

July 25, 1950

G. W. BROWN

2,516,751

IDENTIFIABLE ELECTRIC CONDUCTOR

Original Filed April 6, 1946

Fig. 1

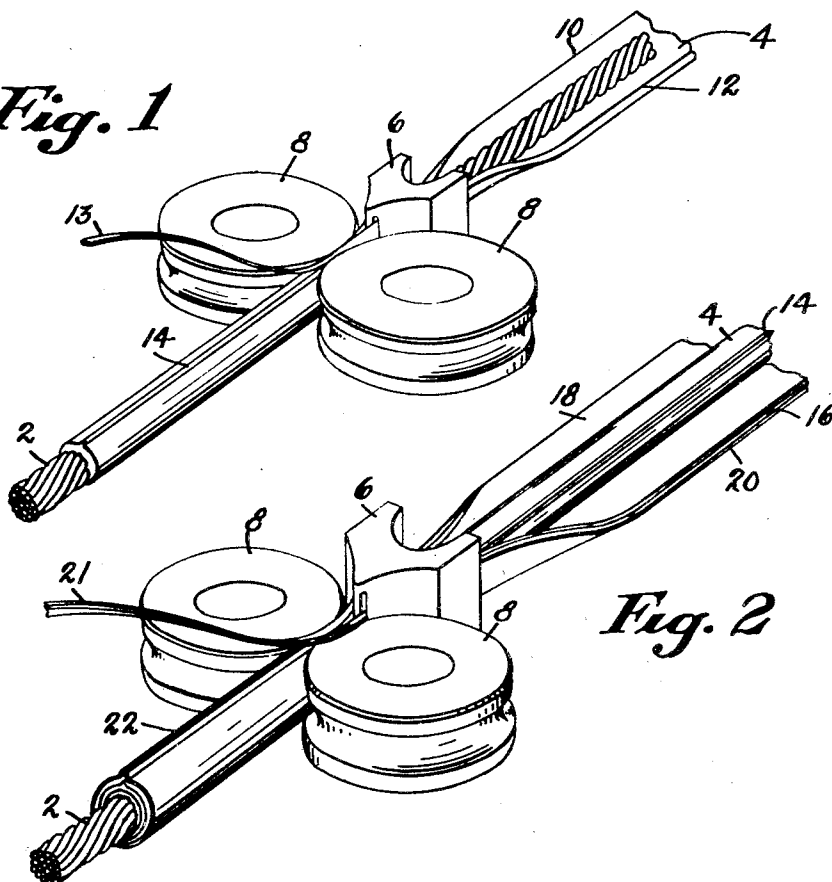


Fig. 2

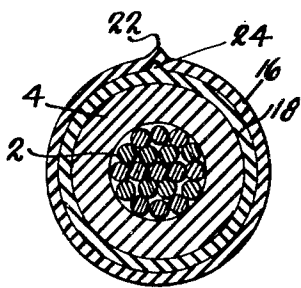


Fig. 3

INVENTOR.
GROVER W. BROWN
BY *James G. Reithell*.
ATTORNEY

UNITED STATES PATENT OFFICE

2,516,751

IDENTIFIABLE ELECTRIC CONDUCTOR

Grover W. Brown, Wyckoff, N. J., assignor to The
Okonite Company, Passaic, N. J., a corporation
of New Jersey

Original application April 6, 1946, Serial No.
660,086. Divided and this application Septem-
ber 24, 1947, Serial No. 775,823

2 Claims. (Cl. 174-112)

1

This invention is directed to an improvement in insulated electric cables and has for an object to provide a cable construction in which phase identification is made easy.

I appreciate, of course, that for phase identification the insulation of the various phases may be colored. It has been found, however, that, where this has been done, the colors, being exposed, soon fade so that one may not be distinguishable from another, or for some other reason the use of colors in this fashion is unsatisfactory. In general, an all-black cable assembly is preferred.

It is an object of my invention to provide a cable free of the objections referred to, yet of such construction that the various phases may readily be identified.

Generally speaking, I provide a cable construction wherein a colored stratum or layer is provided just beneath the outer surface of the cable, so that, simply by cutting or scraping away a small area of the cable surface, this colored stratum will be exposed and phase identification promoted. It will be appreciated that by positioning the colored stratum beneath the cable surface, danger of the color flaking off or fading is completely eliminated.

More specifically, the present invention provides for the application of a continuous layer of insulation to a conductor by passing the conductor and a tape-like strip of insulation through a suitable die and rollers which fold the insulation strip about the conductor, the two opposed surfaces of the strip being brought together forming a ridge extending longitudinally of the cable, the excess material being pinched off and reclaimed. The insulation is applied before vulcanization of the cable, and the process is, of course, continuous.

The number of insulating layers applied in this fashion depends upon the characteristics of the cable being manufactured. In some cases, one layer is sufficient, while in other instances several may be required.

Under the present invention, however, the application of an outer layer of some sort is essential. For clarity of description, the outer layer of my improved cable will be referred to herein as a sheath. It may or may not constitute a substantial part of the cable insulation. That is to say, it may or may not be highly insulating. The first function may be as a mechanical protector for the cable.

Between this sheath and the cable insulation I employ a colored stratum of material.

2

The sheath is prepared with a tin backing, and the colored stratum is then calendered or deposited on the surface of the sheath compound. Then this prepared strip is folded around the cable longitudinally, the colored surfaces near the outer edges are pressed together by a pair of profile wheels, forming a well bonded seam of black sheath compound, with the colored stratum squeezed to a very thin layer extending part way through the seam but not entirely to the surface.

To check a phase of such a cable, it is merely necessary to scrape or cut away a small area of the sheath ridge until the color is exposed.

In the accompanying drawing:

Fig. 1 is an isometric view showing the first stage of the manufacture of my improved cable.

Fig. 2 is a similar view showing the final stage of the manufacture of my improved cable; and

Fig. 3 is a cross section of the finished cable.

Referring to the drawing in detail, 2 designates the cable conductor.

In the manufacture of my cable, this conductor, together with unvulcanized insulating strip 4, is passed through suitable die 6 and profile wheels 8 to fold the insulating strip 4 tightly about the conductor, the two opposed edge surfaces at 10 and 12 being brought together to form a slight ridge 14, which extends continuously longitudinally of the cable. This operation may be performed once or several times, depending upon the thickness of insulating wall desired.

The insulating material employed may be unvulcanized rubber compound or other unvulcanized plastic material, many of which are well known in the electric cable industry. The excess material in this operation is pinched off, as seen at 13 and reclaimed.

The assembly thus produced is then passed through the die 6 and profile wheels 8, together with a strip of unvulcanized but vulcanizable material 16, which is to constitute what I have termed a sheath, this strip 16 being backed with tin 20 and faced with a stratum 18 of colored material calendered thereto.

The colored stratum 18 is preferably of the same kind of material as the sheath material 16.

This composite strip, as will be understood, is pre-formed.

In passing through the die and the profile wheels, the composite strip is folded around the insulation 4 and its opposed edge surfaces pinched together to form a continuous longitudinal ridge 22 on the cable surface, the excess material shown at 21 being pinched off.

In this sheath-applying operation, the opposed

3

edge surfaces of the colored stratum 18 are squeezed together and forced outwardly in a very thin layer, as shown at 24, into the ridge 22. I have found, however, that the colored material does not come to the surface of the ridge 22, although it extends into this ridge, and does not prevent obtaining a good bond between the opposed edge surfaces of the strip 16. This apparently is due to the fact that in practice the material 16 is much thicker than the colored stratum 18.

It will be appreciated that, inasmuch as the colored stratum lies beneath the cable surface throughout the length of the cable, the colored stratum is not exposed and, hence, will not fade or flake off.

The cable is finally vulcanized in the tin 20. In this operation, the several layers of material become bonded to each other. The tin 20 is then stripped off, to provide the cable shown in cross section in Fig. 3.

It will be seen from all of the foregoing that my invention provides an electric cable which is of such construction that, while color is relied upon for phase identification, the colored material normally is unexposed, so that fading or flaking are eliminated.

It will be understood, of course, that, in identifying a phase, it is necessary merely to pare, cut, or scrape away a small area of the ridge 22 to expose a small area of the colored stratum extending into this ridge.

It is to be understood that changes may be made in the details of construction and the procedure described without departing from the spirit and scope of my invention.

This application is a division of my co-pending application Serial No. 660,086, filed April 6, 1946, now abandoned.

4

What I claim is:

1. An electric cable comprising a conductor, insulation about the same, a sheath of vulcanized material faced with a colored stratum vulcanized thereto disposed about the insulation with the colored stratum adjacent the insulation, a ridge extending continuously along the surface of the said sheath, the colored stratum extending into this ridge but lying wholly beneath the surface of the same, the insulation and sheath being vulcanized to each other.

2. An electric cable comprising, in combination, a conductor; insulation about the same; a sheath of material disposed about the insulation; a colored stratum intermediate the said insulation and said sheath; and a ridge, integral with the sheath, extending continuously along the surface of the sheath parallel to the conductor axis; the colored stratum extending into this ridge but lying wholly beneath its surface, the colored stratum being vulcanized to the cable insulation and to said sheath.

GROVER W. BROWN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,686,782	Wodtke	Oct. 9, 1928
1,956,951	Hinsky	May 1, 1934
1,968,903	Norton	Aug. 7, 1934
2,409,539	Brown	Oct. 15, 1946

FOREIGN PATENTS

Number	Country	Date
387,626	England	Feb. 9, 1933
499,908	England	Jan. 31, 1939
417,247	England	July 1, 1933