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I. W. EDWARDS

2,207,090

COMPOSITE ELECTRIC CABLE

Filed March 26, 1938

FIG. 1.

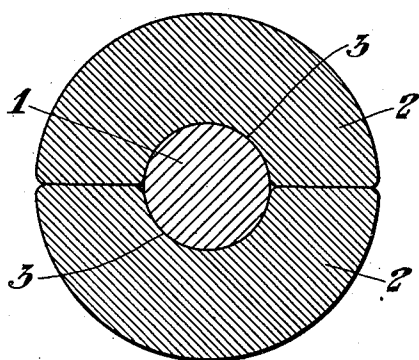


FIG. 2.

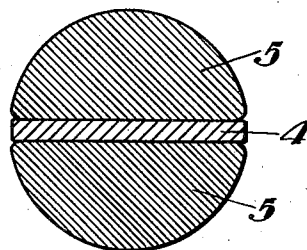
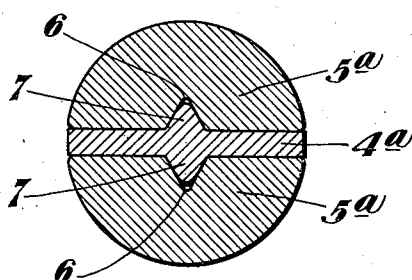


FIG. 3.



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COMPOSITE ELECTRIC CABLE

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Application March 26, 1938, Serial No. 198,312

1 Claim. (Cl. 174—128)

This invention relates to composite electric cables, one of the objects being to provide a relatively inexpensive cable of this type which will properly perform its function and adequately meet service conditions to which such cables are subjected.

Generally speaking, a composite electric cable embodying the principles of the invention will include a center wire and a plurality of wires helically laid over this center wire, the second named wires having their inside surfaces shaped to fit the center wire and their outside surfaces shaped to cooperatively provide a substantially cylindrical cable exterior. This center wire can be made of galvanized steel and the other wires made of copper, this arrangement shielding the galvanized surface of the steel wire against mechanical injury.

Specific examples of the above are illustrated by the accompanying drawing, in which Figure 1 is a cross-section of one example; Figure 2 is a cross-section of another example; and, Figure 3 is a cross-section of still another example.

More specifically, the above show a cylindrical steel wire 1 that is galvanized to protect it against corrosion, and two copper wires 2 helically laid over this wire 1. The wires 2 have their inside surfaces shaped, as at 3, to fit the center wire 1 and their outside surfaces shaped semi-cylindrically to cooperatively provide a substantially cylindrical cable exterior. The wire 1 should have sufficient cross-section to support the wires 2 and the latter should have sufficient cross-section to carry the electric power for which the cable is designed. The wires 2 are retained on the wire 1 by reason of their being formed to the helical configurations they acquire when helically laid over the center wire.

In Figure 2 a twisted flat strip 4 of galvanized

steel takes the place of the round wire 1 of the first example, the copper wires 5 being of semi-cylindrical form and helically laid over the twisted strip 4. The twist of the steel strip and the helical lay of the semi-cylindrical copper wires preserve the cable integrity.

The third example, shown by Figure 3, has grooves 6 formed in the flat faces of semi-cylindrical copper wires 5^a, the latter being laid in tight contact with a galvanized steel flat strip 4^a having ridges 7 fitting in the grooves 6. These grooves should be slightly deeper than the ridges are high to assure the flat faces of the wires firmly engaging the strip. Otherwise, this example is the same as the others.

A further feature of the invention consists in making or processing the various wires so that they all have physical characteristics providing the same percentages of elongation regardless of their differences respecting elastic limits and tensile strengths. An exemplary way of accomplishing this is by giving a lesser number of cold drawing drafts to the hard drawn copper wire used, whereby to bring its elongation to about the same as steel wire cold drawn to provide it with a permanent elongation under tensile stress of about 4½ per cent. The ordinary hard drawn copper wire commercially available has an elongation of only about 1½ per cent.

I claim:

A three-wire composite electric cable comprising a strip of relatively high tensile strength having at least one ridge longitudinal of each of its flat surfaces, and semi-cylindrical grooved wires of relatively softer metal but greater electrical conductivity helically and interlockingly laid over said strip, said strip being twisted about its axis.

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