same in a vat or tank or by brushing or spraying, the surplus of the coating being removed by wiping or other means which have proven unsatisfactory for the reason that uneven deposits of the coating were formed on the insulated conductor or other strand body, and oftentimes, bare or uncoated spots, sections or lines would appear. In all cases, to the best of my knowledge, these coatings have been applied without thought of even distribution or of giving character or design to the product.

In a companion application, filed by me May 3, 1932, and bearing Serial Number 608,932, I have shown, described and claimed a method of applying a coating to an electric conductor or strand body in the manner illustrated in Figs. 1 to 3 of this application. In the present case, the invention is claimed primarily in the characterization of the coating to produce contrasting, ornamental effects or designs in the coating as well as to facilitate the application of other coatings or in producing multi-colored coatings, and still further to the method herein disclosed for characterizing the coating material.

In Fig. 1 of the drawing, I have shown the coating material applied to an electric conductor in accordance with the method described in companion application Serial Number 608,932. In said figure, 10 represents an electric wire; 11 a body of rubber; 12 a braided fibrous jacket; and 13 a saturant or other compound applied to the jacket or with which the jacket is impregnated, it being understood that the fibres of the jacket may or may not be visible through the compound 13, and in fact, one or more compounds may be applied upon the jacket.

At 14, I have shown a coating material applied to the treated jacket 12 in the form of longitudinal rib-like bodies, all of substantially the same thickness to provide an even distribution of the coating on the conductor and to form recesses 15 on the conductor between said ribs. In some uses of the invention, these recesses are of such depth as to expose the treated jacket 12 or the coating 13 thereon in order to permit an outer coating 16 to engage the jacket or compound and adhere thereto, especially when the outer coating

16 is composed of a compound or material, the solvent of which is not common with the solvent for the coating in the ribs 14. Otherwise, the necessity of exposing the fibrous jacket 12 or the compound or saturant 13 thereon is not necessary.

When the ribbed coating 14 is of predetermined color and this color is to be visible externally of the conductor, the outer coating 16 will be of a transparent nature such as shellac, varnish or a transparent wax. In this connection, it will be understood, however, that it is not essential that the outer coating 16 be employed, as the conductor may remain with the protruding ribs thereon or other ornamental design as later described, and this outer contour will reduce the bearing surface of the conductor and facilitate drawing the conductors through outer casings or housings in what is known as "fishing" the conductor.

In Fig. 3 of the drawing, I have shown a slight modification wherein I have substituted for the outer coating 16 a filler coating 17 which merely fills the recesses 15 and forms other longitudinal rib-like representations externally of the conductor. In this construction, it may be desirable in some instances to employ in the filler coating 17 a colored base contrasting to that of a color base employed in the rib coatings 14 so as to produce a multi-colored outer finished coating. At this time, it will also be understood that the same process referred to in connection with the illustration in Fig. 3 of the drawing may be applied to the structures shown in Figs. 4, 6, 7 and 8 of the drawing or in connection with any other design or contour employed in the formation of the outer coating of the conductor. It will be understood that in all cases, I may, if desired, employ a final outer coating of transparent or substantially transparent material, except only where it is desired to utilize the characterized coating solely as a binder and means of equal distribution of another coating on the conductor in the manner illustrated in Fig. 2 of the drawing.

In Figs. 4 and 5 of the drawing, I have shown another method of applying a characterized coating to an insulated conductor. In these figures, 10*a* represents the wire; 11*a* the rubber body; 12*a* the fibrous jacket; and 13*a* the saturant or other compound on the jacket. At 18, I have shown a coating consisting of any suitable compound, paint, lacquer or other material applied to the treated jacket 12*a*.

In the process of characterizing the coating 18, the conductor thus formed is passed first through two opposed roller dies 19, 19*a*, having characterized concave surfaces conforming with the contour of the conductor and so shaped as to form a multiplicity of longitudinally and circumferentially spaced rectangular recesses 20, 20*a*, on opposed faces of the conductor. Other similar rollers 21, 21*a*, are arranged at right angles to the rollers 19, 19*a*, and form intermediate the series of recesses 20, 20*a*, corresponding recesses 20*b* so as to provide as indicated in Fig. 4 of the drawing, a substantially equal spacing of the rectangular recesses through the circumference of the conductor and longitudinally thereof. The recesses may be shallow or if desired, may penetrate through the entire thickness of the coating 18 so as to expose the fabric jacket 12*a* or the compound 13*a* applied thereto for the purposes hereinbefore stated.

At this time, it will be understood that my invention is not necessarily limited to applying the recesses of any given contour to the entire circumference of the conductor as a single row or series of rows may be arranged longitudinally of the conductor or spirally thereon so as to be visible from any side of the conductor within a given length. It will also appear that my invention is not limited to an accurate alinement of the recesses or other markings regardless of the contour thereof.

In Fig. 6 of the drawing, I have shown a slight modification wherein diamond-shaped recesses 22 are substituted for the rectangular recesses shown in Fig. 4, whereas in Fig. 7, I have shown circular recesses 23. In this connection, it will also be apparent that instead of forming recesses of predetermined contour on the conductor, the characterized elements may be in the form of projecting bodies or members as in the illustration shown in Fig. 2 of the drawing, it being understood that suitable dies or other means will be employed to remove the coating circumferentially of the conductor as well as longitudinally thereof. In this connection, it will be apparent that circumferential grooves alone may be formed in the coating as diagrammatically illustrated in Fig. 8 of the drawing, in which figure, 24 represents the coating in which are formed spiral grooves 25. In said figure, I have indicated a rotatable die 26 having a tapered opening 27 into and through which the coated conductor is passed for smoothing out the coating prior to forming the grooves 25 therein by a shaping tool 28 carried on a projecting arm 29 on said die. The tool 28 is supported in different positions of adjustment by a wedge piece 30 or in any other desired manner.

From the foregoing, it will be apparent that my invention is not limited to the use of any particular type or construction of roller, rotary or drawing dies in shaping or characterizing the coating applied to the conductor, and that the characters of the coating to give different designs or appearances thereto are in fact unlimited. For the purpose of description, it may be said that the raised portions of the coating forming the designs constitute raised areas or sections, whereas the recesses formed therebetween are recessed areas. As stated, these areas may produce various ornamental effects.

While I have shown and described certain forms of coatings and method of producing the same, it will be apparent that my invention is not limited in these respects, and various other changes in and modifications of the construction herein shown and described and the method herein defined may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The herein described method of coating insulated electric conductors which consists in applying to the insulated conductor deposits of a compound coating of substantially even thickness circumferentially and longitudinally of the conductor, leaving recesses of desired contour between said deposits with said recesses spaced circumferentially and longitudinally of the conductor producing a desired ornamental effect on the finished product.

2. The herein described method of coating insulated electric conductors which consists in applying to the insulated conductor deposits of a compound coating of substantially even thickness circumferentially and longitudinally of the conductor, leaving recesses of desired contour be-

tween said deposits with said recesses spaced circumferentially and longitudinally of the conductor producing a desired ornamental effect on the finished product, and then filling the recesses of the conductor with another coating material.

3. The herein described method of coating insulated electric conductors which consists in applying to the insulated conductor deposits of a compound coating of substantially even thickness circumferentially and longitudinally of the conductor, leaving recesses of desired contour between said deposits with said recesses spaced circumferentially and longitudinally of the conductor producing a desired ornamental effect on the finished product, and then filling the recesses of the conductor with another coating material and covering said compound with said coating material.

4. The herein described method of coating insulated electric conductors which consists in first treating the insulation of the conductor with a water and flame repellant saturant, then applying a compound coating to the treated conductor by arranging the compound on the conductor in spaced deposits of even thickness forming recesses exposing the outer surface of the conductor between said compound deposits.

5. The herein described method of coating insulated electric conductors which consists in first treating the insulation of the conductor with a water and flame repellant saturant, then applying a compound coating to the treated conductor by arranging the compound on the conductor in spaced deposits of even thickness forming recesses in the outer surface of the conductor between said compound, and then filling said recesses with another compound of a color value contrasting to that of the first compound.

6. The herein described method of coating insulated electric conductors which consists in first applying a coating to the insulated conductor, then passing the conductor thus treated through forming means to remove part of the coating material from certain areas of the conductor to produce recesses therein through which the conductor is exposed and predetermined ornamental effects on the finished product.

7. The herein described method of producing electric conductors which consists in first applying insulating coverings to a wire, treating the coverings with a water and flame repellant saturant, then applying a colored opaque compound to the conductor thus formed, then shaping and distributing the compound on the conductor to centralize the conductor within the compound and to form recesses in said compound coating, and then filling the recesses with another coating material.

8. The herein described method of producing electric conductors which consists in first applying insulating coverings to a wire, treating the coverings with a water and flame repellant saturant, then applying a colored opaque compound to the conductor thus formed, then shaping and distributing the compound on the conductor to centralize the conductor within the compound and to form recesses in said compound coating, and then filling the recesses with another coating material, said last named coating material comprising a colored opaque compound arranged in the recesses only of said first compound.

9. The herein described method of producing electric conductors which consists in first applying insulating coverings to a wire, treating the coverings with a water and flame repellant saturant, then applying a colored opaque compound to the conductor thus formed, then shaping and distributing the compound on the conductor to centralize the conductor within the compound and to form recesses in said compound coating, said recesses exposing the covering of the conductor therethrough, and then applying another compound to the conductor to enter said recesses and contacting with the covering within said recesses.

10. The herein described method of applying a coating to an elongated strand which consists in passing the strand through forming means for applying even thickness deposits of a colored opaque compound at circumferentially spaced intervals and so as to form on said strand recesses between said deposits, and then filling said recesses with another compound to provide in the resulting product a substantially even thickness compound coating on said strand.

ANTHONY P. HINSKY.